APPENDIX 11-J

National Pollutant Discharge Elimination System Permit

Permit No. 0028193

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

In Reply Refer to: WTR-5
Certified Mail:70012510000359449103
Return Receipt Requested

MAR - 5 2008

Mr. Dennis Vaughn
Environmental Specialist
BHP Navajo Coal Company
P.O. Box 1717
Fruitland, NM 87416

Re: Issuance of NPDES Permit NN0028193; BHP Navajo Mine

Dear Mr. Vaughn:

Enclosed is the final re-issuance of the National Pollutant Discharge Elimination System (NPDES) permit for the BHP Navajo Mine, along with the accompanying Fact Sheet and Response to Comments document. The draft permit and Statement of Basis were public noticed on January 25, 2007 in the *Navajo Times*. During the comment period, EPA received one set of comments, representing the combined interests of the San Juan Citizens Alliance, Diné Citizens Against Ruining our Environment, and the Clean Air Task Force.

Within 33 days of this notice, any person who filed comments on the proposed permit conditions may petition the Environmental Appeals Board (EAB) to review the conditions of the permit. The petition shall include a statement of the reasons supporting that review, including a demonstration that any issues being raised were raised during the public comment period and a showing that the condition in question is based on: (1) a finding of fact or conclusion of law which is clearly erroneous, or (2) an exercise of discretion or an important policy consideration which the EAB should, in its discretion, review. See 40 C.F.R. §§ 124.19(a) and 124.20(d).

40 C.F.R. § 124.60 (b)(1) states that, as provided in 40 C.F.R. § 124.16 (a), if an appeal of an initial permit decision is filed under Section 124.19 of this Part, the force and effect of the contested conditions of the final permit shall be stayed until final agency action under 40 C.F.R. § 124.19 (f). In accordance with 40 C.F.R. § 124.16 (a)(1), "[i]f the permit involves a . . new source, new discharger or a recommencing discharger, the applicant shall be without a permit for the proposed new . . . source or discharger pending final agency action." Please review 40 C.F.R. § 124 and the revisions at 65 Fed. Reg. 30886 for a complete description of the requirements regarding appeal of NPDES permits.

If you have any questions regarding the procedures outlined above, or if you would like to review or request any documents from the Administrative Record, please contact me at (415)

972- 3420 or contact John Tinger of my staff at (415) 972-3518 or e-mail at Tinger.John@epa.gov.

Sincerely,

John Tinger

for Douglas E. Eberhardt
Chief, NPDES Permits Office

Enclosures (3):
Final Permit
Statement of Basis
Response to Comments document

CC: w/attachments
Mr. Patrick Antonio
Navajo Nation EPA
P.O. Box 339
Window Rock, AZ 86515

Ms. Brenda Steele (w/ attachments)
Office of Surface Mining Reclamation and Enforcement
1999 Broadway, Suite 3320
P.O. Box 46667
Denver, CO 80201-6667

Ms. Carrie Marr (w/o attachments)
U.S. Fish and Wildlife Service
2321 West Royal Palm Road, Suite 103
Phoenix, AZ 85021-4951

Ms. Rita Whitehorse-Larsen (w/o attachments)
The Navajo Nation: Department of Fish & Wildlife
Navajo Natural Heritage Program
P. O. Box 1480
Window Rock, Arizona

Mr. Mike Eisenfeld (w/ attachments)
San Juan Citizens Alliance
108 North Behrend, Suite I
Farmington, NM 87402

Ms. Lori Goodman (w/ attachments)
Diné Care
1022 Main Avenue
Durango, CO 81302

Mr. Jeffrey Stant (w/ attachments)
10 West Main, Suite 104
Cortez, CO 81321

Permit No NN0028193

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, as amended, 33 U.S.C. 1251 et seq., (the "Act"),

BHP Billiton Navajo Coal Company
P.O. Box 1717
Fruitland, New Mexico 87416-1717

is authorized to discharge from a facility located at Navajo Mine, 6 miles southwest of Farmington, San Juan County, New Mexico,

Latitude: 36° 42' - 43' N
Longitude: 108° 24' - 25' W

to receiving waters named Morgan Lake, the Chaco River, and the San Juan River, in accordance with effluent limitations, monitoring requirements and other conditions set forth herein, and in the attached EPA Region 9 "Standard Federal NPDES Permit Conditions," dated June 3, 2002.

This permit shall become effective on: April 7, 2008.

This permit and the authorization to discharge shall expire at midnight, April 6, 2013.

Signed this 5th day of March, 2008.

For the Regional Administrator

Alexis Strauss

Alexis Strauss, Director
Water Division

SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. OUTFALL NOs. 004, 006, 007, 008, 011, 013, 016, 19: Mine Drainage

During the period beginning on the effective date of this permit and lasting through date of expiration, the permittee is authorized to discharge mine drainage from Outfall Numbers 004, 006, 007, 008, 011, 013, 016 and 019 to the Chaco River.

Such discharges shall be limited and monitored by the permittee as specified below. Samples shall be collected prior to mixing with other waste source stream and/or discharge to surface waters.

Table 1: Mine Drainage Effluent Limitations and Monitoring Requirements

Effluent Parameter	Units	Daily Average	Daily Maximum	Monitoring Frequency (1)	Sampling Type
Flow	MGD	- -	- -	Once/Day (2)	Calculated
Total Suspended Solids (TSS)	mg/l	35	70	1/occurrence	Discrete
Iron, total	mg/l	3.5	7	1/occurrence	Discrete
Arsenic	mg/l	--	--	1/occurrence (3),(4)	Discrete
Boron	mg/l	--	--	1/occurrence (3),(4)	Discrete
Cadmium	mg/l	--	--	1/occurrence (3),(4)	Discrete
Lead	mg/l	--	--	1/occurrence (3),(4)	Discrete
Selenium	mg/l	--	--	1/occurrence (3),(4)	Discrete
Sulfate	mg/l	--	--	1/occurrence (3)	Discrete
Total Dissolved Solids (TDS)	mg/l	--	--	1/occurrence (3)	Discrete
pH	std. units	between 6.0 to 9.0		1/occurrence	Discrete

NOTES:

(1) Samples shall be taken once during each occurrence or once every 24 hours if the duration of the occurrence is greater than 24 hours.
(2) Based upon pumping rates.
(3) Monitoring only. No set effluent-based limits.
(4) Measure both total and dissolved constituent.

2. OUTFALL NO. 002 - Coal Storage, Coal Preparation and Ancillary Area Runoff

During the period beginning on the effective date of this permit and lasting through date of expiration, the permittee is authorized to discharge from Outfall Number 002.

Such discharges shall be limited and monitored by the permittee as specified below. Samples shall be collected prior to mixing with any other waste source stream and/or discharge to surface waters. Outfall No. 002 discharges to Morgan Lake. Minor releases of water from the irrigation line for routine maintenance and winterization are specifically excluded from the provisions of this NPDES permits.

Table 2: Coal Storage, etc Effluent Limitations and Monitoring Requirements

Effluent Parameter	Units	Average Monthly	Daily Maximum	Monitoring Frequency (1)	Sampling Type
Flow	MGD	- -	- -	Once/Day (2)	Calculated
Total Suspended Solids (TSS)	mg/l	35	70	1/occurrence	Discrete
Iron, total	mg/l	3.5	7	1/occurrence	Discrete
Manganese, total	mg/l	2	4	1/occurrence	Discrete
Arsenic	mg/l	--	--	1/occurrence (3),(4)	Discrete
Boron	mg/l	--	--	1/occurrence (3),(4)	Discrete
Cadmium	mg/l	--	--	1/occurrence (3),(4)	Discrete
Lead	mg/l	--	--	1/occurrence (3),(4)	Discrete
Selenium	mg/l	--	--	1/occurrence (3),(4)	Discrete
Sulfate	mg/l	--	--	1/occurrence (3)	Discrete
Total Dissolved Solids (TDS)	mg/l	--	--	1/occurrence (3)	Discrete
pH	std. units	between 6.0 to 9.0		1/occurrence	Discrete

NOTES:

(1) Samples shall be taken once during each occurrence or once every 24 hours if the duration of the occurrence is greater than 24 hours.

(2) Based upon pumping rates.

(3) Monitoring only. No set effluent-based limits

(4) Measure both total and dissolved constituent.

3. <u>OUTFALL NOs. 001, 009, 010, 017, and 018: Western Alkaline reclamation, brushing and grubbing, topsoil stockpiling, and re-graded areas.</u>

During the period beginning on the effective date of this permit and lasting through date of expiration, the permittee is authorized to discharge from Outfall Numbers 001, 009, 010, 017 and 018.

Such discharges shall be limited and monitored by the permittee as specified below. The permittee must:

a) submit a site-specific Sediment Control Plan for EPA approval demonstrating that implementation of the Sediment Control Plan will result in average annual sediment yields that will not be greater than the sediment yield levels from pre-mined, undisturbed conditions. The Sediment Control Plan shall, at a minimum, identify Best Management Practices (BMPs), including design specifications, construction specifications, maintenance schedules, criteria for inspection, and expected performance and longetivity of the BMPs.

b) demonstrate using watershed models that the implementation of the Sediment Control Plan will result in average annual sediment yields that will not be greater than the sediment yield levels from pre-mined, undisturbed conditions. The watershed model must be the same model that is being used to acquire the permittee's SMCRA permit.

c) design, implement, and maintain the BMPs in the manner specified in the approved Sediment Control Plan throughout the term of this permit.

As existing outfalls defined in this permit as "alkaline mine drainage" are reclaimed, the approved Sediment Control Plan may be updated to incorporate the newly reclaimed outfalls. A revised Sediment Control Plan and revised watershed model must be submitted to EPA and approved by EPA before it becomes effective. Revisions to the Sediment Control Plan must meet all requirements contained at 40 CFR Part 434.82, and 100% of the drainage area to an outfall must meet the definition of "western alkaline reclamation, brushing and grubbing, topsoil stockpiling, and regraded areas" (as defined at 40 CFR 434.80) to be considered for coverage. EPA's approval of an updated Sediment Control Plan and reclassification of an existing outfall from "alkaline mine drainage" to a reclaimed area will be considered a minor modification to the permit.

SECTION B. GENERAL DISCHARGE SPECIFICATIONS

All Waters of the Navajo Nation shall be free from pollutants in amounts or combinations that, for any duration:

1 . Cause injury to, are toxic to, or otherwise adversely affect human health, public safety, or public welfare.

2 . Cause injury to, are toxic to, or otherwise adversely affect the habitation, growth, or propagation of indigenous aquatic plant and animal communities or any member of these communities; of any desirable non-indigenous member of these communities; of waterfowl accessing the water body; or otherwise adversely affect the physical, chemical, or biological conditions on which these communities and their members depend.

3. Settle to form bottom deposits, including sediments, precipitates and organic materials, that cause injury to, are toxic to, or otherwise adversely affect the habitation, growth or propagation of indigenous aquatic plant and animal communities or any member of these communities; of any desirable non-indigenous member of these communities; of waterfowl accessing the water body; or otherwise adversely affect the physical, chemical, or biological conditions on which these communities and their members depend.

4 . Cause physical, chemical, or biological conditions that promote the habitation, growth, or propagation of undesirable, non-indigenous species of plant or animal life in the water body.

5. Cause solids, oil, grease, foam, scum, or any other form of objectionable floating debris on the surface of the water body; may cause a film or iridescent appearance on the surface of the water body; or that may cause a deposit on a shoreline, on a bank, or on aquatic vegetation.

6. Cause objectionable odor in the area of the water body.

7. Cause objectionable taste, odor, color, or turbidity in the water body.

8. Cause objectionable taste in edible plant and animal life, including waterfowl, that reside in, on, or adjacent to the water body.

SECTION C. BEST MANAGEMENT PRACTICES

The permittee shall review and update their Storm Water Pollution Prevention Plan (SWPPP). The permitee shall develop enhanced good housekeeping provisions to their SWPPP to address onsite storm water management from coal and coal combustion byproducts and the protection of surface waters. The SWPPP shall, at a minimum, incorporate the following provisions:

a. Residue Hauling Vehicles. Inspect all residue hauling vehicles for proper covering over the load, adequate gate sealing and overall integrity of the container body. Repair as soon as practicable, vehicles without load covering or adequate gate sealing, or with leaking containers or beds.

b. Areas Adjacent to Disposal Pits and Minefills. Describe and implement measures that prevent or minimize contamination of surface runoff from areas adjacent to disposal pits and minefills. Develop procedures to reduce ash residue that may be tracked on the access roads traveled by residue handling vehicles, and reduce ash residue on exit roads leading into and out of residue handling areas.

The permitee shall submit revised SWPPP to the permitting authority within three months of permit issuance for EPA review.

SECTION D. PERMIT REOPENER

Should any of the monitoring indicate that the discharge causes, has the reasonable potential to cause, or contributes to excursions above water quality criteria, the permit may be reopened for the imposition of water quality based limits and/or whole effluent toxicity limits. Also, this permit may be modified, in accordance with the requirements set forth at 40 CFR Parts 122.44 and 124.14, to include appropriate conditions or limits to address demonstrated effluent toxicity based on newly available information, or to implement any EPA-approved new Tribal water quality standards.

