

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Air Quality Division

1110 W. Washington Street Phoenix, AZ 85007 Phone: (602) 771-2338

AIR QUALITY CONTROL PERMIT

(As required by Title 49, Chapter 3, Article 2, Section 49-426, Arizona Revised Statutes)

This air quality control permit does not relieve applicant of responsibility for meeting all air pollution regulations

1. PERMIT TO BE ISSUED TO (Business license name of organization that is to receive permit) _____

Arizona Public Service Company

2. NAME (OR NAMES) OF OWNER OR PRINCIPALS DOING BUSINESS AS THE ABOVE ORGANIZATION _____

Arizona Public Service Company

3. MAILING ADDRESS **P. O. Box 188** _____

Joseph City, AZ 86032

4. EQUIPMENT LOCATION/ADDRESS **4801 Cholla Lake Road** _____

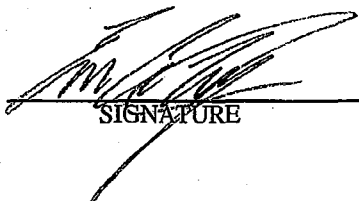
Joseph City, Navajo County, AZ 86032

5. FACILITIES OR EQUIPMENT DESCRIPTION **Cholla generating station** _____

6. THIS PERMIT ISSUED SUBJECT TO THE FOLLOWING ***Conditions as described in the permit revision*** _____

7. ADEQ PERMIT NUMBER **61713 (Significant Revision to Permit No 53399)** PERMIT CLASS **I**

REVISED PERMIT ISSUED THIS **16th** DAY OF **October**, **2015**



SIGNATURE

Eric C. Massey, Director, Air Quality Division

TITLE

SIGNIFICANT PERMIT REVISION DESCRIPTION

This Significant Permit Revision No. 61713 to Operating Permit No. 53399 is proposed to be issued to the Arizona Public Service Company (APS) Cholla Generating Station. The revision incorporates the following changes to the permit:

- Retirement of Unit 2 by April 1, 2016;
- Voluntary emission reductions for Unit 1 for NO_x, SO₂, and PM₁₀;
- Permanent cessation of coal firing at Units 3 and 4 by April 30, 2025; and
- Optional conversion of Units 1, 3, and 4 to pipeline-quality natural gas fuel by July 31, 2025 with voluntary lower emission limits and an annual capacity factor not to exceed 20 percent.

Attachment "F" is hereby added to Permit No. 53399:

ATTACHMENT "F": SPECIFIC CONDITIONS

**Addenda - Significant Revision #61713 to Operating Permit # 53399
For
Arizona Public Service Company – Cholla Generating Station**

I. GENERAL

[A.A.C. R18-2-306.A.2]

- A.** The requirements under this Attachment "F" shall become effective on the date of final action by the U.S. Environmental Protection Agency (EPA), approving Attachment "F" as part of the State Implementation Plan for Arizona, provided that such final EPA action also revokes or rescinds EPA's Federal Implementation Plan (published in 77 Federal Register 72512 (December 5, 2012)), insofar as that Federal Implementation Plan establishes emission limits or other requirements for one or more units of the Cholla Generating Station.
- B.** Where multiple emission limits, standards, or requirements apply to a unit, the most stringent limit, standard, or requirement shall be applicable.
- C.** Compliance Schedule
1. Unit 2 shall be permanently retired by no later than April 1, 2016.
 2. Units 1, 3, and 4 shall permanently stop burning coal or fuel oil or used oil by April 30, 2025.
 3. By July 31, 2025, the Permittee may convert any or all of Units 1, 3, and 4 to natural gas operation.
- D.** If the Permittee chooses to convert any of the Units 1, 3, and 4 to natural gas operation, these units shall be limited to an annual capacity factor of 20 percent or less.
- E.** When this Attachment "F" becomes effective in accordance with Condition I.A above, the Regional Haze State Implementation Plan (SIP) and Federal Implementation Plan (FIP) requirements incorporated by Permit Revision No. 60129 will no longer be applicable.

