Prevention of Significant Deterioration Permit Pursuant to 40 CFR 52.21 and Minor NSR Permit in Indian Country Pursuant to 40 CFR 49.151-161

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 9

PSD Permit Number: AZ 08-01A
Tribal NSR Permit: T-0004-NN

Permittee: Salt River Project Agricultural Improvement and Power District
Mail Station PAB352
P.O. Box 52025
Phoenix, AZ 85072

Facility Name: Navajo Generating Station

Facility Location: On the Navajo Nation Indian Reservation, approximately five miles east of Page off State Route 98, in Coconino County, Arizona.

Pursuant to the provisions of the Clean Air Act (CAA), Section 110(a) and 301(d), and the Code of Federal Regulations (CFR) Title 40, Sections 49.151-161, the United States Environmental Protection Agency Region 9 (EPA) is issuing a Minor New Source Review (NSR) permit in Indian County to Salt River Project for Navajo Generating Station (NGS). The Prevention of Significant Deterioration (PSD) air quality permit conditions pursuant to 40 CFR Section 52.21 in AZ 08-01A last issued on February 6, 2012, and included in this combined PSD and Minor NSR permit ("Permit"), remain unchanged. The PSD-specific conditions are in Section IX and the Minor NSR-specific conditions are in Section X. This permit revision authorizes construction of the Refined Coal Treatment System (RCTS) at NGS.

SRP is authorized to construct and operate the NGS as described herein, in accordance with the Permit, the federal PSD regulations at 40 CFR 52.21, the Minor NSR regulations at 40 CFR 49.151-161, and other terms and conditions set forth in this Permit. Failure to comply with any condition or term set forth in this Permit is subject to enforcement action pursuant to Section 113 of the Clean Air Act. This Permit does not relieve NGS from the obligation to comply with applicable federal, state, and Navajo Nation Environmental Protection Agency air pollution control rules and regulations.

Per 40 CFR 49.159(a), the minor NSR portion of this permit will become effective 30 days after service of notice of this final permit decision unless review is requested on the permit pursuant to 40 CFR 49.159(d). The PSD portion of this permit remains effective and is unchanged.

Deborah Jordan
Director, Air Division

4-20-2016
Date

Navajo Generating Station
PSD Permit No. AZ 08-01A: Low NO_X Burner Project

Project Description
The Navajo Generating Station (NGS) has a combined power generating capacity of 2,250 net megawatts and consists of three existing coal-fired steam generating units (Boiler Units 1, 2, and 3), associated air pollution control devices, and auxiliary equipment. The facility was constructed in 1970 and is located on the Navajo Nation Indian Reservation approximately five miles east of Page, Arizona. Units 1, 2, and 3 are operated by the Salt River Project Agricultural and Power District (SRP) and co-owned by the following six entities: U.S. Bureau of Reclamation, SRP, Los Angeles Department of Water and Power, Arizona Public Service Company, Nevada Power, and Tucson Electric Power Company. The Permittee receives coal with a maximum sulfur content of 1.5% by weight from the Peabody Western Coal Company's Kayenta Mine.

SRP decided to implement voluntary emission reduction projects at the NGS by retrofitting all three boilers with Low-NO_x Burners (LNBs) and separated over-fire air (SOFA) systems. All three boilers have been retrofitted since PSD Permit AZ 08-01 was issued on November 20, 2008.

Although the LNB/SOFA Project significantly reduces emissions of NO_x at NGS, it also results in a significant increase in CO emissions. This significant increase in CO emission triggered a Best Available Control Technology (BACT) review for emissions of CO as part of the issuance for PSD Permit AZ 08-01. The boilers were retrofitted and not originally designed for optimum combustion as with new units. Thus, it was difficult to appropriately assess the required CO emissions limitation.

Rather than setting the CO emission rates equal to the lowest proposed BACT limitation for new units, EPA incorporated a proposed emission rate of 0.42 lb/MMBtu, based on a rolling 30-day average into the previous permit along with language that would allow the limit to be ratcheted down following the first 18 months of operation of the LNB/SOFA systems. In accordance with this permit requirement, SRP submitted CO and NO_x emissions data from Unit 3, the first boiler unit outfitted with the LNB/SOFA system. This data was used to determine the appropriate CO emissions limit for all three boilers. Although this permit revision establishes the final CO emissions limitation for Units 1, 2 and 3 at NGS, Demonstration Period reporting requirements are still required for Units 1 and 2.