SECTION E. MONITORING AND REPORTING

1. Reporting of Monitoring Results

Monitoring results shall be reported on Discharge Monitoring Report ("DMR") forms (EPA No. 3320-1) to be supplied by the EPA Regional Administrator, to the extent that the information reported may be entered on the forms. The results of all monitoring required by this permit shall be submitted in such a format as to allow direct comparison with the limitations and requirements of the permit.

a. Monitoring results obtained during the previous year shall be summarized for each month and submitted on forms to be supplied by the EPA Regional Administrator, to the extent that the information reported may be entered on the forms. The results of all monitoring required by this permit shall be submitted in such a format as to allow direct comparison with the limitations and requirements of the permit. Unless otherwise specified, discharge flow shall be reported in terms of the average flow over that 30 day period. These reports are due January 28 of each year. Duplicate signed copies of these, and all other reports required herein, shall be submitted to the Regional Administrator at the following addresses:

Environmental Protection Agency
Attn: WTR-7
75 Hawthorne Street
San Francisco, CA 94105

Navajo Nation EPA
P.O. Box 339
Window Rock, AZ 86515

b. For effluent analyses, the permittee shall utilize an EPA-approved analytical method with a Method Detection Limit (MDL) that is lower than the effluent limitations (or lower than applicable water quality criteria if monitoring is required but no effluent limitations have been established.) MDL is the minimum concentration of an analyte that can be detected with 99% confidence that the analyte concentration is greater than zero, as defined by the specific laboratory method listed in 40 CFR Part 136. The procedure for determination of a laboratory MDL is in 40 CFR Part 136, Appendix B.

c. If all published MDLs are higher than the effluent limitations (or applicable criteria concentrations), the permittee shall utilize the EPA-approved analytical method with the lowest published MDL.

d. The permittee shall develop a Quality Assurance (QA) Manual/QA Plan. The

purpose of the QA Manual is to assist in planning for the collection and analysis of samples and explaining data anomalies if they occur. As appropriate and applicable, the QA Manual shall include the details enumerated below. The QA Manual shall be retained on the permittee's premises and be available for review by USEPA or Navajo Nation EPA upon request. The permittee shall review its QA Manual annually and revise it when appropriate. Throughout all field sampling and laboratory analyses, the permittee shall use quality assurance/quality control (QA/QC) procedures as documented in their QA Manual.

i. Project Management including roles and responsibilities of the participants; purpose of sample collection; matrix to be sampled; the analytes or compounds being measured; applicable technical, regulatory, or program-specific action criteria; personnel qualification requirements for collecting samples.

ii. Sample collection procedures; equipment used; the type and number of samples to be collected including QA/QC samples (i.e., background samples, duplicatives, and equipment or field blanks); preservatives and holding times for the samples (see 40 CFR Part 136.3).

iii. Identification of the laboratory to be used to analyze the samples; provisions for any proficiency demonstration that will be required by the laboratory before or after contract award such as passing a performance evaluation sample; analytical method to be used; required QC results to be reported (e.g., matrix spike recoveries, duplicate relative percent differences, blank contamination, laboratory control sample recoveries, surrogate spike recoveries, etc.) and acceptance criteria; and corrective actions to be taken by the permittee or the laboratory as a result of problems identified during QC checks.

iv. Discussion of how the permittee will perform data review and requirements for reporting of results to USEPA or Navajo Nation EPA to include resolving of data quality issues and identifying limitations on the use of the data.

e. Sample collection shall be performed as stated in the QA Manual. The QA Manual shall include a discussion on the preservation and handling, preparation and analysis of samples as described in the most recent edition of 40 CFR Part 136.3, unless otherwise specified in this permit.

2. Monitoring and Records

Records of monitoring information shall include:

a. Date, exact location, and time or sampling or measurements performed, preservatives used;
b. Individual(s) who performed the sampling or measurements;
c. Date(s) analyses were performed;
d. Laboratory(ies) which performed the analyses;
e. Analytical techniques or methods used;
f. Any comments, case narrative or summary of results produced by the laboratory. These should identify and discuss QA/QC analyses performed concurrently during sample analyses and should specify whether they met project and 40 CFR Part 136 requirements. The summary of results must include information on initial and continuing calibration, surrogate analyses, blanks, duplicates, laboratory control samples, matrix spike and matrix spike duplicate results, sample receipt condition, holding times, and preservation.
g. Summary of data interpretation and any corrective action taken by the permittee.
h. Effluent limitations for analytes/compounds being analyzed.

3. Twenty Four-Hour Reporting of Noncompliance

The permittee shall report any compliance which may endanger human health or the environment. This information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances to the following persons or their offices:

CWA Compliance Office Chief
USEPA (415) 972-3505
&
Navajo Nation EPA
Attn: Patrick Antonio
(520) 871-7185

If the permittee is unsuccessful in contacting the person above, the permittee shall report by 9 a.m. on the first business day following the noncompliance. A written submission shall also be provided within five (5) days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including dates and times, and, if the noncompliance has not been corrected, the time it is expected to continue; and steps or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

SECTION F. INSPECTION AND ENTRY

The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and such other documents as may be required by law, to perform inspections under authority of Section 10: Inspection and Entry of the EPA Region 9 "Standard Federal NPDES Permit Conditions," dated June 3, 2002, as attached.

SECTION G. DEFINITIONS

The following definitions shall apply unless otherwise specified in the permit:

1. "Discrete sample" means any individual sample collected in less than 15 minutes.

2. "Daily discharge" means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar for purposes of sampling. For pollutants with limitations expressed in terms of mass, the "daily discharge" is calculated as the total mass of the pollutant discharges over the sampling day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the sampling day. "Daily discharge" determination of concentration made using a composite sample shall be the concentration of the composite sample. When grab samples are used, the "daily discharge" determination of concentration shall be the arithmetic average (weighted by flow value) of all samples collected during that sampling day.

3. "Daily average" discharge limitation means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.

4. "Daily maximum" concentration means the measurement made on any single discrete sample of composite sample.

5. "Daily maximum" mass limit means the highest allowable "daily discharge" by mass during any calendar day.

6. A "composite sample" means, for flow rate measurements, the arithmetic mean of no fewer than 4 individual measurements taken at equal intervals for one hour or for the duration of discharge, whichever is shorter. A composite sample means, for other than flow rate measurements, a combination of 4 individual portions obtained at equal time intervals for 4 hours or for the duration of the discharge, whichever is shorter. The volume of each individual portion shall be directly proportional to the discharge flow rate at the time of sampling. The sampling period shall coincide with the period of maximum discharge flow.

7. A "monthly or weekly average" concentration limitation means the arithmetic mean of

consecutive measurements made during a calendar month or weekly period, respectively.

8. A "monthly or weekly average" mass limitation means the total discharge by mass during a calendar monthly or weekly period, respectively, divided by the number of days in the period that the facility was discharging. Where less than daily sampling is required by this permit, the monthly or weekly average value shall be determined by the summation of all the measured discharges by mass divided by the number of days during the monthly or weekly period when the measurements were made.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

CWA STANDARDS AND PERMITS OFFICE (WTR-5)

STANDARD FEDERAL NPDES PERMIT CONDITIONS

Updated as of June 3, 2002
Reference: CFR 40 Parts 100 to 135, July 1, 2001

1. DUTY TO REAPPLY [40 CFR 122.21 (d)]

The permittee shall submit a new application 180 days before the existing permit expires. 122.2(c)(2) POTW's with currently effective NPDES permits shall submit with the next application the sludge information listed at 40 CFR 501.15(a)(2).

2. APPLICATIONS [40 CFR 122.22]

(a) All permit applications shall be signed as follows:

(1) For a corporation. By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

(i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or

(ii) The manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

(2) For a partnership or sole proprietorship. By a general partner or the proprietor, respectively; or

(3) For a municipality, State, Federal, or other public agency. By either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes: (i) The chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

(b) All reports required by permits, and other information requested by the Director shall be signed by a person described in paragraph (a) of this section, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described in paragraph (a) of this section;

(2) The authorization specifies either an individual or position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position

having overall responsibility for environmental matters for the company, (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) and,

(3) The written authorization is submitted to the Director.

(c) Changes to authorization. If an authorization under paragraph (b) of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (b) of this section must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.

(d) Certification. Any person signing a document under paragraph (a) or (b) of this section shall make the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

3. DUTY TO COMPLY [40 CFR 122.41(a)]

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

(1) The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.

(2) The Clean Water Act provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed $25,000 per day for each violation. The Clean Water Act provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than 1 year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than 2 years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than 3 years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than 6 years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318, or 405 of the Act, or any permit condition of limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at the time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both.

An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions.

(3) Any person may be assessed an administrative penalty by the Administrator for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000.

4. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE [40 CFR 122.41(c)]

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

5. DUTY TO MITIGATE [40 CFR 122.41(d)]

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

6. PROPER OPERATION AND MAINTENANCE [40 CFR 122.41(e)]

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

7. PERMIT ACTIONS [40 CFR 122.41(f)]

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

8. PROPERTY RIGHTS [40 CFR 122.41(g)]

This permit does not convey any property rights of any sort, or any exclusive privilege.

9. DUTY TO PROVIDE INFORMATION [40 CFR 122.41(h)]

The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Director upon request, copies of records required to be kept by this permit.

10. INSPECTION AND ENTRY [40 CFR 122.41(i)]

The permittee shall allow the Director, or an authorized representative (including an authorized contractor acting as a representative of the Administrator), upon presentation of credentials and other documents as may be required by law, to:

(1) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must kept under the conditions of this permit;

(2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

(3) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

(4) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

11. MONITORING AND RECORDS [40 CFR 122.41(j)]

(1) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

(2) Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.

(3) Records of monitoring information shall include:

(i) The date, exact place, and time of sampling or measurements;

(ii) The individual(s) who performed the sampling or measurements;

(iii) The date(s) analyses were performed;

(iv) The individual(s) who performed the analyses;

(v) The analytical techniques or methods used; and

(vi) The results of such analyses.

(4) Monitoring results must be conducted according to test procedures approved under 40 CFR part 136 or, in the case of sludge use or disposal, approved under 40 CFR part 136 unless otherwise specified in 40 CFR part 503, unless other test procedures have been specified in the permit.

(5) The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both.

12. SIGNATORY REQUIREMENT [40 CFR 122.41(k)]

(1) All applications, reports, or information submitted to the Director shall be signed and certified. [See 40 CFR 122.22]

(2) The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

13. REPORT REQUIREMENTS [40 CFR 122.41(l)]

(1) Planned changes. The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

(i) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in Sec. 122.29(b); or

(ii) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under Sec. 122.42(a)(1).

(iii) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan;

(2) Anticipated noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(3) Transfers. This permit is not transferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Clean Water Act. (See Sec. 122.61; in some cases, modification or revocation and reissuance is mandatory.)

(4) Monitoring reports. Monitoring results shall be reported at the intervals specified elsewhere in this permit.

(i) Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Director for reporting results of monitoring of sludge use or disposal practices.

(ii) If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR part 136 or, in the case of sludge use or disposal, approved under 40 CFR part 136 unless otherwise specified in 40 CFR part 503, or as specified in the permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Director.

(iii) Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.

(5) Compliance schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

(6) Twenty-four hour reporting.

(i) The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

(ii) The following shall be included as information which must be reported within 24 hours under this paragraph.

(a) Any unanticipated bypass which exceeds any effluent limitation in the permit. (See Sec. 122.41(g).)

(b) Any upset which exceeds any effluent limitation in the permit.

(c) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in the permit to be reported within 24 hours. (See Sec. 122.44(g).)

(iii) The Director may waive the written report on a case-by-case basis for reports under paragraph (l)(6)(ii) of this section if the oral report has been received within 24 hours.

(7) Other noncompliance. The permittee shall report all instances of noncompliance not reported under paragraphs (l) (4), (5), and (6) of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph (l)(6) of this section.

(8) Other information. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, it shall promptly submit such facts or information.

14. <u>BYPASS</u> [40 CFR 122.41(m)]

(1) Definitions.

(i) Bypass means the intentional diversion of waste streams from any portion of a treatment facility.

(ii) Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

(2) Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs (m)(3) and (m)(4) of this section.

(3) Notice.

(i) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.

(ii) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in paragraph (l)(6) of this section (24-hour notice).

(4) Prohibition of bypass.

(i) Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:

(a) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

(c) The permittee submitted notices as required under paragraph (m) (3) of this section.

(ii) The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in paragraph (m)(4)(i) of this section.

15. <u>UPSET</u> [40 CFR 12241(n)]

(1) Definition. Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

(2) Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph (n)(3) of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

(3) Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(i) An upset occurred and that the permittee can identify the cause(s) of the upset;

(ii) The permitted facility was at the time being properly operated; and

(iii) The permittee submitted notice of the upset as required in paragraph (1)(6)(ii)(b) of this section (24 hour notice).

(iv) The permittee complied with any remedial measures required under paragraph (d) of this section.

(4) Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

16. EXISTING MANUFACTURING, COMMERCIAL, MINING, AND SILVICULTURAL DISCHARGERS [40 CFR 122.42(a)]

In addition to the reporting requirements under Sec. 122.41(1), all existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Director as soon as they know or have reason to believe:

(1) That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

(i) One hundred micrograms per liter (100 <greek-m> g/l);

(ii) Two hundred micrograms per liter (200 <greek-m> g/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 <greek-m> g/l) for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;

(iii) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with Sec. 122.21(g) (7); or

(iv) The level established by the Director in accordance with Sec. 122.44(f).

(2) That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

(i) Five hundred micrograms per liter (500 <greek-m> g/l);

(ii) One milligram per liter (1 mg/l) for antimony;

(iii) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with Sec. 122.21(g)(7).

(iv) The level established by the Director in accordance with Sec. 122.44(f).

17. PUBLICLY OWNED TREATMENT WORKS [40 CFR 122.42(b)]

This section applies only to publicly owned treatment works (POTWs) as defined at 40 CFR 122.22.

(a) All POTWs must provide adequate notice to the Director of the following:

(1) Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of CWA if it were directly discharging those pollutants; and

(2) Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.

(3) For purposes of this paragraph, adequate notice shall include information on (i) the quality and quantity of effluent introduced into the POTW, and (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

(b) [The following condition has been established by Region 9 to enforce applicable requirements of the Resource Conservation and Recovery Act] Publicly owned treatment works may not receive hazardous waste by truck, rail, or dedicated pipe except as provided under 40 CFR 270. Hazardous wastes are defined at 40 CFR 261.31 - 261.33. The Domestic Sewage Exclusion (40 CFR 261.4) applies only to wastes mixed with domestic sewage in a sewer leading to a publicly owned treatment works and not to mixtures of hazardous wastes and sewage or septage delivered to the treatment plant by truck.

(c) Municipal separate storm sewer systems. The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer that has been designated by the Director under Sec. 122.26(a)(1)(v) of this part must submit an annual report by the anniversary of the date of the issuance of the permit for such system. The report shall include:

(1) The status of implementing the components of the storm water management program that are established as permit conditions;

(2) Proposed changes to the storm water management programs that are established as permit condition. Such proposed changes shall be consistent with Sec. 122.26(d)(2)(iii) of this part; and

(3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under Sec. 122.26(d)(2)(iv) and (d)(2)(v) of this part;

(4) A summary of data, including monitoring data, that is accumulated throughout the reporting year;

(5) Annual expenditures and budget for year following each annual report;

(6) A summary describing the number and nature of enforcement actions, inspections, and public education programs;

(7) Identification of water quality improvements or degradation;

(d) Storm water discharges. The initial permits for discharges composed entirely of storm water issued pursuant to Sec. 122.26(e)(7) of this part shall require compliance with the conditions of the permit as expeditiously as practicable, but in no event later than three years after the date of issuance of the permit.

18. <u>REOPENER CLAUSE</u> [40 CFR 122.44(c)]

For any permit issued to a treatment works treating domestic sewage (including "sludge-only facilities"), the Director shall include a reopener clause to incorporate any applicable standard for sewage sludge use or disposal promulgated under section 405(d) of the CWA. The Director may promptly modify or revoke and reissue any permit containing the reopener clause required by this paragraph if the standard for sewage sludge use or disposal is more stringent than any requirements for sludge use or disposal in the permit, or controls a pollutant or practice not limited in the permit.