F. Definitions

1. Boiler-operating day means a 24-hour period between 12 midnight and the following midnight during which any fuel is combusted at any time in the unit.
2. Operating hour means any hour that fossil fuel is fired in the unit.
3. PM₁₀ means filterable total particulate matter less than 10 microns and the condensable material in the impingers as measured by Methods 201A and 202.
4. Valid data means data recorded when the CEMS is not out-of-control as defined by 40 CFR Part 75.

G. All reports and notifications under this Section shall be submitted to the EPA Administrator at the following address:

The Director of Enforcement Division
U.S. EPA Region IX
75 Hawthorne Street,
San Francisco, CA 94105

II. REQUIREMENTS FOR UNIT 1

A. Emission Limitations

1. Until the permanent cessation of coal burning or April 30, 2025, whichever is earlier, Unit 1 shall comply with the following emission limits:

a. Nitrogen Oxides (NO_x)

The Permittee shall not cause to be discharged into the atmosphere from Steam Boiler Unit 1 any gases that contain NO_x in excess of 0.22 lb/MMBtu heat input, averaged over 30 boiler-operating days.

[A.A.C. R18-2-306.A.2]

b. Sulfur Dioxide (SO₂)

(1) The Permittee shall not cause to be discharged into the atmosphere from Unit 1 any gases that contain SO₂ in excess of 0.15 lb/MMBtu heat input, averaged over 30 boiler-operating days.

(2) The Permittee shall not cause to be discharged into the atmosphere from Unit 1 any gases that contain SO₂ in excess of 5 percent of the potential combustion concentration (95 percent reduction), averaged over 30 boiler-operating days.

[A.A.C. R18-2-306.A.2]

c. Particulate Matter less than 10 microns (PM₁₀)

The Permittee shall not cause to be discharged into the atmosphere from Unit 1 any gases that contain PM₁₀ in excess of 0.015 lb/MMBtu heat input.

[A.A.C. R18-2-306.A.2]

2. Upon conversion of the Unit 1 to natural gas operation, the Permittee shall comply with the following emission limits:

a. Nitrogen Oxides (NO_x)

The Permittee shall not cause to be discharged into the atmosphere any gases that contain NO_x in excess of 0.08 lb/MMBtu heat input, averaged over 30 boiler-operating days.

[A.A.C. R18-2-306.A.2]

b. Sulfur Dioxide (SO₂)

The Permittee shall not cause to be discharged into the atmosphere any gases that contain SO₂ in excess of 0.0006 lb/MMBtu heat input, averaged over 30 boiler-operating days.

[A.A.C. R18-2-306.A.2]

c. Particulate Matter less than 10 microns (PM₁₀)

The Permittee shall not cause to be discharged into the atmosphere any gases that contain total PM₁₀ in excess of 0.01 lb/MMBtu heat input.

[A.A.C. R18-2-306.A.2]

B. Air Pollution Control Requirements

At all times, including periods of startup, shutdown, and malfunction, the owner or operator shall, to the extent practicable, maintain and operate the unit including associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions. Pollution control equipment shall be designed and capable of operating properly to minimize emissions during all expected operating conditions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Director and EPA Administrator, which may include, but is not limited to, monitoring results, review of operating and maintenance procedures, and inspection of the unit.

[A.A.C. R18-2-306.A.3.c and A.A.C. R-18-2-331A.3.e]

[Material Permit Condition indicated by italics and underline]

C. Monitoring Requirements

1. At all times, the Permittee shall calibrate, maintain, and operate CEMS, in full compliance with the requirements found at 40 CFR Part 75, to accurately measure SO₂, NO_x, diluent, and stack gas volumetric flow rate from each unit.

[A.A.C. R18-2-306.A.3.c and A.A.C. R-18-2-331A.3.e]

[Material Permit Condition indicated by italics and underline]

2. At all times, the Permittee shall calibrate, maintain, and operate CEMS, in full compliance with the requirements found at 40 CFR Part 75, to accurately measure SO₂ emissions and diluent at the inlet of the sulfur dioxide control device.

[A.A.C. R18-2-306.A.3.c and A.A.C R-18-2-331A.3.c]
[Material Permit Condition indicated by italics and underline]

3. All valid CEMS hourly data shall be used to determine compliance with the emission limitations for NO_x and SO₂ in Conditions II.A.1 and II.A.2 for each unit.