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Administrative Amendment (August 2015)
NGS has added a new mercury control system consisting of a calcium bromide application system and a new powdered activated carbon (PAC) injection system for Units 1, 2, and 3. The addition of this equipment also increases truck traffic at NGS for the routine delivery of calcium bromide and PAC. This project results in emissions increases of particulate matter (PM, PM_{10}, and $PM_{2.5}$) from the PAC system's storage silos and fugitive truck traffic emissions for deliveries of calcium bromide and PAC.

Refined Coal Treatment System (Proposed Project)
NGS is adding a new Refined Coal Treatment System (RCTS) which adds calcium bromide and cement kiln dust to the coal prior to being pulverized for combustion in Units 1, 2, and 3. The project consists of:

- Installation of two coal feed belt conveyors (BC-11A and BC-11B);
- Installation of two mixing pugmills where cement kiln dust and calcium bromide will be applied to the coal;
- Installation of two refined coal product belt conveyors (BC-12A and BC-12B);
- Installation of two dust collection and filtering systems, DC-12 and DC-13, for the new coal handling operations;
- Installation of three 150 ton cement kiln dust storage silos, each equipped with baghouses (DC-14, DC-15, and DC-16);
- Installation of two 20 ton day bins for cement kiln dust, each equipped with baghouses (DC-17 and DC-18);
- Installation of a 8,700 gallon storage tank and two 405 gallon day tanks for calcium bromide storage;
- Increased truck traffic on unpaved roads for delivery of cement kiln dust and calcium bromide;

This project results in emissions increases of particulate matter (PM, PM_{10}, and $PM_{2.5}$) from the RCTS's cement kiln dust storage silos and day bins, belt conveyors, and fugitive truck traffic emissions for deliveries of cement kiln dust and calcium bromide. The project will also result in minimal increased emissions of particulate matter (PM, PM_{10}, and $PM_{2.5}$) from boiler Units 1, 2 and 3 due to the increased ash content of the coal, but the emissions limits for those Units will remain unchanged.

EQUIPMENT DESCRIPTION

Unit ID / Stack ID	Unit Description	Maximum Capacity	Controls
Existing Equipment			
Boiler 1-U1/ Stack- S1	One (1) pulverized coal-fired boiler, using No. 2 fuel oil for ignition fuel. Stack S1 equipped with SO_2, CO, and NO_x CEMS, and a COMS.	7,725 MMBtu/hr; 750 Net MW	FGD system, SCBR1 (1999); ESP1, LNB/SOFA system (2011)
Boiler 2-U2/ Stack- S2	One (1) pulverized coal-fired boiler, using No. 2 fuel oil for ignition fuel. Stack S1 equipped with SO_2, CO, and NO_x CEMS, and a COMS.	7,725 MMBtu/hr; 750 Net MW	FGD system, SCBR2 (1998); ESP2, LNB/SOFA system (2010)
Boiler 3-U3/ Stack- S3	One (1) pulverized coal-fired boiler, using No. 2 fuel oil for ignition fuel. Stack S1 equipped with SO_2, CO, and NO_x CEMS, and a COMS.	7,725 MMBtu/hr; 750 Net MW	FGD system, SCBR3 (1997); ESP3, LNB/SOFA system (2009)
PAC Silo A	Storage silo for powdered activated carbon (PAC)	1,200 scfm	Baghouse (integral to system)
PAC Silo B	Storage silo for PAC	1,200 scfm	Baghouse (integral to system)
Fugitive-PAC	Truck traffic on unpaved roads for PAC delivery	30 VMT/yr	Water spray, chemical stabilization, or gravel
Fugitive-CaBr2	Truck traffic on unpaved roads for calcium bromide delivery	365 VMT/yr	Water spray, chemical stabilization, or gravel
New Equipment			
DC-12	Coal handling dust collection system	16,500 scfm	High-efficiency dust collector
DC-13	Coal handling dust collection system	6,000 scfm	High-efficiency dust collector
DC-14	Cement kiln dust silo 1	450 scfm	Baghouse (integral to system)
DC-15	Cement kiln dust silo 2	450 scfm	Baghouse (integral to system)
DC-16	Cement kiln dust silo 3	450 scfm	Baghouse (integral to system)
DC-17	Cement kiln dust day bin 1	1,200 scfm	Baghouse (integral to system)
DC-18	Cement kiln dust day bin 2	1,200 scfm	Baghouse (integral to system)
Fugitive-Cement Kiln Dust	Truck traffic on unpaved Roads for cement kiln dust delivery	720 VMT/yr	Water spray, chemical stabilization, or gravel
Fugitive-CaBr2	Truck traffic on unpaved roads for calcium bromide delivery	70 VMT/yr	Water spray, chemical stabilization, or gravel