19. <u>PRIVATELY OWNED TREATMENT WORKS</u> [40 CFR 122.44(m)]

For a privately owned treatment works, any conditions expressly applicable to any user, as a limited co-permittee, that may be necessary in the permit issued to the treatment works to ensure compliance with applicable requirements under this part. Alternatively, the Director may issue separate permits to the treatment works and to its users, or may require a separate permit application from any user. The Director's decision to issue a permit with no conditions applicable to any user, to impose conditions on one or more users, to issue separate permits, or to require separate applications, and the basis for that decision, shall be stated in the fact sheet for the draft permit for the treatment works.

20. TRANSFERS BY MODIFICATION
[40 CFR 122.61(a)]

Except as provided in paragraph (b) of this section, a permit may be transferred by the permittee to a new owner or operator only if the permit has been modified or revoked and reissued (under Sec. 122.62 (b)(2)), or a minor modification made (under Sec.122.63(d)), to identify the new permittee and incorporate such other requirements as may be necessary under CWA.

21. AUTOMATIC TRANSFERS
[40 CFR 122.61(b)]

As an alternative to transfers under paragraph (a) of this section, any NPDES permit may be automatically transferred to a new permittee if:

(1) The current permittee notifies the Director at least 30 days in advance of the proposed transfer date in paragraph (b)(2) of this section;

(2) The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them; and

(3) The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify or revoke and reissue the permit. A modification under this subparagraph may also be a minor modification under Sec. 122.63. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph (b)(2) of this section.

22. MINOR MODIFICATIONS OF PERMITS
[40 CFR 122.63]

Upon the consent of the permittee, the Director may modify a permit to make the corrections or allowances for changes in the permitted activity listed in this section, without following the procedures of part 124. Any permit modification not processed as a minor modification under this section must be made for cause and with part 124 draft permit and public notice as required in Sec. 122.62. Minor modifications may only:

(a) Correct typographical errors;

(b) Require more frequent monitoring or reporting by the permittee;

(c) Change an interim compliance date in a schedule of compliance, provided the new date is not more than 120 days after the date specified in the existing permit and does not interfere with attainment of the final compliance date requirement; or

(d) Allow for a change in ownership or operational control of a facility where the Director determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittees has been submitted to the Director.

(e) (1) Change the construction schedule for a discharger which is a new source. No such change shall affect a discharger's obligation to have all pollution control equipment installed and in operation prior to discharge under Sec. 122.29.

(2) Delete a point source outfall when the discharge from that outfall is terminated and does not result in discharge of pollutants from other outfalls except in accordance with permit limits.

(f) [Reserved]

(g) Incorporate conditions of a POTW pretreatment program that has been approved in accordance with the procedures in 40 CFR 403.11 (or a modification thereto that has been approved in accordance with the procedures in 40 CFR 403.18) as enforceable conditions of the POTW's permits.

23. TERMINATION OF PERMITS
[40 CFR 122.64]

(a) The following are causes for terminating a permit during its term, or for denying a permit renewal application:

(1) Noncompliance by the permittee with any condition of the permit;

(2) The permittee's failure in the application or during the permit issuance process to disclose fully all relevant facts, or the permittee's misrepresentation of any relevant facts at any time;

(3) A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination; or

(4) A change in any condition that requires either a temporary or permanent reduction or elimination of any discharge or sludge use or disposal practice controlled by the permit (for example, plant closure or termination of discharge by connection to a POTW).

24. AVAILABILITY OF REPORTS
[Pursuant to Clean Water Act Section 308]

Except for data determined to be confidential under 40 CFR Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Regional Administrator. As required by the Act, permit applications, permits, and effluent data shall not be considered confidential.

25. REMOVED SUBSTANCES
[Pursuant to Clean Water Act Section 301]

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering navigable waters.

26. SEVERABILITY
[Pursuant to Clean Water Act Section 512]

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and remainder of the permit, shall not be affected thereby.

27. CIVIL AND CRIMINAL LIABILITY
[Pursuant to Clean Water Act Section 309]

Except as provided in permit conditions on "Bypass" (Section 14) and "Upset" (Section 15), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

28. OIL AND HAZARDOUS SUBSTANCE LIABILITY
[Pursuant to Clean Water Act Section 311]

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Clean Water Act.

29. STATE OR TRIBAL LAW
[Pursuant to Clean Water Act Section 510]

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the operator from any responsibilities, liabilities, or penalties established pursuant to any applicable State or Tribal law or regulation under authority preserved by Section 510 of the Clean Water Act.

FACT SHEET
BHP Billiton Navajo Coal Company - Navajo Mine
NPDES Permit No. NN0028193

Applicant address:	BHP Billiton Navajo Coal Company P.O. Box 1717 Fruitland, NM 87416-1717
Applicant contact:	Vivie Melendez, Environmental Specialist (505) 598-3284
Facility Address:	BHP Navajo Mine 6 miles southwest of Farmington, New Mexico New Mexico, San Juan County
Facility Contact:	Vivie Melendez

I. Status of Permit

The BHP Navajo Mine was initially issued the NPDES permit for the Navajo Mine by EPA on March 28, 1977. The BHP Billiton Navajo Coal Company was issued a National Pollutant Discharge Elimination System Program ("NPDES") Permit (No. NM0028193) on November 30, 2000 for the Navajo Mine. The permit became effective on December 16, 2000, and expired on December 16, 2005. On June 13, 2005, BHP filed a timely renewal of its NPDES permit for discharge of wastewater into waters of the United States. BHP also has coverage under the federal Multi-Sector General Permit for the Navajo Mine (NMR05A19F). On November 10, 2006 BHP filed a revised renewal application with updated outfall information and map showing outfall locations.

II. Background

The BHP Navajo Mine is located in Fruitland, New Mexico, San Juan County; within the northeastern portion of the Navajo Nation. The Navajo Mine lease area is divided into five areas (I-V). BHP is currently conducting surface coal mining operations, including reclamation, in areas I, II and III. Subbituminous coal beds are found within the Fruitland formation formed in Upper Cretaceous sediments. The coal produced at the Navajo Mine is supplied to the nearby APS Four Corners Power Plant. BHP is required to control all surface runoff water with the potential of being contaminated from contact with mining activities.

III. Receiving Water

All of the discharge outfalls are to receiving waters located on the Navajo Nation. The Navajo Nation Surface Water Quality Standards ("NNSWQS") were originally approved by the Resources Committee of the Navajo Nation Council on November 9, 1999. Amendments to the NNSWQS were approved by the Resources Committee on July 30, 2004. The Navajo Nation received "Treatment as a State" for the purposes of §106 and § 303 of the CWA. EPA has approved the Navajo Nation's water quality standards. Therefore, this permit incorporates NNSWQS as appropriate.

Outfalls 1 and 2 discharge to Morgan Lake, a manmade cooling pond which provides cooling water to the Four Corners Power Plant, and which discharges to the Chaco River which is a tributary to the San Juan River. Outfalls 003 - 019 discharge to the Chaco River, which is tributary to the San Juan River. Outfall 020 discharges to the San Juan River.

The designated uses of the receiving waters (Morgan Lake, Chaco River, San Juan River), as defined by the NNSWQS, are domestic water supply, primary human contact, secondary human contact, agriculture water supply, fish consumption, ephemeral warm water habitat, and livestock and wildlife watering.

IV. Description of Discharge

The discharge includes runoff from active mine areas, coal preparation plant areas, and reclamation areas. There have been only five discharge events since the previous permit was issued in December 2000. All discharges occurred at Outfall 008. The discharges were within effluent limits except for a one time TSS exceedance of 80 mg/L on September 14, 2002.

V. Regulatory Basis of Proposed Effluent Limits

Section 301(a) of the Clean Water Act provides that the discharge of any pollutant to waters of the United States is unlawful except in accordance with an NPDES permit. Section 402 of the Act establishes the NPDES program. The program is designed to limit the discharge of pollutants into waters of the U.S. from point sources (40 CFR 122.1 (b)(1)) through a combination of various requirements including technology-based and water quality-based effluent limitations.

1. Technology-based effluent limitations
   Under 40 CFR Part 125.3(c)(2), Technology based treatment requirements may be imposed on a case-by-case basis under Section 402(a)(1) of the Act, to the extent that EPA promulgated effluent limitations are inapplicable, i.e., the regulation allows the permit writer to consider the appropriate technology for the category or class of point sources and any unique factors relating to the applicant.

The discharge of wastewater from coal mines is subject to 40 CFR Part 434: Coal Mining Point Source Category BPT, BAT, BCT Limitations and New Source Performance Standards. The Navajo mine has the potential to discharge wastewater from separate sources that are subject to separate subcategories of Part 434.

A. Outfalls 004, 006, 007, 008, 011, 013, 016, 019 - Mine Drainage

These outfalls meet the definition of "alkaline, mine drainage" in 40 CFR Part 434.11(c). Therefore, the proposed permit sets limits for these outfalls in accordance with the requirements of "Subpart D - Alkaline Mine Drainage" for BPT, BCT, and BAT regulations that apply to such discharges. The proposed permit sets discharge limits for these outfalls for Iron (3.5 mg/l daily average and 7.0 mg/l daily maximum), Boron (0.750 mg/l daily average and 1.50 mg/l daily maximum), Total Suspended Solids (TSS)(35 mg/l daily average and 70 mg/l daily maximum), and pH (no less than 6.0 or greater than 9.0 standard pH units). These requirements are consistent with the previous permit.

B. Outfalls 001, 009, 010, 017 and 018.

001 - Vinnel Pond
009 - Block C Pond 2
010 - Block C Pond 1
017 South Dixon Ponds 1,2, and 3
018 - Southwest Dixon Pond

These outfalls meet the definition of "Subpart H- Western Alkaline Coal Mining", which applies to "alkaline mine drainage at western coal mining operations from reclamation areas, brushing and grubbing areas, topsoil stockpiling areas, and regraded areas." (40 CFR Part 434.81). In accordance with the requirements established in Subpart H; the operator has:

1) submitted a site-specific Sediment Control Plan to EPA incorporating the minimum requirements of 40 CFR Part 434.82,

2) demonstrated that implementation of the Sediment Control Plan will result in average annual sediment yields that will not be greater than the sediment yield levels from pre-mined, undisturbed conditions.

The operator submitted these materials to EPA in a letter and attachments on June 18, 2004 (letter to John Tinger,US EPA from Philip C. Dinsmoor, Environmental Coordinator, BHP). These materials are part of the Administrative Record for the proposed permit and are available for public review.

Therefore, EPA approves the Sediment Control Plan consistent with the requirements of Subpart H. Additionally, in accordance with Subpart H, the permit requires that the approved Sediment Control Plan be incorporated into the permit as an effluent limit, and requires that the permittee design, implement, and maintain the BMPs in the manner specified in the Sediment Control Plan.

EPA Region IX and the Office of Surface Mining Reclamation and Enforcement Office (OSM) entered a Memorandum of Understanding on December 19, 2003: "Process for Obtaining A NPDES Permit Under Subpart H - Western Alkaline Mine Drainage Category". Working through the process outlined in the MOU, OSM has conducted a technical review of the Sediment Control Plan submitted by the Permittee. OSM and EPA have concluded that the Sediment Control Plan has been submitted in accordance with the requirements of 40 CR Part 434, and that the Sediment Control Plan meets all minimum requirements to demonstrate that the average annual sediment yields that will not be greater than the sediment yield levels from pre-mined, undisturbed conditions. If comments are received on the proposed permit, EPA will continue to work with OSM and the Tribes on the response prior to approving the Sediment Control Plan and prior to issuing this permit.

As existing outfalls defined in this permit as "alkaline mine drainage" are reclaimed, the Sediment Control Plan may be updated to incorporate additional outfalls. A revised Plan must be submitted to EPA and approved by EPA before it becomes effective. The revised plan will also be reviewed by OSMRE prior to EPA approving the revisions. Revisions to the Sediment Control Plan must meet all requirements contained at 40 CFR Part 434.82, and 100% of the drainage areas to an outfall must meet the definition of Subpart H to be considered for coverage under Subpart H. EPA's approval of an updated Sediment Control Plan and reclassification of an existing outfall from "alkaline mine drainage" to Subpart H requirements will be considered a minor modification to the permit.

C. <u>Outfall 002 - Coal Storage, Coal Preparation and Ancillary Area Runoff</u>

This outfall meets the definition in 40 CFR 434.11(e), (f) and (g) for "coal preparation plant", "coal preparation plant and associated areas", and "coal preparation plant water circuit", respectively. Therefore, the proposed permit sets limits for the outfall in accordance with "Subpart B - Coal Preparation Plants and Coal Preparation Plant Associated Areas" for BPT, BCT, and BAT regulations that apply to such discharges. The requirements for Outfall 002 are the same as those for "alkaline, mine drainage", with the addition of limitations and monitoring requirements for manganese (2.0 mg/l daily average and 4.0 mg/l daily maximum). These requirements are consistent with those of the previous permit.

2. Water Quality-Based Effluent Limitations

Sections 402 and 301(b)(1)(C) of the Clean Water Act require that the permit contain effluent limitations that, among other things, are necessary to meet water quality standards. 40 CFR 122.44(d) provides that an NPDES permit must contain:

"Water quality standards and State requirements: any requirements in addition to or more stringent than promulgated effluent limitations guidelines or standards under sections 301, 304, 306, 307, 318 and 405 of CWA necessary to:

(1) Achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality."

40 CFR 122.44 (d)(1)(i) states:
"Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."

40 CFR 122.44 (d) (1) (ii) states:
"When determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and non-point sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity) and where appropriate, the dilution of the effluent in the receiving water."

40 CFR122.44 (d)(1) (iii) states:
"When the permitting authority determines using the procedures in paragraph (d)(1)(ii) of this section, that a discharge causes, has the reasonable potential to cause or contributes to an in-stream excursion above the allowable ambient concentration of a State numeric criteria within a State water quality standard for an individual pollutant, the permit must contain effluent limits for that pollutant."

Guidance for the determination of reasonable potential to discharge toxic pollutants is included in both the Technical Support Document for Water Quality-Based Toxics Control (TSD) - Office of Water Enforcement and Permits, U.S. EPA, dated March 1991 and the U.S.EPA

NPDES Permit Writers Manual - Office of Water, U.S. EPA, dated December 1996. EPA's technical support document contains guidance for determining the need for permit limits. In doing so, the regulatory authority must satisfy all the requirements of 40 CFR 122.44(d)(1)(ii). In determining whether the discharge causes, has the reasonable potential to cause or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants, the regulatory authority must consider a variety of factors. These factors include the following:

- Dilution in the receiving water,
- Existing data on toxic pollutants,
- Type of industry,
- History of compliance problems and toxic impacts,
- Type of receiving water and designated use.