[A.A.C. R18-2-306.A.3.c]

4. When the CEMS is out-of-control as defined by Part 75, the CEMS data shall be treated as missing data and not be used to calculate the emission average of the affected unit. Each required CEMS shall obtain valid data for at least 90 percent of the unit operating hours, on an annual basis.

[A.A.C. R18-2-306.A.3.c]

5. The Permittee shall comply with the quality assurance procedures for CEMS found in 40 CFR Part 75. In addition to these Part 75 requirements, relative accuracy test audits shall be calculated for both the NO_x and SO₂ pounds per hour measurement and the heat input measurement, and such hourly CEMS monitoring data shall not be bias adjusted. The inlet SO₂ and diluent monitors shall also meet the Quality Assurance/Quality Control (QA/QC) requirements of 40 CFR Part 75. The testing and evaluation of the inlet monitors and the calculations of relative accuracy for lb/hr of NO_x, SO₂, and heat input shall be performed each time the CEMS undergo relative accuracy testing. In addition, relative accuracy test audits shall be performed in the units of lb/MMBtu for the inlet and outlet SO₂ monitors.

[A.A.C. R18-2-306.A.3.c]

D. Compliance Requirements

1. Nitrogen Oxides (NO_x)

- a. The 30-day rolling average NO_x emission rate shall be calculated for each calendar day, even if the unit is not in operation on that calendar day, in accordance with the following procedure:

[A.A.C. R18-2-306.A.3.c]

- (1) Step 1 – sum the hourly pounds of NO_x emitted during the current boiler-operating day (or most recent boiler-operating day if the unit is not in operation), and the preceding twenty-nine (29) boiler-operating days, to calculate the total pounds of NO_x emitted over the most recent thirty (30) boiler-operating-day period;
- (2) Step 2 – sum the hourly heat input, in MMBtu, during the current boiler-operating day (or most recent boiler-operating day if the unit is not in operation), and the preceding twenty-nine (29) boiler-operating days, to calculate the total heat input, in MMBtu over the most recent thirty (30) boiler-operating-day period;
- (3) Step 3 – Divide the total pounds of NO_x emitted from step one

by the total heat input from step two to calculate the 30 day rolling average NO_x emission rate in pounds of NO_x per MMBtu, for each calendar day for the unit.

- b. Each 30-day rolling average NO_x emission rate shall include all emissions and all heat input that occur during all periods within any boiler-operating day, including emissions from startup, shutdown, and malfunction.

[A.A.C. R18-2-306.A.3.c]

- c. If a valid NO_x pounds per hour or heat input is not available for any hour, that heat input and NO_x pounds per hour shall not be used in the calculation of the 30-day rolling average.

[A.A.C. R18-2-306.A.3.c]

2. Sulfur Dioxide (SO₂)

- a. The 30-day rolling average SO₂ emission rate shall be calculated in accordance with the following procedure:

[A.A.C. R18-2-306.A.3.c]

- (1) Step one – Sum the total pounds of SO₂ emitted from the unit during the current boiler-operating day and the previous twenty-nine (29) boiler-operating days;
- (2) Step two – Sum the total heat input to the unit in MMBtu during the current boiler-operating day and the previous twenty-nine (29) boiler-operating days; and
- (3) Step three – Divide the total number of pounds of SO₂ emitted during the thirty (30) boiler-operating days by the total heat input during the thirty (30) boiler-operating days.
- (4) A new 30-day rolling average SO₂ emission rate shall be calculated for each new boiler-operating day.
- (5) Each 30-day rolling average SO₂ emission rate shall include all emissions and all heat input that occur during all periods within any boiler-operating day, including emissions from startup, shutdown, and malfunction.
- (6) If a valid SO₂ pounds per hour at the outlet of the FGD system or heat input is not available for any hour for the unit, that heat input and SO₂ pounds per hour shall not be used in the calculation of the 30-day rolling average.