PERMIT CONDITIONS

I. PERMIT EXPIRATION

As provided in 40 CFR 52.21(r), this PSD Permit shall become invalid if construction:

A. is not commenced (as defined in 40 CFR 52.21(b)(9)) within 18 months after the approval takes effect; or

B. is discontinued for a period of 18 months or more; or

C. is not completed within a reasonable time.

II. PERMIT NOTIFICATION REQUIREMENTS

Permittee shall notify EPA Region 9 in writing or by electronic mail of the:

A. date construction is commenced, postmarked within 30 days of such date.

B. actual date of initial startup, as defined in 40 CFR 60.2, postmarked within 15 days of such date.

C. date upon which initial performance tests will commence, in accordance with the provision of Section IX.F, postmarked not less than 30 days prior to such date. Notification may be provided with the submittal of the performance test protocol required pursuant to Section IX.F.

D. date upon which initial performance evaluation of the CEMS will commence in accordance with 40 CFR 60.13(c), postmarked not less than 30 days prior to such date. Notification may be provided with the submittal of the CEMS performance test protocol required pursuant to Condition IX.E.5.

III. FACILITY OPERATION

At all times, including periods of startup, shutdown and malfunction, Permittee shall, to the extent practicable, maintain and operate the facility including associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the EPA which may include, but is not limited to, monitoring results, opacity observations, review of operating maintenance procedures and inspection of the source.

IV. MALFUNCTION REPORTING

A. Permittee shall notify EPA by facsimile or electronic mail at R9.AEO@epa.gov within two (2) working days following the discovery of any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner, which results in an increase in emissions above the allowable emission limit stated in Condition IX.B of this permit.

B. In addition, Permittee shall notify EPA in writing or electronic mail within fifteen (15) days of any such failure described under Condition IV.A. This notification shall include a description of the malfunctioning equipment or abnormal operation, the date of the initial malfunction, the period of time over which emissions were increased due to the failure, the cause of the failure, the estimated resultant emissions in excess of those allowed in Condition IX.B, and the methods utilized to mitigate emissions and restore normal operations.

C. Compliance with this malfunction notification provision shall not excuse or otherwise constitute a defense to any violation of this permit or any law or regulation such malfunction may cause.

V. RIGHT OF ENTRY

The EPA Regional Administrator, and/or an authorized representative, upon the presentation of credentials, shall be permitted:

A. to enter the premises where the source is located or where any records are required to be kept under the terms and conditions of this PSD Permit; and

B. during normal business hours, to have access to and to copy any records required to be kept under the terms and conditions of this PSD Permit; and

C. to inspect any equipment, operation, or method subject to requirements in this PSD Permit; and

D. to sample materials and emissions from the source(s).

VI. TRANSFER OF OWNERSHIP

In the event of any changes in control or ownership of the facilities to be constructed, this PSD Permit shall be binding on all subsequent owners and operators. Permittee shall notify the succeeding owner and operator of the existence of this PSD Permit and its conditions by letter, a copy of which shall be forwarded to EPA Region 9 at the address shown in Section X.

VII. SEVERABILITY

The provisions of this PSD Permit are severable, and, if any provision of the PSD Permit is held invalid, the remainder of this PSD Permit shall not be affected.

VIII. OTHER APPLICABLE REGULATIONS

Permittee shall construct and operate this project in compliance with this PSD Permit, the application on which this Permit is based, and all other applicable federal, state, and local air quality regulations. This PSD Permit does not release the Permittee from any liability for compliance with other applicable federal, state and local environmental laws and regulations, including the Clean Air Act.

IX. SPECIAL CONDITIONS PURSUANT TO 40 CFR 52.21 - PSD

Low-NO_x Burner (LNB) & Separated Over-fire Air (SOFA) Requirements

A. Prior to commencement of installation, the Permittee shall submit the following information to EPA:

1. Design specifications of the LNB/SOFA system to be installed.

2. At least one month prior to the date of initial start-up, an LNB/SOFA system operating plan which sets forth measures that will be taken to maintain and operate the system in a manner to ensure compliance with the emission limits specified in Condition IX.B.