Based on an analysis of factors at the Navajo Mine operations and projected wastewater quality data provided in the application, EPA concluded there continues to be no "reasonable potential" to cause or contribute to an exceedance of water quality standards. This is consistent with the previous permit.

The proposed permit sets general conditions based on narrative water quality standards contained in Section 203 of the NNSWQS. These standards are set forth in Section B ("General Discharge Specifications") of the permit.

VI. Special Conditions

1. Monitoring requirements

EPA has established monitoring for several parameters due to concerns raised during the comment period. Specifically, comments were raised about potential impacts that the disposal of coal combustion by-products may be having on surface water quality in the vicinity of the mine. Coal combustion byproducts (CCBs) generated at Arizona Public Service Company Four Corners electric power plant are transported back to the mine and backfilled into the coal pit. As EPA indicated in the response to comments document, EPA does not believe that coal combustion by-products are having a negative affect on surface water quality. EPA has provided a full response to these concerns in the Response to Comments document accompanying this final permit.

While EPA does not believe that the mine site is contributing to an increase of pollutant concentrations in the Chaco River downstream of the mine, EPA notes that no effluent discharge data is available for the pollutants of concern. Therefore, EPA has decided to require effluent monitoring at each of the discharge outfalls for the following pollutants: arsenic, boron, cadmium, lead, selenium, sulfate, and total dissolved solids.

EPA has included a reopener provision in the permit. If monitoring indicates that the discharge has the reasonable potential to cause or contribute to an excursion of water quality criteria, EPA may reopen the permit to establish effluent limits for those parameters.

2. Amendments to Storm Water Pollution Prevention Plan Best Management Practices: Residue Hauling Vehicles and Areas Adjacent to Disposal Pits or Minefills

EPA is requiring that additional Best Management Practices be incorporated at the mine site to ensure that coal combustion byproducts are properly handled. Best Management Practices (BMPs) are permit conditions used in place of or in conjunction with effluent limitations to prevent or control the discharge of pollutants. Under 40 CFR 122.44(k) and Clean Water Act Section 402(p), EPA is authorized to administer best management practices (BMPs) to mitigate potential toxic substances from reaching receiving waters and to achieve environmentally protective results.

Under the NPDES Storm Water Multi-Sector General Permit (MSGP) for Industrial Activities (FRL-6880-5), BNCC submitted a storm water pollution prevention plan (SWPPP) that details management approaches towards mitigating storm water discharges associated with access roads, haul roads, and railroad lines and spurs. Sector H-Coal Mines and Coal Mining Related Facilities of the MSGP (6.H) details sector-specific industrial requirements that provided structure to constructing a SWPPP. The 2002 revised SWPPP report provides information on the site, receiving waters, potential pollutant sources, sampling data, and protocol towards proper storm water management and BMPs and documented minor spillage from transporting industrial materials from and to BNCC. Upon review of BNCC's SWPPP, EPA has determined that managing coal hauling and CCB spillage from disposal practices would benefit from additional management and amendments to the SWPPP to alleviate interaction with storm water runoff.

EPA is therefore requiring BNCC to update their current SWPPP to include additional BMPs concerning residue hauling vehicles and areas adjacent to disposal pits. The BMP provisions EPA has selected to apply to BNCC originate from the BMPs established under Sector O- Steam Electric Generating Facilities of the MSGP, sections 6.O.4.2.10 and 6.O.4.2.12. These BMPs are appropriate to apply to the storage, handling, transportation, and backfilling operations of the CCBs to prevent spillage of materials which may come into contact with surface waters.

VII. Monitoring Requirements

The proposed permit requires discharge data obtained during the previous year to be summarized and reported monthly and submitted annually. If there is no discharge for the

month, indicate "Zero Discharge". These reports are due January 28 of each year. Duplicated signed copies of these, and all other reports required herein, shall be submitted to the Regional Administrator and the Navajo Nation EPA.

VIII. Threatened and Endangered Species

EPA has determined that the discharge in compliance with this permit will have no effect on threatened or endangered species. EPA has determined that due to the frequency of the discharge, effluent released in accordance with this permit will have no effect on any threatened or endangered species that may be present in the area. No requirements specific to the protection of endangered species are proposed in the permit. A copy of the permit and fact sheet is being sent to the U.S. Fish and Wildlife Service for review during the public comment period.

IX. Permit Reopener

The permit contains a reopener clause to allow for modification of the permit if reasonable potential is demonstrated during the life of the permit.

X. Standard Conditions

Conditions applicable to all NPDES permits are included in accordance with 40 CFR, Part 122.

XI. Administrative Information

Public Notice (A.A.C. R18-9-A907)

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft NPDES permit or other significant action with respect to an NPDES permit or application. The basic intent of this requirement is to ensure that all interested parties have an opportunity to comment on significant actions of the permitting agency with respect to a permit application or permit. This permit will be public noticed in a local newspaper after a pre-notice review by the applicant and other affected agencies.

Public Comment Period (A.A.C. R18-9-A908)

Rules require that permits be public noticed in a newspaper of general circulation within the area affected by the facility or activity and provide a minimum of 30 calendar days for interested parties to respond in writing to EPA. After the closing of the public comment period, EPA is required to respond to all significant comments at the time a final permit decision is reached or at the same time a final permit is actually issued.

Public Hearing (A.A.C R18-9-A908(B))

A public hearing may be requested in writing by any interested party. The request should state the nature of the issues proposed to be raised during the hearing. A public hearing

will be held if the Director determines there is a significant amount of interest expressed during the 30-day public comment period, or if significant new issues arise that were not considered during the permitting process.

XII. Additional Information

Additional information relating to this proposed permit may be obtained from the following locations:

U.S. Environmental Protection Agency, Region IX
CWA Standards & Permits Office Mail Code: WTR-5
75 Hawthorne Street
San Francisco, California 94105-3901
Telephone: (415) 972-3518
Attn: John Tinger or email: Tinger.John@EPA.gov

XIII. Information Sources

While developing effluent limitations, monitoring requirements and special conditions for the draft permit, the following information sources were used:

1. Water Quality Control Plan for the State of California, North Coast Region, as amended.

2. EPA Technical Support Document for Water Quality-based Toxics Control dated March 1991.

3. U.S. EPA NPDES Basic Permit Writers Manual (December 1996).

4. 40 CFR Parts 122, 131, 133, and 434.

5. NPDES permit application forms 2A and 2S, June 13, 2005.

6. Letter June 18, 2004 from Mr. Philip Dinsmoor to John Tinger: Navajo Mine NPDES Permit No NN- 0028193, Request to Remove NPDES Outfalls Nos. 001, 009, 010, 017, and 018: Response to EPA letter dated May 19, 2004.

7. Memorandum of Understanding: "Process for Obtaining A NPDES Permit Under Subpart H Western Alkaline Mine Drainage Category", EPA Region IX and the Office of Surface Mining Reclamation and Enforcement Office (OSM), dated December 19, 2003.

8. Final Reissuance of National Pollutant Discharge Elimination System (NPDES) Storm

Water Multi-Sector General Permit for Industrial Activities 65 FR 64746, October 30, 2000. (*administratively extended permit*)

9. Decision Document for Significant Revision Application on Coal Combustion Byproducts (CCB) Disposal & Areas I and II Final Surface Configuration. Navajo Mine-San Juan County, New Mexico. Permit No. NM-0003-E. March 2001

RESPONSE TO COMMENTS
BHP Billiton Navajo Coal Company - Navajo Mine
NPDES Permit No. NN0028193

EPA received one set of comments from the San Juan Citizens Alliance, Diné Citizens Against Ruining our Environment (Diné Care) and the Clean Air Task Force. Incorporated by reference was the report titled: *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. EPA has summarized and responded to significant comment below.

COMMENT
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.

RESPONSE:
While EPA does not believe that the mine site is contributing to an increase of pollutant concentrations in the Chaco River downstream of the mine (see response below) EPA notes that no discharge data is available for the above listed pollutants. Therefore, due to concerns raised by the commenter, EPA has added monitoring requirements for those pollutants which may be present that may have the potential cause or contribute to a violation of water quality standards and include arsenic, boron, cadmium, lead, selenium, sulfate and TDS. The permit contains a reopener provision in the permit. If monitoring indicates that the discharge causes, has the reasonable potential to cause, or contributes to excursions above water quality criteria, the permit may be reopened for the imposition of water quality based limits and/or whole effluent toxicity limits.

Although the specific regulation of coal combustion byproducts and their placement in the mine is generally beyond the authority of the NPDES permit, EPA has included additional language in the permit to ensure that the mine is properly managing CCB products to prevent contamination of surface waters. This includes requirements for residue hauling vehicles and areas adjacent to minefills.

COMMENT
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.
3 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.

RESPONSE:
EPA does not agree that available data demonstrate that pollutant levels are increasing to a statistically significant degree due to discharges associated with the mine site. In conducting this assessment, EPA evaluated the data presented in *A Preliminary Evaluation of the Potential for Surface Water Quality Impacts From Fly Ash Disposal at the Navajo Mine, New Mexico* by D.A. Zimmerman (hereafter referred to as the Zimmerman report). EPA reviewed effluent discharge data from the mine site; the supporting statistical analysis provided in the Zimmerman report; the physical locations of the upstream and downstream data; and other potential sources contributing an impact to the Chaco River. EPA also reviewed a BNCC commissioned technical review to the Zimmerman Report by Norwest Applied Hydrology (hereafter referred to as the

Norwest report) and relevant components of the permitee's Office of Surface Mining (OSM) Permit Application Package (PAP) for surface mining.

Consideration of effluent discharge data from the mine site

First, EPA evaluated effluent discharge data provided in the Discharge Monitoring Reports required by the existing NPDES permit. As indicated in Section A.1 and A.2 of the permit, monitoring is required daily for all wastewater discharged from each of the permitted outfalls for flow, TSS, iron, and pH. Typically, wastewater generated from runoff events is collected in constructed detention ponds and is recharged, reused or lost to evaporation. Discharges from NPDES regulated outfalls have historically been associated with rainfall events. There have been only five discharge events since the beginning of the last Navajo Mine permit cycle in December 2000. All discharges occurred at Outfall 008. Outfall monitoring demonstrated compliance with permit limits for TSS, iron and pH with the exception of three TSS exceedance in September 2002. No outfall discharge data is available for sulfate, boron, selenium, or the other constituents of concern raised by the commenter. Outfall monitoring demonstrated that relatively little wastewater has been discharged in total during the past permit cycle, on only 5 occasions. Based solely on the volume of runoff generated from active mine areas, coal preparation plant areas, and reclamation areas that has historically been discharged from the mine site related to the annual flow volume of the Chaco River, and the fact that the closest discharge outfall is located a minimum of 3.2 stream kilometers (2.0 miles) from the Chaco River, EPA believes it is unlikely that the discharge from the mine site has the ability to impact the Chaco River.

Criticism of supporting statistical analysis provided in the Zimmerman report

Second, EPA evaluated the statistical basis of the conclusions of the Zimmerman report. Table 2 of the Zimmerman report, "Results of Surface Water Quality Analysis" is a statistical summary of the surface water quality data in the Chaco Basin. Zimmerman compiled data from Navajo Nation Environmental Protection Agency (NNEPA) and United States Geological Survey (USGS) to assess spatial water quality difference between two groups of data labeled "upstream" and "downstream". A temporal monitoring range for each analyte was not explicitly explained.

In respect to surface waters, the Zimmerman report summarizes data for the following water quality analytes; pH, sulfate, TDS, boron, selenium, and arsenic in downstream and upstream groupings. Zimmerman derived downstream and upstream statistics by pooling spatial and temporal data points at each monitoring station and by corresponding them to their appropriate downstream or upstream cluster. Figure 12 (page 26, copied below) illustrates Zimmerman applying this logic towards TDS. TDS data was gathered from USGS stations from 1970-1990. There was no mention of whether NNEPA sampling stations was used in this analysis. Zimmerman notes that collected monitoring points vary year to year for station to station, (e.g., some stations had multiple data points in a given year while others had only a single data value per station). Consequently, to remedy bias that some data points may pose, all data points within their respected year per their respected station. Zimmerman report took blanket averages for all stations and their averaged annual values, irrespective of sample size, and correspond them to upstream and downstream clusters. Based on Table 2 and Figure 12, reported averages of 2644 mg/l and 881 mg/l for downstream and upstream regimes, respectively.

Table 2 (page 25, copied below) presented calculated statistics for analytes of concern. Statistical components included the mean, standard deviation, parametric t-test result at 0.05 significance level ($t_{\alpha=.05}$) and its respective threshold value to reject the null hypothesis (H_o) ($t_{critical}$), t test values' corresponding p-value and a descriptive statistic ratio between downstream and upstream means. Based on utilized statistical tests, Zimmerman assumed that data is normally distributed.

Table 2. Statistical summary of Chaco Basin water quality data.

	Upstream		Downstream		Statistical Parameters				Dn / Up
Analyte	Mean	Sdev	Mean	Sdev	$t_{\alpha=.05}$	$t_{critical}$	p-value	Reject H_o?	Ratio
TDS	881	940	2644	2610	3.78	2.04	.00064	Yes	3.0
pH	7.68	.579	8.21	.587	3.10	1.96	.0021	Yes	3.4
SO_4	305	607	1118	1273	5.94	1.98	<.0001	Yes	3.7
SO_4/TDS	.311	167	.554	.124	14.6	1.97	<.0001	Yes	1.8
Boron	.219	.132	2.57	3.66	6.95	1.98	< .0001	Yes	11.7
Selenium	.0038	.0046	.0131	.0154	2.54	2.10	.0206	Yes	3.4
Arsenic	.111	.261	.062	.060	3.87	1.96	.00012	Yes	0.56

H_o = null hypothesis: that the means of the upstream and downstream concentrations are the same

Table 2 does not include sample size numbers for gathered upstream and downstream analytes. Sample size numbers were, however, presented in each analytes' probability density function figures, Figures 13-19 in the Zimmerman report. Thus, EPA extracted sample size values by each analyte and its orientation and are presented in the table below:

Table A-EPA Generated addendum to Zimmerman's Figure 2: Sample size number for pooled upstream/downstream designations by each analyte.

n	upstream	downstream	ratio-up: down
TDS	218	32	6.8
pH	725	27	26.9
sulfate	276	91	3.0
sulfate/TDS	271	88	3.1
boron	192	117	1.6
selenium	81	18	4.5
arsenic	355	105	3.4

As seen in Table A, upstream data points predominated data collected downstream at varying ratios. This disparity is physically depicted in Figure 12 by its plotting of pooled upstream and downstream monitoring for TDS. Congruency for downstream and upstream stations layout of TDS to other listed analytes was not mentioned. It is also noted that the report did not specify if

a standard collected data time frame window was used. TDS data was extracted from 1970-90; it is uncertain if the other analytes shared the same window. Table A reinforces the sample size disparities between upstream and downstream sample sizes for each analyte. As mentioned, this has confounding statistical ramifications.