- b. The 30-day rolling average SO₂ removal efficiency for each unit shall be calculated as follows:

[A.A.C. R18-2-306.A.3.c]

- (1) Step one – Sum the total pounds of SO₂ emitted as measured at the outlet of the FGD system for the unit during the current boiler-operating day and the previous twenty-nine (29) boiler-operating days as measured at the outlet of the FGD system for

the unit;

- (2) Step two – Sum the total pounds of SO₂ delivered to the inlet of the FGD system for the unit during the current boiler-operating day and the previous twenty-nine (29) boiler-operating days as measured at the inlet to the FGD system for the unit (for each hour, the total pounds of SO₂ delivered to the inlet of the FGD system shall be calculated by measuring the ratio of the lb/MMBtu SO₂ inlet to the lb/MMBtu SO₂ outlet and multiplying the outlet pounds of SO₂ by that ratio);
- (3) Step three – Subtract the outlet SO₂ emissions calculated in step one from the inlet SO₂ emissions calculated in step two;
- (4) Step four – Divide the remainder calculated in step three by the inlet SO₂ emissions calculated in step two; and
- (5) Step five – Multiply the quotient calculated in step four by 100 to express as percent removal efficiency.
- (6) A new 30-day rolling average SO₂ removal efficiency shall be calculated for each new boiler-operating day, and shall include all emissions that occur during all periods within each boiler-operating day, including emissions from startup, shutdown, and malfunction.
- (7) If both a valid inlet and outlet SO₂ lb/MMBtu and an outlet value of lb/hr of SO₂ are not available for any hour, that hour shall not be included in the efficiency calculation.

3. Particulate Matter less than 10 microns (PM₁₀)

- a. Until permanent cessation of coal burning in Unit 1, the Permittee shall demonstrate compliance with the PM₁₀ emission limitations specified in Condition II.A.1.c by conducting annual stack tests. The Permittee shall use EPA Method 5 or Method 5B in 40 CFR Part 60, Appendix A, or Method 5 as described in 40 CFR Part 63, Subpart UUUUU, Table 5 or Method 201A in 40 CFR Part 51, Appendix M for filterable PM₁₀ and Method 202 in 40 CFR Part 51, Appendix M for condensable PM₁₀.
[A.A.C. R18-2-312]
- b. Within 90 days of conversion to pipeline-quality natural gas, the Permittee shall demonstrate compliance with the PM₁₀ emission limitation in Condition II.A.2.c by conducting performance test using the test method specified in Condition III.D.3.a above. After the initial performance test, the Permittee shall demonstrate continuous compliance through use of pipeline-quality natural gas.
[A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]
- c. A test protocol shall be submitted to ADEQ a minimum of thirty (30) days prior to the scheduled testing. The protocol shall identify which method(s) will be used to demonstrate compliance.
[A.A.C. R18-2-312]

- d. The performance test shall consist of three runs, with each run at least 120 minutes in duration and each run collecting a minimum sample of 60 dry standard cubic feet. Results shall be reported in lb/MMBtu using the calculation in 40 CFR Part 60, Appendix A, Method 19.

[A.A.C. R18-2-312]

- e. In addition to required stack tests, the Permittee shall monitor particulate emissions for compliance with the emission limitations in accordance with any applicable Compliance Assurance Monitoring (CAM) plan in Attachment "E" of the permit. The averaging time for any other demonstration of PM₁₀ compliance or exceedance shall be based on a 6-hour average.

[A.A.C. R18-2-312]

E. Recordkeeping Requirements

The Permittee shall maintain the following records for at least five years:

1. All CEMS data, including the date, place, and time of sampling or measurement; parameters sampled or measured; and results.
[A.A.C. R18-2-306.A.3.c]
2. Daily 30-day rolling emission rates for NO_x and SO₂, and SO₂ removal efficiency, when applicable, for each unit, calculated in accordance with II.D.1 and II.D.2 of this Section.
[A.A.C. R18-2-306.A.3.c]
3. Records of quality assurance and quality control activities for emissions measuring systems, including, but not limited to, any records required by 40 CFR Part 75.
[A.A.C. R18-2-306.A.3.c]
4. Records of the relative accuracy test for hourly NO_x and SO₂ lb/hr measurement and hourly heat input measurement.
[A.A.C. R18-2-306.A.3.c]
5. Records of all major maintenance activities conducted on the emission units, air pollution control equipment, and CEMS.
[A.A.C. R18-2-306.A.3.c]
6. Any other records required by 40 CFR Part 75
[A.A.C. R18-2-306.A.3.c]
7. If the unit is converted to natural gas operation in 2025, a record of a current valid purchase contract, tariff sheet, transportation contract, or other acceptable documentation specifying the maximum total sulfur content of the pipeline-quality natural gas. This record shall be updated annually.
[A.A.C. R18-2-306.A.4]