B. Emission Limits

1. Carbon monoxide (CO) emissions from each unit shall not exceed the following:

   a. 0.23 lb/MMBtu based on a 30-day rolling average, and

   b. 0.15 lb/MMBtu based on a 12-month rolling average

2. Nitrogen oxide emissions (NO_x) from each unit shall not exceed 0.24 lb/MMBtu based on a 30-day rolling average.

C. Demonstration Period Requirements

1. Demonstration Period is defined as the first 18 months of operation after installation of the LNB/SOFA system.

2. After the Demonstration Period for each of the U1 and U2 LNB/SOFA systems, the Permittee shall submit to EPA a written report together with CO CEMS data showing actual CO emissions while maintaining NO_x emission levels at or below 0.24 lb/MMbtu on a 30-day rolling average. The

report shall provide all supporting documentation identifying the combustion characteristics that impact CO emissions. This report shall also evaluate the ten highest occurrences for a one-hour average and an 8-hour average for pounds per hour CO. If these averages are inconsistent (higher) with the modeling submittal, either a new modeling analysis will be required to assure maintenance of the CO NAAQS or a short term limit will be established for the permit.

D. At all times, including periods of startup and shutdown, the Permittee shall, to the extent practicable, maintain and operate the LNB/SOFA system in a manner consistent with good combustion practices to minimize emissions.

E. Continuous Emission Monitoring Systems

1. Within 60 days of completion of installation of each LNB/SOFA system, the Permittee shall install, and thereafter operate, maintain, certify, and quality-assure a continuous emission monitoring system (CEMS) for each boiler which measures stack gas CO concentrations in lb/MMbtu.
2. The CO CEMS shall meet the applicable requirements of 40 CFR Part 60 Appendix B, Performance Specifications 3 and 4A, and 40 CFR Part 60 Appendix F, Procedure 1. The diluent monitor (O_2 or CO_2) must meet the requirements of 40 CFR Part 75.
3. Permittee shall operate, maintain, and quality-assure according to the requirements of 40 CFR Part 75, a CEMS for each boiler which measures stack gas NO_x concentrations in lb/MMbtu. The NO_x CEMs must meet the requirements of 40 CFR Part 75.
4. The CO CEMS shall complete a minimum of one cycle of operations (sampling, analyzing and data recording) for each successive 15-minute period.
5. Permittee shall submit a CO CEMS performance test protocol to the EPA no later than 30 days prior to the test date to allow review of the test plan and to arrange for an observer to be present at the test. The performance test shall be conducted in accordance with the submitted protocol, and any changes required by EPA.
6. Permittee shall furnish the EPA a written report of the results of performance tests within 60 days of completion.
7. The CO CEMS shall be tested annually and quarterly in accordance with the requirements of 40 CFR 60 Appendix F, Procedure 1. The NO_x CEMS shall meet the quality assurance requirement found in 40 CFR Part 75.

F. Performance Test

A thirty day initial performance test for CO and NO_x shall be conducted with the CEMS starting the day after successful completion of the performance testing for

the CO CEMS. A report of the NO_x and CO hourly emissions during this initial test shall be submitted to EPA within 30 days of completion of the test.

G. Recordkeeping and Reporting Requirements

1. Permittee shall maintain records of the hours of operation for U1, U2 and U3 on a monthly basis.

2. Permittee shall maintain records of the amount of fuel used in U1, U2 and U3 on a monthly basis.

3. Permittee shall maintain all records on site of actual operating data and emissions calculations for emissions limits required in Condition IX.B.

4. Permittee shall maintain CEMS records that contain the following: the occurrence and duration of any startup, shutdown or malfunction, performance testing, evaluations, calibrations, checks, adjustments, maintenance, duration of any periods during which a continuous monitoring system or monitoring device is inoperative, and emission measurements.

5. Permittee shall maintain records and submit a written report of all excess emissions to EPA semi-annually. The report is due on the 30th day following the end of the calendar quarter and shall include the following:

   a. Time intervals, data and magnitude of the excess emissions, the nature and cause (if known), corrective actions taken and preventive measures adopted;

   b. Applicable time and date of each period during which the CEMS was inoperative (monitor down time), except for zero and span checks, and the nature of system repairs or adjustments; and

   c. A negative declaration when no excess emissions occurred or when the CEMS has not been inoperative, repaired, or adjusted.

6. Excess emissions shall be defined as any operating day in which the 30-day rolling average CO and NO_x concentration, as measured by the CEMS, exceeds the maximum emission limits set forth in Condition IX.B.

7. A period of monitor down time shall be any unit operating hour in which sufficient data are not obtained to validate the hour for CO, NO_x, or O_2.

8. Excess emissions indicated by the CEMS shall be considered violations of the applicable emission limit for the purpose of this permit.

9. All records required by this PSD Permit shall be retained for five years following the date of such measurements, maintenance, and reports.