Upstream and downstream spatial data
EPA generally agrees that comparing downstream and upstream boundaries to assess water quality is a viable approach. Collected data at designated boundaries was visually illustrated on Figure 11 and 12. However, two issues resonate from the report's assessment of spatial monitoring data; the lack of a clear border between upstream and downstream clusters and its rationale, and the disparity of sample sizes between upstream and downstream data sets per analyte. As mentioned previously, there were no clear justifications behind the separation of the two monitoring regimes. Based on Figure 12, there is an obvious disparity between utilized upstream and upstream monitoring points. The upstream regime for TDS data depicted in Figure 12 illustrates an overwhelmingly large area and pool of monitoring points in respect to downstream regime. The disparity can affect the results of the t-test since the two groups are not approximately balanced.

Temporal data
EPA questions the uniformity of temporal space across all constituents and their respected monitoring stations. The report conveys the uses of 1970-90 USGS TDS data to generate its description statistics for TDS however, it does not explicitly state if the same time frame was applied to the rest of the analytes. Using varying time frames for comparing data sets can confound temporal variability when comparing upstream and downstream statistics and create statistical bias.

Additionally, the inclusion of more current data to generate statistical characteristics was not mentioned. The incorporation of modern data would establish confidence in the claims of upstream and downstream water quality assertions.

Removing bias from mean
EPA concurs with the author that relevant measurements extracted from database searches had variable number of measurements taken annually across all stations. However mitigation from statistical bias by pooling and averaging stations with single or multiple measurements in any given year and/or station was not an appropriate statistical approach. The Zimmerman report ought to have resolved statistical bias by averaging each station's respected year and then aggregate and average a sampling station's annual averages to represent a station's single calculated mean. The report's blanket averaging approach did not mitigate temporal variability. In fact, it confounded both temporal and spatial variability and promoted statistical bias. By recalculating downstream TDS data from Figure 12 and producing one averaged result per station, the mean comes to a value 4738 mg/l with a standard deviation of 3501 mg/l compared to an average value of 2645 mg/l as presented in the Zimmerman report. This averaged station value incorporated yearly averages from 1969-1989. Subsequently, Zimmerman's reported upstream and downstream means may not be proper representations of central tendencies per station.

Verifying Distribution of Data
The report utilized statistical methods that are designated for normally distributed data sets and presented normal probability density function (pdf) fits for each analyte. While the report offers qualitative confirmation of normal distribution by presenting these pdfs, there was no statistical test applied to prove normal distribution for each analyte. Shapiro-Wilcox test would have empirically verified normal or lognormal distribution fits, thus suggest an appropriate statistical method; parametric or nonparametric.

Normal distribution of data would allow parametric approaches such as calculating means, standard deviation, and student t-tests. Non-normal distributions would deem parametric approaches as irrelevant and evoke non-parametric statistics. Non-parametric models do not rely on means and standard deviations as estimated parameters. Consequently, the report's approach to verifying upstream and downstream mean and variance monitoring differences with Student's t-test would not be viable in a non-parametric model. Data would have to be log transformed and non-parametric statistical models would be employed. Interestingly, the reported relatively high standard deviations in Table 2 were an indicator that sample distribution for normality ought to have been examined.

Student t-test
In addition, based on Figure 12's TDS data, EPA noticed that the t-test was done incorrectly. The averages used in the statistical t-test should be discrete values. All 32 TDS results are not discrete because of the temporal correlation within each station with multiple results over time. The degrees of freedom in the test should be from n=9 downstream stations, not n=32 temporally correlated results.

The parametric t-test assumes the data are approximately normally distributed and independent. The variances of the upstream and downstream boundaries need to be tested for equality (using the folded form F statistic) prior to using the t-test. This can determine appropriate t-test to use; pooled t-test (assuming equal variances) versus approximate t-test (assuming unequal variances).

If both upstream and downstream data are normally distributed, the t-test is appropriate to test for equal means. However, if either are not normally distributed or the sample size for one is small (such as $n=9$ downstream samples), a nonparametric test or log-normal transformation may be more appropriate. Suggestions for nonparametric tests include the Wilcoxon Rank Sum, Quantile Test, or the median test.

EPA concludes that the statistical characteristics for upstream and downstream regimes displayed in the Zimmerman report do not conclusively demonstrate a cause and effect relationship. The historical water quality data used to characterize these regimes are highly variable both spatially and temporally and, based on the concerns of the statistical methodology as presented above, EPA does not agree that the Zimmerman report has adequately supported its conclusions.

As an example, Figure 12 presents a map of the downstream TDS concentrations. There are 9 separate sampling locations. Five of the sampling locations have only 1 sample for TDS, while one of the sample locations has 17 samples for TDS. One monitoring site in the downstream

area ranged from 720 to 5,600 mg/l of TDS over 5 samples, while the range for the entire data set was from 760 mg/l to 12,000 mg/l. The Zimmerman report summed the total of all data points and divided by the total number of samples, regardless of considerations such as sample location (e.g., middle of the river vs. shallow area prone to higher sediment concentrations) and time of sample (e.g., if the sample was taken during a low flow event when TSS is low or during a rain event when TSS would expected to be high). Given the extreme variability of results, ranging from 760 to 12,000, an average value as presented in the Zimmerman report is of limited utility to compare to another highly variable data set (e.g., the "upstream" data) and is highly dependent on the number of samples taken, the time of the sampling, and the location of the sampling stations.

While EPA recognizes the difficulty in performing statistical analysis on a limited data set, EPA does not conclude that the statistical analysis is sufficient to document that discharges from the mine site is affecting surface waters.

Comparison of spatial upstream and downstream data and other potential sources contributing an impact to the Chaco River

Third, EPA evaluated the physical locations of the upstream and downstream data and potential sources of impacts to the watershed. As noted above, the report defines "upstream" and "downstream" measurement zones as presented in two topographic maps, Figures 11 and 12 (pages 24, 26 respectively). Neither of these maps gives explicit geographical coordinates for the selected sites nor provides scales to assess distances and positions. Unlike Figure 11, Figure 12 does not provide a landmark point of references, i.e. geological formations (Hogback), waterways (San Juan River, Chaco River, and Morgan Lake), industrial operations (Navajo Mines, Four Corners Power Plant, and agricultural project sites), etc. Therefore, EPA has been able to reconstruct only a general description of the report's presentation of upstream and downstream data.

As indicated, Figures 11&12 are diagrams of the Chaco Basin that have pooled downstream monitoring points. The downstream monitoring area covers roughly 44,000 acres (177 km^2), and is located directly west of the mine site. Estimated area is based on Zimmerman's aerial topographic map seen in Figure 11 and regenerated on Google Earth Pro (4.2.0205.5730) as seen in Figure A. A toolkit from the program positioned relevant landmarks (i.e. permitted outfalls) to their geographical coordinates and determined approximate distances among interested landmarks, i.e. outfalls, hydrologic features, monitoring stations, industrial operations, etc.

Zimmerman's downstream boundary consists of Leasing Area I and II of BNCC which comprises Outfalls 001, 002, 004, 006-011 as seen in Figures A and B. Outfalls 006-011 neighbor ephemeral washes at close proximities of 60-760 feet (18-152 m). Services roads for haulage and fords transect and interrupt some washes that tributary to Chaco River.

The downstream area is west of the Arizona Public Service (APS) Four Corner coal-fired power plant and traverses further west across the Hogback mountain formation along the Chaco River. Tailing heap piles from Four Corners lies within the downstream monitoring boundary and neighbors the Chaco River at approximately 1 mile (1.61 km).

The sampling locations of the downstream data are located at distances from the mine site that range from approximately 1 mile to over 10 miles at the furthest location.

Upstream measurement area is defined as "everything South". Figure 12 portrays the upstream regime which is many times larger than the downstream area. EPA generated Figure C conveys "everything South", however quantitative boundary assessments were difficult to reproduce. Based on Figures 11 and A, EPA hypothesizes land south of Outfall 010 acted as a demarcation point between downstream and upstream boundaries. EPA could not extract discernable landmarks or cartographic features from Figure 12 to estimate land area or perimeter approximations. However, we crudely estimated 3.17 million acres (12814.7 km^2) and of over 80 miles (128.75 km) lengthwise and widthwise segments of the boundary for a general comparison. Figure D depicts sectioned upstream regime that includes landmark features such as remaining outfalls in Leasing Sites III and IV; Outfalls 013,.016, 017, and 018. No records of discharges from these outfalls exist.

Therefore, the Zimmerman report presents a comparison of 2 data sets, one representing the "downstream" collection that represents an area of approximately 44,000 acres and another representing the "upstream" collection that represents an area of approximately 3.17 million acres. A comparison of the physical location of the sample data set alone demonstrates that there is no expectation that the 2 data sets should exhibit similar characteristics. The presumption that these 2 data sets should demonstrate a similar average concentration is a fundamental flaw of the analysis presented by the commenter. As described below, there are several considerations within a watershed that would support a general increase in dissolved parameters downstream in the watershed.

EPA concludes that the Zimmerman report did not adequately explain upstream and downstream boundaries to determine cause and effect relationships from the mining outfalls to downstream water quality. The lack of sufficient rationale behind upstream and downstream demarcations also neglected to emphasize other potential inputs to the site such as the Four Corners Power Plant, irrigation return flows from NIIP, or natural environmental processes such as rock weathering and dissolution, wind dispersal runoff sources, and evaporation.

Within the watershed, there are several other potential sources that could explain an increase in dissolved constituents in the downstream reaches of a stream as compared to the upper, feeder tributaries. One is the potential inputs from NIIP irrigation water, where, due to evaporation and flushing of dissolved minerals, agricultural return flows may demonstrate an increased concentration in dissolved parameters. EPA also considers Norwest's hypothesis of environmental processes such as rock weathering and dissolution, wind dispersal runoff sources, and evaporation can modulate background levels of concerned constituents temporally (monsoonal/dry seasons) and spatially, as described in the following section.

Therefore, based on considerations of volume of discharge flow, distance from the discharge points to the receiving water, and geographic distribution of the data sets, EPA does not conclude that pollutant levels are increasing to a statistically significant degree due to discharges associated with the mine site.

The permittee's record indicates there was no discharge to receiving waters from permitted outfalls since NPDES issuance in 1977 with the exception of Outfall 008. Records show that five discharges to receiving waters from Outfall 008, a mine drainage outfall, were due to storm events during the last permit cycle. Outfall discharges occur only when impoundment water levels surpass critical capacity. Constructed risers relieve potential overflow by discharging excess volume to receiving waters. BNCC documents discharge events to EPA in a timely manner. Only one discharge event reveal 3 parameter exceedances from five days of monitoring, 9/10/02-9/14/02. Ensuing discharges after 2002 all have met limit requirements. The nearest distance to the mouth of Chaco River from Outfall 008 is approximately 2.5 miles (4.0 km) along tributaries flowing downstream towards Chaco River.

Background and Pollutant Sources

EPA considers the Norwest report's counter-points against Zimmerman's lack of consideration concerning the varied surface hydrology, flow regimes, and other environmental influences within Chaco watershed. OSM reported that historically San Juan River Basin's "surface water quality is poor with high levels of total suspended solids (TSS) and total dissolved solids (TDS)" and its "water does not meet standards for domestic or livestock use" in the Environmental Assessment. This argument supports their claim that no additional impact will occur for surface water.

EPA also considers Norwest's hypothesis of environmental processes such as rock weathering and dissolution, wind dispersal runoff sources, and evaporation can modulate background levels of concerned constituents temporally (monsoonal/dry seasons) and spatially. Given the semi-arid/arid climate, EPA notes that the Zimmerman report lacks consideration or mention of synoptic evaporation processes that can potentially concentrate constituents downstream and dissolution of soluble constituents upon contact with flowing water downstream from runoff, both agricultural and storm water. The analysis presented in the Zimmerman report did not present natural background conditions or baseline to account for probable net impact from BNCC to surface water quality.

Navajo Nation Environmental Protection compiled data exceeding surface water quality constituents across 35 sites for over 8 years within San Juan Basin under agency sponsored monitoring programs. These sites included upper and middle San Juan River (i.e. Bitsui Wash, Ojo Amarillo Wash, Gallegos Wash, etc) and Chaco Wash (Chaco River, Chinde Wash, Sanostee Wash, etc). NNEPA tallied a total of 274 exceedances at Basin monitoring stations. The top three most frequented contaminants were total residue chlorine (TRC) (n=42), selenium (n=29), dissolved selenium (n=28) and the top three sites with most frequent exceedances were Ojo Amarillo Canyon (n=64), Gallegos Canyon (n=55), and North Chaco River (n=53). Ojo Amarillo and Gallegos stations are located approximately 6 and 18 miles east, respectively, of the mining site and are heavily influenced by NAPI activity and runoff. NNEPA Northern Chaco River monitoring station (06CHACORI01) neighbors Four Corners Power Plant and it mine tailings heap at approximately 6 miles (9.66 km) and 4.25 miles (6.84 km), respectively. The mine tailings heap neighbors Chaco River at approximately 1.0 miles (1.61 km). In addition, adequate baseline data is necessary to assess net impact from industrial activity to natural geological background. Images of mentioned outfall, NNEPA monitoring sites and their

comparative distances are provided in Figures E and F. EPA notes that Four Corners Power Plant resides within the downstream boundary and is in close proximity to Chaco River and a downstream NNEPA Chaco River monitoring station.

EPA concludes that overall water quality of San Juan Basin is of poor quality. NNEPA's exceedances monitoring data illustrates a scattering of exceedances across San Juan Basin and throughout time. Given the site complexity and the myriad of other natural- and anthropogenic-occurring inputs, EPA requires convincing data that supports the hypothesis that BNCC discharge is a contributor to water quality degradation. As mentioned previously, BNCC has only discharged from one outfall at five occasions. Consequently, EPA has implemented additional constituent monitoring (arsenic, boron, cadmium, lead, selenium, sulfate, and total dissolved solids) to their permit to address the need for more robust data than what is currently available to characterize BNCC discharge.