F. Reporting Requirements

1. All reports and notifications under this Section shall be submitted to the ADEQ Director and EPA Administrator.

[A.A.C. R18-2-306.A.3.c]

2. Within 15 days of permanent cessation of coal burning in Unit 1, the Permittee shall notify the Director and the EPA Administrator.
[A.A.C. R18-2-306.A.5]
3. If the Permittee chooses to convert Unit 1 to natural gas operation, the Permittee shall notify the Director and the EPA Administrator at least 30 days prior to such conversion.
[A.A.C. R18-2-306.A.5]
4. Within 30 days of every second calendar quarter (i.e., semi-annually), the Permittee shall submit a report that lists the 30-day-rolling emission rate for NO_x and SO₂, and SO₂ removal efficiency calculated in accordance with Conditions II.D.1, II.D.2.a, and II.D.2.b, respectively, including the results of any relative accuracy test audit performed during the two preceding calendar quarters.
[A.A.C. R18-2-306.A.3.c]
5. Within 30 days of conversion to pipeline-quality natural gas, and within 30 days of every second calendar quarter thereafter (i.e., semi-annually), the Permittee shall submit a report that lists the daily 30-day rolling emission rates for NO_x and SO₂ for the unit, calculated in accordance with Conditions II.D.1 and II.D.2.a, respectively, including the results of any relative accuracy test audit performed during the two preceding calendar quarters.
[A.A.C. R18-2-306.A.5]
6. For the purpose of Conditions II.F.4 and 5 above, the Permittee may request, and the Department may authorize in writing, different semi-annual reporting dates to harmonize with other semi-annual reporting requirements in the permit.
[A.A.C. R18-2-306.A.5]

III. REGIONAL HAZE REQUIREMENTS FOR UNITS 2, 3, AND 4

A. Emission Limitations

1. Unit 2

Until April 1, 2016, Unit 2 shall comply with the following emission limits:

a. Nitrogen Oxides (NO_x)

The Permittee shall not cause to be discharged into the atmosphere from Steam Boiler Unit 2 any gases that contain NO_x in excess of 0.30 lb/MMBtu heat input, averaged over 30 boiler-operating days.

[A.A.C. R18-2-306.A.2]

b. Sulfur Dioxide (SO₂)

(1) The Permittee shall not cause to be discharged into the atmosphere from Steam Boiler Unit 2 any gases that contain SO₂ in excess of 0.25 lb/MMBtu heat input, averaged over 30 boiler-operating days.

[A.A.C. R18-2-306.A.2]

(2) The Permittee shall not cause to be discharged into the atmosphere from Steam Boiler Unit 2 any gases that contain SO₂

in excess of 10 percent of the potential combustion concentration (90 percent reduction), averaged over 30 boiler-operating days.

[A.A.C. R18-2-306.A.2]

c. Particulate Matter less than 10 microns (PM₁₀)

The Permittee shall not cause to be discharged into the atmosphere from Steam Boiler Unit 2 any gases that contain PM₁₀ in excess of 0.025 lb/MMBtu heat input.

[A.A.C. R18-2-306.A.2]

2. Units 3 and 4

a. Until the permanent cessation of coal burning or April 30, 2025, whichever is earlier, Units 3 and 4 shall comply with the following emission limits:

(1) Nitrogen Oxides (NO_x)

The Permittee shall not cause to be discharged into the atmosphere from each unit any gases that contain NO_x in excess of 0.22 lb/MMBtu heat input, averaged over 30 boiler-operating days.

[A.A.C. R18-2-306.A.2]

(2) Sulfur Dioxide (SO₂)

(a) The Permittee shall not cause to be discharged into the atmosphere from each unit any gases that contain SO₂ in excess of 0.15 lb/MMBtu heat input, averaged over 30 boiler-operating days.

[40 CFR 52.145(e)(1)]

(b) The Permittee shall not cause to be discharged into the atmosphere from each unit any gases that contain SO₂ in excess of 5 percent of the potential combustion concentration (95 percent reduction), averaged over 30 boiler-operating days.