X. SPECIAL CONDITIONS PURSUANT TO 40 CFR 49.151-161 – MINOR NSR IN INDIAN COUNTRY – Units IDs: PAC Silo A, PAC Silo B, Dust Collectors DC-12 and DC-13, Cement Kiln Dust Storage Silos DC-14 through DC-16, Cement Kiln Dust Day Bins DC-17 and DC-18, Fugitive-PAC, Fugitive-CKD, Fugitive-CaBr2

A. Operating Requirements

1. Vehicle miles traveled (VMT) for truck traffic associated with the delivery of powdered activated carbon (Fugitive-PAC) shall not exceed 30 VMT per 12-month period.

2. VMT for truck traffic associated with the delivery of calcium bromide (Fugitive-CaBr2) shall not exceed 435 VMT per 12-month period.

3. VMT for truck traffic associated with the delivery of cement kiln dust (Fugitive-CKD) shall not exceed 720 VMT per 12-month period.

4. The dust on the site roadways shall be controlled such that visible fugitive dust emissions do not exceed 20 percent opacity. The Permittee may use applications of water, chemical dust suppressants, or gravel to control dust from site roadways.

5. The Permittee shall load vehicles to prevent their contents from dropping, leaking, blowing, or otherwise escaping. This shall be accomplished by loading so that no part of the load shall come in contact within six (6) inches of the top of any side board, side panel, or tail gate; otherwise the truck shall be tarped. Any material spillage on roads shall be cleaned up immediately.

6. The Permittee shall post a speed limit sign of 15 miles-per-hour or lower on site so that it is visible to truck traffic.

B. Monitoring and Recordkeeping Requirements

1. The Permittee shall monitor and maintain records on a calendar month basis of each PAC delivery, the VMT of each delivery, and determine the 12-month rolling total.

2. The Permittee shall monitor and maintain records on a calendar month basis of each calcium bromide delivery, the VMT of each delivery, and determine the 12-month rolling total.

3. The Permittee shall monitor and maintain records on a calendar month basis of each cement kiln dust delivery, the VMT of each delivery, and determine the 12-month rolling total.

4. At least once during each calendar week the Permittee shall perform a visible emissions survey for each PAC Silo (Silos A and B), Dust Collectors DC-12 and DC-13, Cement Kiln Dust Storage Silos (DC-14 through DC-16), and Cement Kiln Dust Day Bins (DC-17 and DC-18). The survey shall be performed during daylight hours by an individual trained in EPA Method 22 while the equipment is in operation. If visible emissions are detected during the survey, the permittee shall perform a 6-minute EPA Method 9 observation. If visible emissions during the 6-minute EPA Method 9 observation exceed 7 percent opacity, the Permittee shall take corrective action so that within 24 hours no visible emissions are detected.

5. Baghouse or dust collector filters for PAC Silo (Silos A and B), Dust Collectors DC-12 and DC-13, Cement Kiln Dust Storage Silos (DC-14 through DC-16), and Cement Kiln Dust Day Bins (DC-17 and DC-18) shall be inspected and/or replaced by the Permittee as often as necessary to ensure proper operation or more frequently as indicated by pressure differential readings or other indication of filter failure.

6. The Permittee shall maintain an on-site inventory of spare bags or filters of each type used for PAC Silo (Silos A and B), Dust Collectors DC-12 and DC-13, Cement Kiln Dust Storage Silos (DC-14 through DC-16), and Cement Kiln Dust Day Bins (DC-17 and DC-18) to ensure rapid replacement in the event of bag or filter failure.

7. The Permittee shall maintain records of the date and time of any road watering or application of chemical dust suppressants or gravel performed.

8. At least once during each calendar month, the Permittee shall inspect to check that water is flowing to discharge spray nozzles in the road watering system or water spraying vehicles. The owner or operator must initiate corrective action within 24 hours and complete corrective action as expediently as possible. The dates and results of the monitoring performed on the road watering system or water spraying vehicles, any corrective action taken as a result of each survey, and the result of any corrective action shall be recorded.

XI. AGENCY NOTIFICATIONS

All correspondence as required by this permit must be forwarded to:

Director, Air Division (Attn: AIR-3)
EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105-3901
e-mail: R9AirPermits@epa.gov and AEO_R9@epa.gov

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

Attachment A: Abbreviations and Acronyms

acfm	actual cubic feet per minute
CAA or the Act	Federal Clean Air Act
CFR	Code of Federal Regulations
CKD	cement kiln dust
EPA	United States Environmental Protection Agency, Region 9
EU	emissions unit
hr	hour
lb/hr	pounds per hour
NAAQS	National ambient air quality standards
NSR	new source review
PM	particulate matter
PSD	prevention of significant deterioration
RCTS	refined coal treatment system
scfm	standard cubic feet per minute
VMT	vehicle miles traveled