Map as presented in page 24 of the Zimmerman report illustrating downstream monitoring points: *Zimmerman, D.A. 2005. "A Preliminary Evaluation of Potential for Surface Water Quality Impacts from Fly Ash Disposal at the Navajo Mine, New Mexico."*

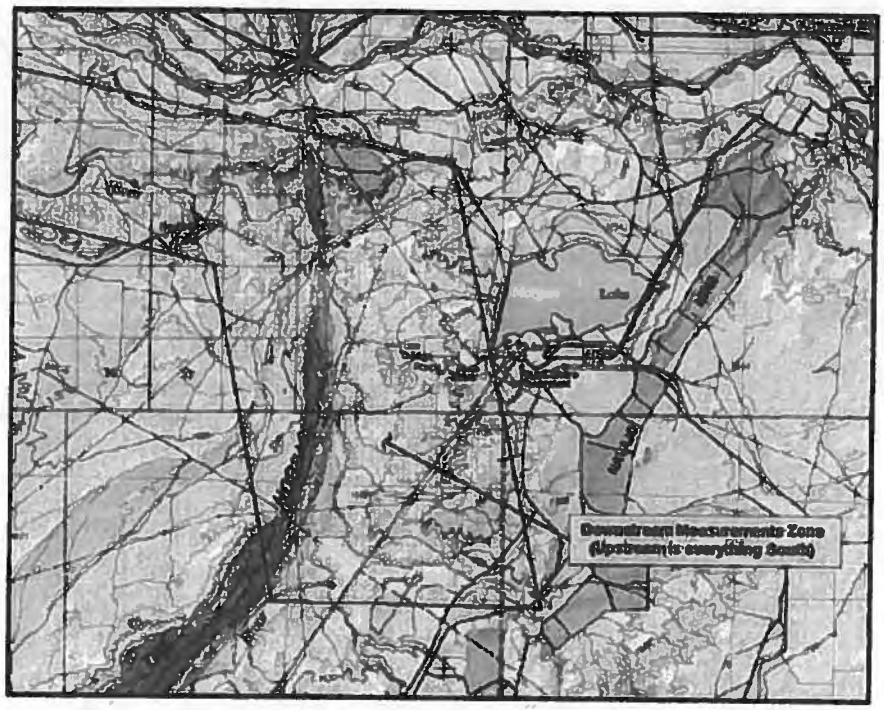


Figure 11. Topographic map showing zone representing "downstream of the mine."

Image as presented in page 26 of the Zimmerman report

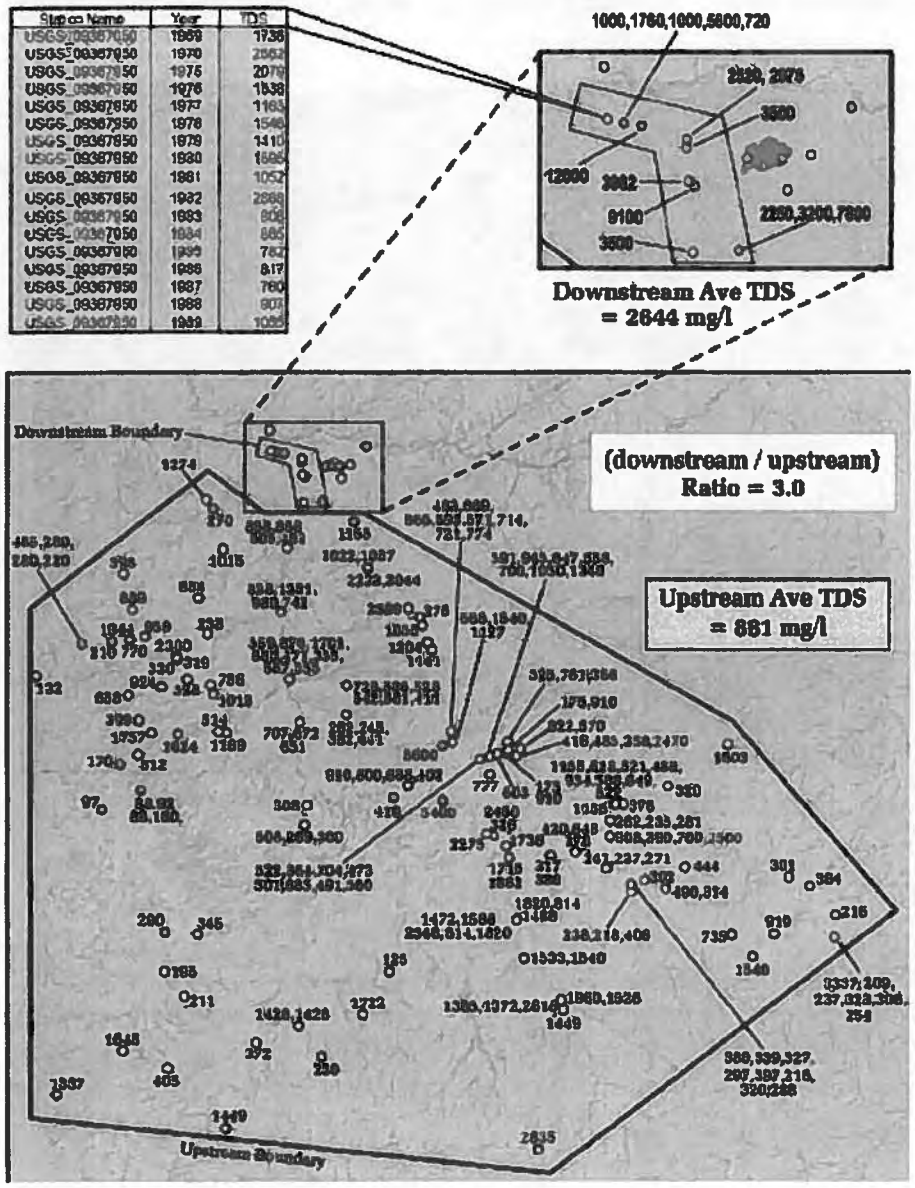


Figure 12. Map of water quality monitoring stations with TDS values plotted. Note that use of average values for USGS station 09367950 biases to the low side, the overall downstream average (see red line and plotted points in Figure 10).

Figure A- Generated BNCC site map comprising all permitted outfalls, Four Corners, and Morgan Lake utilizing Google Earth Pro interface, Google Earth Pro 4.2.0205.5730

Figure B-Approximated downstream boundary of BNCC based on Figure 12 of Zimmerman generated on Google Earth Pro.

Figure C- Approximated upstream region generated in Google Earth.

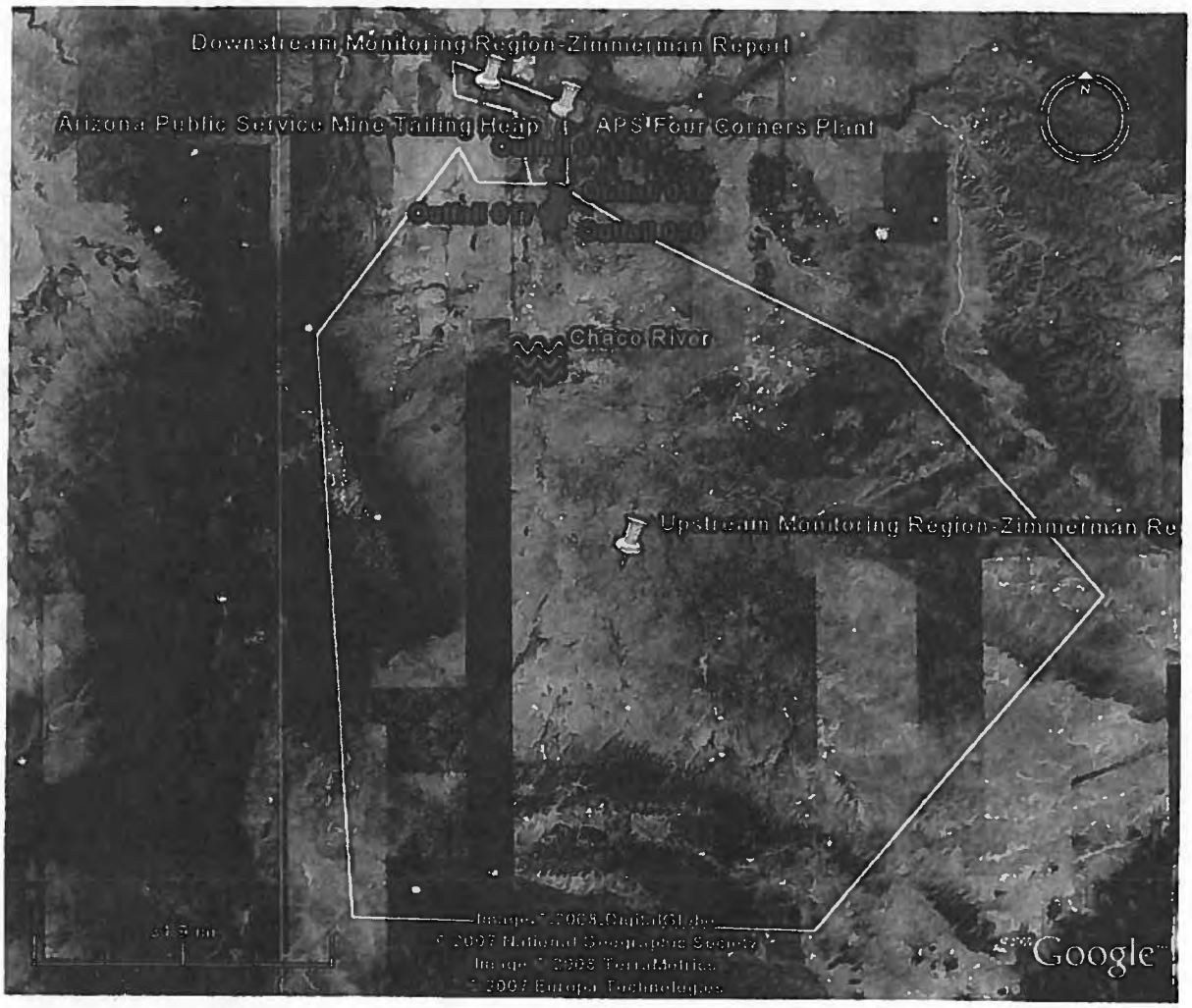


Figure D- Zoomed in approximated upstream regime of BNCC and its permitted outfalls. The boundary lies south of Outfall 010.

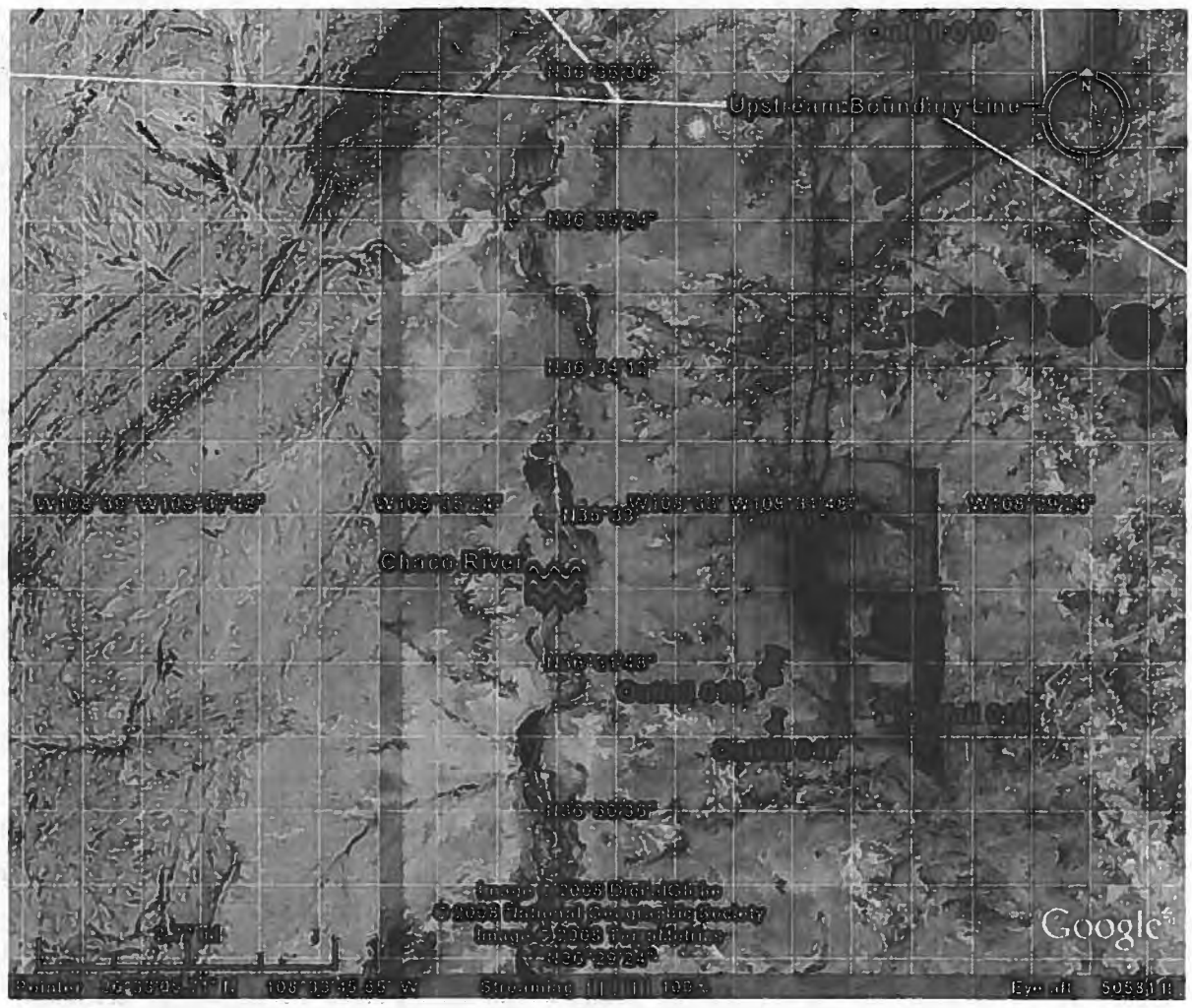


Figure E. Estimated downstream and lower upstream boundaries with geographically positioned outfalls and NNEPA monitoring stations with most exceedances.