[40 CFR 52.145(f)(3)(ii)]

(3) Particulate Matter less than 10 microns (PM₁₀)

The Permittee shall not cause to be discharged into the atmosphere from each unit any gases that contain PM₁₀ in excess of 0.015 lb/MMBtu heat input.

[40 CFR 52.145(e)(1)]

b. Upon conversion of any of the Units 3 and 4 to natural gas operation, the Permittee shall comply with the following emission limits:

(1) Nitrogen Oxides (NO_x)

The Permittee shall not cause to be discharged into the atmosphere any gases that contain NO_x in excess of 0.08

lb/MMBtu heat input, averaged over 30 boiler-operating days.
[A.A.C. R18-2-306.A.2]

(2) Sulfur Dioxide (SO₂)

The Permittee shall not cause to be discharged into the atmosphere any gases that contain SO₂ in excess of 0.0006 lb/MMBtu heat input, averaged over 30 boiler-operating days.
[A.A.C. R18-2-306.A.2]

(3) Particulate Matter less than 10 microns (PM₁₀)

The Permittee shall not cause to be discharged into the atmosphere any gases that contain total PM₁₀ in excess of 0.01 lb/MMBtu heat input.
[A.A.C. R18-2-306.A.2]

B. Air Pollution Control Requirements

At all times, including periods of startup, shutdown, and malfunction, the owner or operator shall, to the extent practicable, maintain and operate the unit including associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions. Pollution control equipment shall be designed and capable of operating properly to minimize emissions during all expected operating conditions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the EPA Administrator which may include, but is not limited to, monitoring results, review of operating and maintenance procedures, and inspection of the unit.

[40 CFR 145(f)(10), A.A.C.R 18-2-331A.3.e]

[Material Permit Condition indicated by italics and underline]

C. Monitoring Requirements

1. At all times, the Permittee shall calibrate, maintain, and operate CEMS, in full compliance with the requirements found at 40 CFR Part 75, to accurately measure SO₂, NO_x, diluent, and stack gas volumetric flow rate from each unit.

[40 CFR 145(f)(5)(i)(A), A.A.C R-18-2-331A.3.c]

[Material Permit Condition indicated by italics and underline]

2. At all times, the Permittee shall calibrate, maintain, and operate CEMS, in full compliance with the requirements found at 40 CFR Part 75, to accurately measure SO₂ emissions and diluent at the inlet of the sulfur dioxide control device.

[40 CFR 145(f)(5)(i)(A), A.A.C R-18-2-331A.3.c]

[Material Permit Condition indicated by italics and underline]

3. All valid CEMS hourly data shall be used to determine compliance with the emission limitations for NO_x and SO₂ in Conditions III.A.1.a, III.A.1.b, III.A.2.a(1), III.A.2.a(2), III.A.2.b(1), and III.A.2.b(2) for each unit.

[40 CFR 145(f)(5)(i)(A)]

4. When the CEMS is out-of-control as defined by Part 75, that CEMS data shall be treated as missing data and not be used to calculate the emission average of the affected unit. Each required CEMS shall obtain valid data for at least 90 percent of the unit operating hours, on an annual basis.

[40 CFR 145(f)(5)(i)(A)]

5. The Permittee shall comply with the quality assurance procedures for CEMS found in 40 CFR Part 75. In addition to these Part 75 requirements, relative accuracy test audits shall be calculated for both the NO_x and SO₂ pounds per hour measurement and the heat input measurement, and such hourly CEMS monitoring data shall not be bias adjusted. The inlet SO₂ and diluent monitors shall also meet the Quality Assurance/Quality Control (QA/QC) requirements of 40 CFR Part 75. The testing and evaluation of the inlet monitors and the calculations of relative accuracy for lb/hr of NO_x, SO₂, and heat input shall be performed each time the CEMS undergo relative accuracy testing. In addition, relative accuracy test audits shall be performed in the units of lb/MMBtu for the inlet and outlet SO₂ monitors.