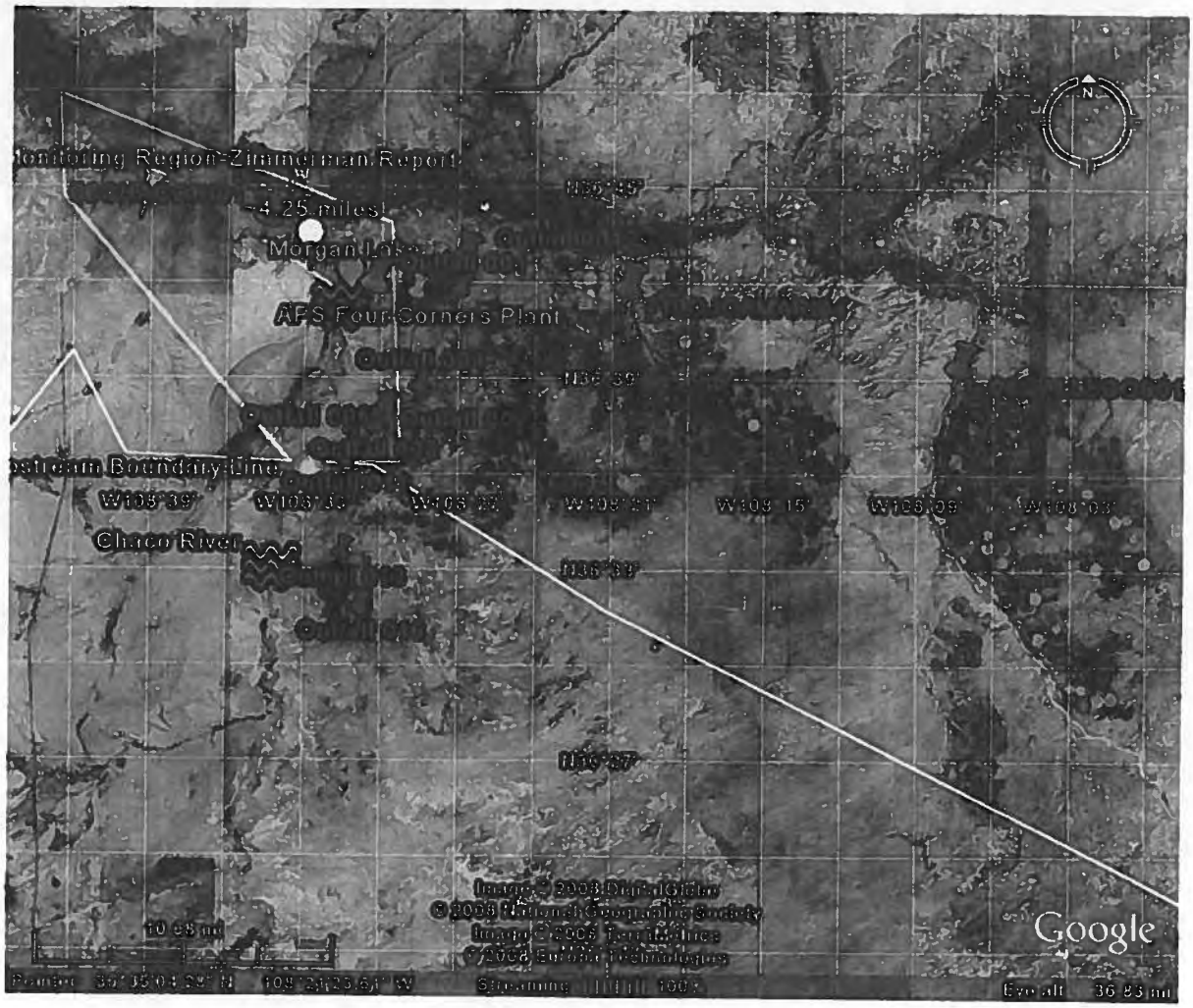
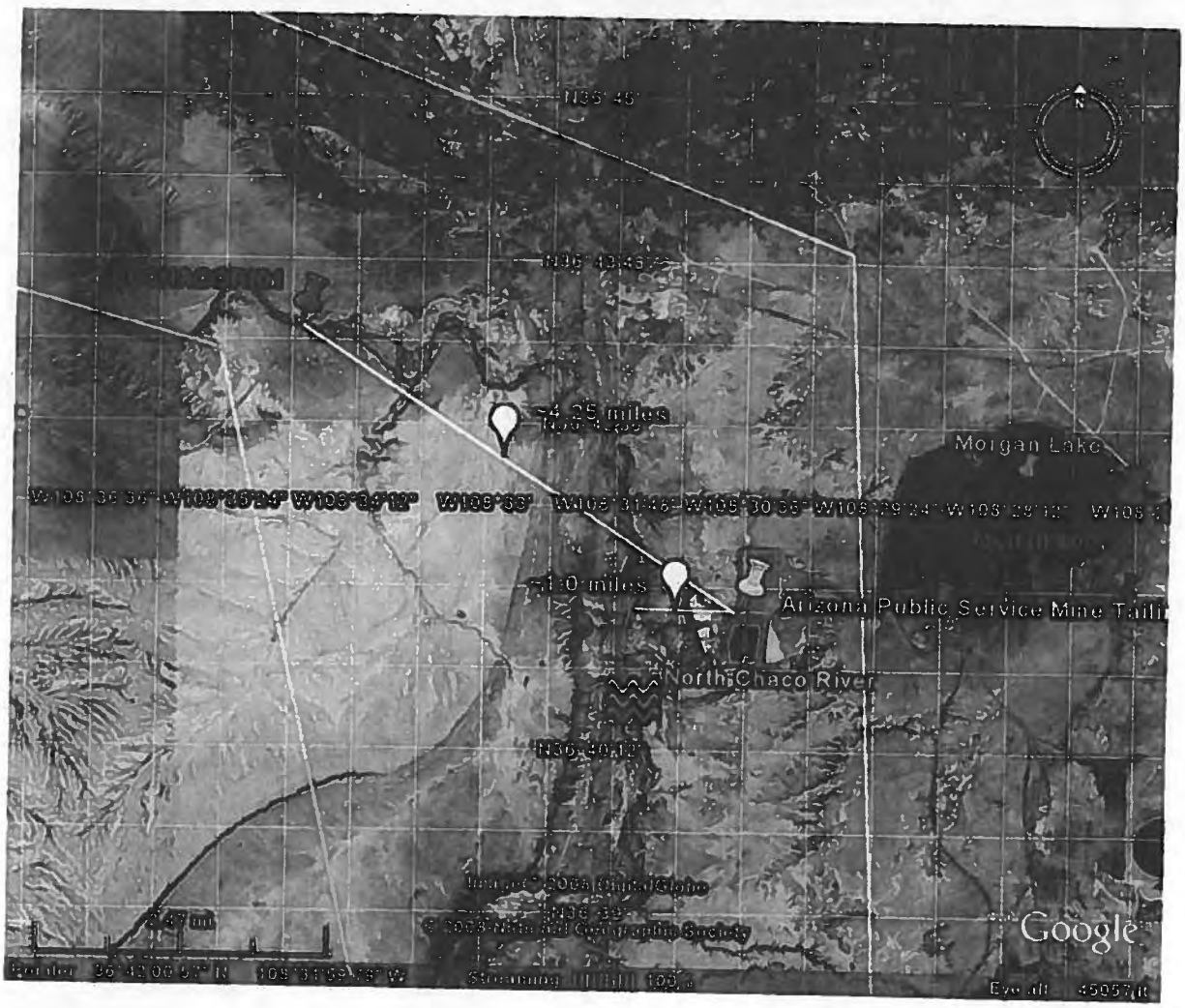


Figure F Positioning of Four Corners Power Plant, Mine Tailings Heaps, and NNEPA's monitoring station, 06CHACORI01 within Zimmerman's downstream boundary.



COMMENT:
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.

RESPONSE: As noted above, EPA has included effluent monitoring for arsenic and sulfate in the permit.

COMMENT
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.

RESPONSE:
EPA has established monitoring requirements in the permit for sulfate, boron, selenium, arsenic, lead and cadmium for each outfall. Should monitoring indicate that the discharge causes, has the reasonable potential to cause, or contributes to excursions above water quality criteria, the permit may be reopened for the imposition of water quality based limits and/or whole effluent toxicity limits. Also, this permit may be modified, in accordance with the requirements set forth at 40 CFR Parts 122.44 and 124.14, to include appropriate conditions or limits to address demonstrated effluent toxicity based on newly available information, or to implement any EPA-approved new Tribal water quality standards. (See Section C "Permit Reopener" of the permit). As the commenter indicated, permit limits will be established based on the most stringent water quality standard necessary to protect the beneficial uses as designated by the Navajo Nation water quality standards.

COMMENT:
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.

RESPONSE:
See above comment regarding the comparison of upstream and downstream data.

The permit establishes an effluent limit for pH such that pH shall be in the range 6.0 to 9.0 at all times. As described in the fact sheet, this is based on the requirements of the Navajo Nation Water Quality Standards and effluent limitations guidelines for the Coal Mining Point Source Category (40 CFR Part 434). This limitation ensures that all discharges will be in compliance with water quality standards and nationally established technology based standards. EPA does not believe there is justification for establishing more stringent limitations for pH at a level of 8.5. The permit already establishes daily monitoring for pH for all discharges, and EPA does not believe that additional monitoring requirements for pH is warranted. Any monitoring demonstrating pH results above 9.0 would be a violation of the terms and conditions of the permit and the permittee may be subject to enforcement.

COMMENT
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.
4 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.

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:

Permits, Revisions, and Modifications
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.
Water Quality 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.

RESPONSE:
EPA recognizes that there are several authorities with regulatory control over the activities at a coal mine. As the commenter notes, the Office of Surface Mining Reclamation and Enforcement has direct authority over mining operations in accordance with the Surface Mining Control and Reclamation Act (SMCRA). Industrial solid waste handling and disposal may be regulated under the authority of the Resource Conservation and Recovery Act (RCRA).

The Navajo Nation EPA has regulatory jurisdiction over the protection of groundwater on the Navajo Nation. Additionally, the Navajo Nation EPA has the authority under the Clean Water Act to certify that EPA's permitting actions are in compliance with the Tribe's surface water quality standards.

EPA is issuing this NPDES permit under the authority of the Clean Water Act, which regulates the discharge of a pollutant through a point source to a Water of the U.S. Under this authority, EPA must place effluent limitations and conditions in the permit to ensure that the surface water

discharge meets water quality standards and meets Best Available Treatment technologies. EPA does not generally have the authority under the Clean Water Act to mandate the type of treatment employed to meet effluent limitations, or to regulate the disposal practices or other conditions on the mine which do not result in the discharge of a pollutant through a point source to a surface water.

EPA at this time does not agree with the assertion that the coal combustion by-product (CCB) backfilling is contributing to surface water quality degradation. As noted in the fact sheet, all surface water runoff permitted by the NPDES permit is contained in detention ponds prior to discharge. The residence time of the settling ponds is sufficient to remove the majority of solids prior to discharge. In fact, the settling ponds are generally large enough to contain most all of the surface runoff from the mine site, resulting in only 5 documented instances of discharge in the life of the permit. There has been no observed nexus between CCB burial areas and surface water quality, such as leachate seepage to the surface from the ponds. According to Office of Surface Mining Decision Document on CCB burial (March, 2001), no significant impact was concluded in the Significant Revision Application NM-003-D-R-03.

At Coal Storage and Coal Preparation designated site (Outfall 002), runoff from the storage and preparation area and ancillary area is contained by impoundment ponds to alleviate flow to neighboring waterways before direct discharge. Mine Drainage designated sites collect runoff in the mine pit, spoil area, and impoundment. Installed risers and pumps at runoff containments mitigate pond overflow for eventual discharge. These risers facilitate in rerouting excess effluent to receiving waters when collected water reaches critical levels. BNCC utilized flocculants, when needed and sedimentation as modes of treatment to meet effluent limits.

Moreover, EPA is not convinced of substantial evidence of a nexus between CCB burial and surface water quality. According to Office of Surface Mining (OSM) Decision Document on CCB burial, OSM concluded no additional impact to water quality supply/values for surface water at disposal areas (Areas I and II) in their Significant Revision Application NM-003-D-R-03. This document was signed and dated in March of 2001.

Listed impacted waterways mentioned in their Environmental Assessment, however, were Chinde, Hosteen, and Barber Washes. The revision application describes Hosteen and Barber Washes as ephemeral waterways and flow in response only to precipitation events. Hosteen and Barber washes were not formally located on any USGS maps or mapping tools, however these washes reside and cross closest to their respected backfilling pits and ramps in Area II. The Assessment described Chinde Wash as an ecologically altered waterway due to return flows agricultural runoff from Navajo Indian Irrigation Project (NIIP) and runs aside Outfall 004. Chinde Wash's altered ephemeral flow regime is considered to be perennial and supports wetland foliage (e.g. salt cedar thickets) east of the mine and its diversion. BNCC constructed the Chinde Diversion to mitigate transecting runoff to potential mining pits, such as the Yazzie Pit, and diverted flow around the Pit to alleviate open pit interaction. A technical review from Norwest Applied Hydrology made the claim that "it is not possible for water from the mine to seep into the Chinde Diversion" and commingle with mining land. Despite NIIP contribution of runoff from agricultural activity occurring in Chinde Wash, EPA notes that NPDES does not regulate agricultural runoff.

EPA agrees with the commenter that the NPDES permit must address all potential sources of pollution that may have an adverse affect on surface receiving waters. Therefore, EPA has placed additional monitoring requirements in the permit to monitor for total dissolved solids (TDS), sulfate, boron, selenium, arsenic, lead and cadmium in the final permit for each outfall in order to substantiate these conclusions.

Although the specific regulation of coal combustion byproducts and their placement in the mine is generally beyond the authority of the NPDES permit, EPA has included additional language in the permit to ensure that the mine is properly managing CCB products to prevent contamination of surface waters. This includes requirements for residue hauling vehicles and areas adjacent to minefills.

Under the Multi-Sector General Permit (MSGP) for Industrial Activities (FRL-6880-5), BNCC mitigated inputs derived by surface storm water by submitting a Storm Water Pollution Prevention Plan (SWPPP) to EPA in 2002. The SWPPP manages storm water runoff over permitted land in conjunction to requirements for Pollution Prevention for Multi-Sector General Storm Water Permits and for Industrial Activities Sector-H.

EPA concurs with the commenters and Zimmerman's report that the backfilling of CCBs in the mine does present a unique circumstance that warrants attention to ensure that water quality is not degraded. EPA recognizes that BNCC documented spillage occurrences from transporting materials in their SWPPP. Thus, EPA is requiring that additional Best Management Practices (BMPs) be incorporated at the mine site to ensure that coal combustion byproducts are properly handled and transported. The BMP provisions EPA has selected to apply to BNCC originate from the BMPs established under Sector O- Steam Electric Generating Facilities of the MSGP, sections 6.O.4.2.10 and 6.O.4.2.12. These BMPs are appropriate to apply to the storage, handling, transportation, and backfilling operations of the CCBs to prevent spillage of materials which may come into contact with surface waters. These BMP requirements relate to Residue Hauling (Section 6.O.4.2.10) and Areas Adjacent to Disposal Ponds or Landfills (Section 6.O.4.2.12).

COMMENT

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 6 monitoring in ash deposits).

RESPONSE:
EPA does not have authority under the NPDES permit to establish groundwater monitoring wells, or to regulate potential contamination of groundwater which may result from the disposal of CCW. (see response provided above)

As indicated previously, EPA has placed additional monitoring in the permit and has placed additional requirements in the permit for Best Management Practices to ensure that placement of CCBs does not result in degradation of surface waters.

Regarding characterization of ash, the Navajo Mine has provided information. EPA does not believe it necessary, within the context of the NPDES permit limitations, to conduct additional characterization studies of the ash.

COMMENT
Groundwater monitoring results also must be regularly examined and reported with the NPDES Discharge Monitoring Reports.

RESPONSE:
The NPDES permit issued under the Section 402 of the Clean Water Act regulates the discharge of a pollutant through a point source to a water of the U.S. The NPDES permit does not regulate groundwater, and EPA does not have authority under the NPDES permit to establish groundwater monitoring wells, or to regulate potential contamination of groundwater which may result from the disposal of CCW.

COMMENT
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.

RESPONSE:
The NDPES permit establishes monitoring points at all discharge locations for all washes exiting the Navajo Mine that are associated with active mine areas, coal preparation plant areas, and reclamation areas. Monitoring location Outfall 004 is at the Chinde Wash. There are no outfalls discharging into Bitsui washes and Bitsui is located off BNCC mining area. EPA concluded that outfall locations are established for areas associated with mining activities. EPA does not believe it is necessary to require additional monitoring for areas that are not affected by mining activities.

COMMENT
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.

RESPONSE: The permit establishes requirements that samples shall be taken at every discharge event, and additionally that sampling be conducted once every 24 hours if the duration of the occurrence is greater than 24 hours. EPA believes that this monitoring frequency is sufficient to adequately characterize every discharge event. EPA does not believe it is necessary to mandate the sampling methodology to the permittee.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

DEC 2000
Received
Mine Manager

OFFICE OF THE
REGIONAL ADMINISTRATOR

DEC 13 2000

cc AY, PR, SF, MC

In Reply
Refer to: WTR-5
Certified Mail # P-274-220-028
Return Receipt Requested

M. J. Elliott
Safety and Operations Manager
BHP-Minerals Navajo Coal Company
P.O. Box 155
Fruitland, NM 87416

Re: NPDES Permit NM0028193, BHP-Minerals Navajo Coal Company–Navajo Mine

Dear Mr. Elliott:

Enclosed is a final National Pollutant Discharge Elimination System (NPDES) permit for the BHP-Minerals Navajo Mine. The draft permit was public noticed on October 19, 2000, in the Navajo Times. The only comments received by EPA during the comment period were submitted by BHP-Minerals, dated November 16, 2000. BHP-Minerals identified the changes made in the facility since 1998, which resulted in discontinued discharge at several outfalls. The remaining discharging outfalls include Outfall Nos. 001, 002, 006-011, 013, and 016-018. EPA noted the changes and made the corrections as requested. There were no significant changes were made from the draft to the final permit and this permit will become effective three days from the date of mailing.

If you have any questions concerning this matter, please contact Linh Tran at (415) 744-1901

Sincerely,

Terry N. Oda, Chief
CWA Standards and Permits Office

Enclosure
cc: Patrick Antonio, Navajo Nation EPA (w/ enclosure)
Debra Bills, USFWS (w/o enclosure)

Printed on Recycled Paper

NPDES Permit No. NM0028193

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, as amended (33 U.S.C. 1251 et seq.; the "Act"),

BHP Minerals International, Incorporated
Western U.S. Mining Division
550 California Street
San Francisco, CA 94104

is authorized to discharge from a facility located at Navajo Mine, 6 miles southwest of Fruitlant, San Juan County, New Mexico,

Latitude: 36° 42'-43' N
Longitude: 108° 24'-25' W

to receiving waters named Morgan Lake and the Chaco River, which both drain to Segment 2-401 of the San Juan River Basin, in accordance with effluent limitations, monitoring requirements and in the attached 14 pages of EPA Region 9 "Standard Federal NPDES Permit Conditions," dated May 10, 1990.

This permit shall become effective on DEC 16 2000

This permit and the authorization to discharge shall expire at midnight, December 17, 2005.

Signed this 30th day of November

For the Regional Administrator

Catherine Kuhn for

Alexis Strauss, Director
Water Division
U.S. EPA, Region 9

SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS AS REQUIRED UNDER 40 CFR §434

1. OUTFALL NOs. 001, 006-011, 013, 016-018: Mine Drainage

During the period beginning on the effective date of this permit and lasting through date of expiration, the permittee is authorized to discharge from Outfall Numbers 001, 006-011, 013 and 016-018.

Such discharges shall be limited and monitored by the permittee as specified below. Samples shall be collected prior to mixing with other waste source stream and/or discharge to surface waters. Outfall No. 001 discharges to Morgan Lake and Outfalls Nos. 001, 006-011, 013 and 016-018 discharge to the Chaco River. Minor releases of water from the irrigation line for routine maintenance and winterization are specifically excluded from the provisions of this NPDES permit.

Effluent Parameter	Units	Monthly Average	Daily Average	Daily Maximum	Monitoring Frequency(1)	Sampling Type
Flow	MGD	--	--	--	Once/Day(2)	Calculated
TSS	mg/l	--	35	70	1/occurrence	Discrete
Iron, total	mg/l	--	3.5	7.0	1/occurrence	Discrete
pH	std. units	between 6.0 to 9.0			1/occurrence	Discrete

NOTES:

Samples shall be taken once during each occurrence or once every 24 hours if the duration of the occurrence is greater than 24 hours.

Based upon pumping rates.

2. OUTFALL No. 002 - Coal Storage, Coal Preparation and Ancillary Area Runoff

During the period beginning on the effective date of this permit and lasting through date of expiration, the permittee is authorized to discharge from Outfall No. 002.

Such discharges shall be limited and monitored by the permittee as specified below. Samples shall be collected prior to mixing with any other waste source stream and/or discharge to

surface waters. Outfall No. 002 discharges to Morgan Lake. Minor releases of water from the irrigation line for routine maintenance and winterization are specifically excluded from the provisions of this NPDES permit.

Effluent Parameter	Units	Monthly Average	Daily Average	Daily Maximum	Monitoring Frequency[1]	Sampling Type
Flow	MGD	--	--	--	Once/Day[2]	Calculated
TSS	mg/l	--	35	70	1/occurrence	Discrete
Iron, total	mg/l	--	3.5	7.0	1/occurrence	Discrete
Manganese, total	mg/l	--	2.0	4.0	1/occurrence	Discrete
pH	std units	between 6.0 to 9.0			1/occurrence	Discrete

NOTES:

Samples shall be taken once during each occurrence or once every 24 hours if the duration of the occurrence is greater than 24 hours.

Based upon pumping rates

SECTION B. GENERAL DISCHARGE SPECIFICATIONS

All Waters of the Navajo Nation shall be free from pollutants in amounts or combinations that, for any duration:

2 Cause injury to, are toxic to, or otherwise adversely affect human health, public safety, or public welfare.

3 Cause injury to, are toxic to, or otherwise adversely affect the habitation, growth, or propagation of indigenous aquatic plant and animal communities or any member of these communities; of any desirable non-indigenous member of these communities; of waterfowl accessing the water body; or otherwise adversely affect the physical, chemical, or biological conditions on which these communities and their members depend.

4. Settle to form bottom deposits, including sediments, precipitates and organic materials, that cause injury to, are toxic to, or otherwise adversely affect the habitation, growth, or propagation of indigenous aquatic plant and animal communities or any member of these communities; of any

desirable non-indigenous member of these communities; of waterfowl accessing the water body; or otherwise adversely affect the physical, chemical, or biological conditions on which these communities and their members depend.

5. Cause physical, chemical, or biological conditions that promote the habitation, growth or propagation of undesirable, non-indigenous species of plant or animal life in the water body.

6. Cause solids, oil, grease, foam, scum, or any other form of objectionable floating debris on the surface of the water body; may cause a film or irridescent appearance on the surface of the water body; or that may cause a deposit on a shoreline, on a bank, or on aquatic vegetation.

7. Cause objectionable odor in the area of the water body

8. Cause objectionable taste, odor, color, or turbidity in the water body.

9. Cause objectionable taste in edible plant and animal life, including waterfowl, that reside in, on, or adjacent to the water body.

SECTION C. PERMIT REOPENER

Should any of the monitoring indicate that the discharge causes, has the reasonable potential to cause, or contributes to excursion above a water quality criteria, the permit may be reopened for the imposition of water quality based limits and/or whole effluent toxicity limits. Also, this permit may be modified, in accordance with the requirements set forth at 40 CFR Parts 122 and 124, to include appropriate conditions or limits to address demonstrated effluent toxicity based on newly available information, or to implement any EPA-approved new Tribal water quality standards applicable to effluent toxicity.

SECTION D. <u>MONITORING AND REPORTING</u>

1. <u>Reporting of Monitoring Results</u>

   a Monitoring results shall be reported on Discharge Monitoring Report (DMR) forms (EPA No. 3320-1) to be supplied by the EPA Regional Administrator, to the extent that the information reported may be entered on the forms. The results of all monitoring required by this permit shall be submitted in such a format as to allow

direct comparison with the limitations and requirements of the permit.

Unless otherwise specified, discharge flows shall be summarized and reported annually unless discharges occur. In the event that discharges occur, discharge data shall be submitted no later than the 15th day of the month following the discharge event(s). Duplicate signed copies of these, and all other reports required herein, shall be submitted to the Regional Administrator and the Navajo Nation at the following addresses:

Regional Administrator
Environmental Protection Agency
Region IX, Attn: WTR-7
75 Hawthorne Street
San Francisco, CA 94105

Navajo Nation EPA
NPDES Program
P.O. Box 339
Window Rock, AZ 86515

b. For effluent analyses, the permittee shall utilize an EPA-approved analytical method with a Method Detection Limit (MDL) that is lower than the effluent limitations (or lower than applicable water quality criteria, listed in A.A.C. Title 18, Chapter 11, Article 1, for trace substances where monitoring is required but no effluent limitations have been established.) MDL is the minimum concentration of an analyte that can be detected with 99% confidence that the analyte concentration is greater than zero, as defined by the specific laboratory method listed in 40 CFR Part 136. The procedure for determination of a laboratory MDL is in 40 CFR Part 136, Appendix B.

c If all published MDLs are higher than the effluent limitations (or applicable criteria concentrations), the permittee shall utilize the EPA-approved analytical method with the lowest published MDL.

3. <u>Monitoring and Records</u>

Records of monitoring information shall include:

a. Date, exact location, and time or sampling or measurements performed, preservatives used;
b. Individual(s) who performed the sampling or measurements;
c. Date(s) analyses were performed;
d. Laboratory(ies) which performed the analyses;
e. Analytical techniques or methods used;
f. Any comments, case narrative or summary of results produced by the laboratory. These should identify and discuss QA/QC analyses performed concurrently during sample analyses and should specify whether they met project and 40 CFR Part 136 requirements. The summary of

results must include information on inititial and continuing calibration, surrogate analyses, blanks, duplicates, laboratory control samples, matrix spike and matrix spike duplicate results, sample receipt condition, holding times, and preservation.

g. Summary of data interpretation and any corrective action taken by the permittee.

h. Effluent limitations for analytes/compounds being analyzed.

4 Twenty-Four Hour Reporting of Noncompliance

The permittee shall report any compliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances to the following persons or their offices:

CWA Compliance Office Chief U.S. EPA (415) 744-1905	The Navajo Nation EPA - NPDES (520) 871-7187

If the permittee is unsuccessful in contacting the persons above, the permittee shall report by 9 a.m. on the first business day following the noncompliance. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including dates and times, and, if the noncompliance has not been corrected, the time it is expected to continue; and steps or planned to reduce, eliminate, and prevent reoccurence of the noncompliance.

SECTION E. INSPECTION AND ENTRY

The permittee shall allow representatives of the Navajo Nation to accompany the EPA Regional Administrator, or an authorized representative or in lieu of the Regional Administrator, on inspections performed under authority of Section 10: Inspection and Entry of the EPA, Region 9, "Standard Federal Permit Conditions" as attached.

SECTION F. DEFINITIONS

The following definitions shall apply unless otherwise specified in this permit:

1 "Discrete sample" means any individual sample collected in less than 15 minutes.

2. "Daily discharge" means the discharge of a pollutant

measured during a calendar day or any 24-hour period that reasonably represents the calendar for purposes of sampling. For pollutants with limitations expressed in terms of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the sampling day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the sampling day. "Daily discharge" determination of concentration made using a composite sample shall be the concentration of the composite sample. When grab samples are used, the "daily discharge" determination of concentration shall be the arithmetic average (weighted by flow value) of all samples collected during that sampling day.

3 "Daily average" discharge limitation means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.

5. "Daily maximum" concentration means the measurement made on any single discrete sample or composite sample.

6 "Daily maximum" mass limit means the highest allowable "daily discharge" by mass during any calendar day.

7 A "composite sample" means, for flow rate measurements, the arithmetic mean of no fewer than 8 individual measurements taken at equal intervals for eight (8) hours or for the duration of discharge, whichever is shorter. A composite sample means, for than flow rate measurement, a combination of eight (8) individual portions obtained at equal time intervals for eith (8) hours or for the duration of the discharge, whichever is shorter. The volume of each individual portion shall be directly proportional to the discharge flow rate at the time of sampling. The sampling period shall coincide with the period of maximum discharge flow.

8. A "monthly or weekly average" concentration limitation means the arithmetic mean of consecutive measurements made during a calendar monthly or weekly period, respectively. The "monthly or weekly average" concentration for fecal or total coliform bacteria means the geometric mean of measurements made during a monthly or weekly period, respectively. The geometric mean is the nth root of the product of n numbers.

9. A "monthly or weekly average" mass limitation means the

total discharge by mass during a calendar monthly or weekly period, respectively, divided by the number of days in the period that the facility was discharging. Where less than daily sampling is required by this permit, the monthly or weekly average value shall be determined by the summation of all the measured discharges by mass divided by the number of days during the monthly or weekly period when the measurements were made.