[40 CFR 145(f)(5)(i)(B)]

D. Compliance Requirements

1. Nitrogen Oxides (NO_x)

- a. The 30-day rolling average NO_x emission rate for each unit shall be calculated for each calendar day, even if a unit is not in operation on that calendar day, in accordance with the following procedure:

[40 CFR 145(f)(5)(ii)(A)]

- (1) Step 1 – sum the hourly pounds of NO_x emitted during the current boiler-operating day (or most recent boiler-operating day if the unit is not in operation), and the preceding twenty-nine (29) boiler-operating days, to calculate the total pounds of NO_x emitted over the most recent thirty (30) boiler-operating-day period for each coal-fired unit;
- (2) Step 2 – sum the hourly heat input, in MMBtu, during the current boiler-operating day (or most recent boiler-operating day if the unit is not in operation), and the preceding twenty-nine (29) boiler-operating days, to calculate the total heat input, in MMBtu over the most recent thirty (30) boiler-operating-day period for each coal-fired unit;
- (3) Step 3 – Divide the total pounds of NO_x emitted from step one by the total heat input from step two for each unit to calculate the 30-day rolling average NO_x emission rate in pounds of NO_x per MMBtu, for each calendar day.

- b. Each 30-day rolling average NO_x emission rate shall include all emissions and all heat input that occur during all periods within any boiler-operating day, including emissions from startup, shutdown, and malfunction.

[40 CFR 145(f)(5)(ii)(A)]

- c. If a valid NO_x pounds per hour or heat input is not available for any hour

for a unit, that heat input and NO_x pounds per hour shall not be used in the calculation of the 30-day rolling average.

[40 CFR 145(f)(5)(ii)(C)]

2. Sulfur Dioxide (SO₂)

- a. The 30-day rolling average SO₂ emission rate for each unit shall be calculated in accordance with the following procedure:

[40 CFR 145(f)(5)(iii)(A) and (C)]

- (1) Step one – Sum the total pounds of SO₂ emitted from the unit during the current boiler-operating day and the previous twenty-nine (29) boiler-operating days;
- (2) Step two – Sum the total heat input to the unit in MMBtu during the current boiler-operating day and the previous twenty-nine (29) boiler-operating days; and
- (3) Step three – Divide the total number of pounds of SO₂ emitted during the thirty (30) boiler-operating days by the total heat input during the thirty (30) boiler-operating days.
- (4) A new 30-day rolling average SO₂ emission rate shall be calculated for each new boiler-operating day.
- (5) Each 30-day rolling average SO₂ emission rate shall include all emissions and all heat input that occur during all periods within any boiler-operating day, including emissions from startup, shutdown, and malfunction.
- (6) If a valid SO₂ pounds per hour at the outlet of the FGD system or heat input is not available for any hour for a unit, that heat input and SO₂ pounds per hour shall not be used in the calculation of the 30-day rolling average.

- b. The 30-day rolling average SO₂ removal efficiency for each unit shall be calculated as follows:

[40 CFR 145(f)(5)(iii)(B) and (D)]

- (1) Step one – Sum the total pounds of SO₂ emitted as measured at the outlet of the FGD system for the unit during the current boiler-operating day and the previous twenty-nine (29) boiler-operating days as measured at the outlet of the FGD system for that unit;
- (2) Step two – Sum the total pounds of SO₂ delivered to the inlet of the FGD system for the unit during the current boiler-operating day and the previous twenty-nine (29) boiler-operating days as measured at the inlet to the FGD system for that unit (for each hour, the total pounds of SO₂ delivered to the inlet of the FGD system for a unit shall be calculated by measuring the ratio of the lb/MMBtu SO₂ inlet to the lb/MMBtu SO₂ outlet and multiplying the outlet pounds of SO₂ by that ratio);

- (3) Step three – Subtract the outlet SO₂ emissions calculated in step one from the inlet SO₂ emissions calculated in step two;
- (4) Step four – Divide the remainder calculated in step three by the inlet SO₂ emissions calculated in step two; and
- (5) Step five – Multiply the quotient calculated in step four by 100 to express as percent removal efficiency.
- (6) A new 30-day rolling average SO₂ removal efficiency shall be calculated for each new boiler-operating day, and shall include all emissions that occur during all periods within each boiler-operating day, including emissions from startup, shutdown, and malfunction.
- (7) If both a valid inlet and outlet SO₂ lb/MMBtu and an outlet value of lb/hr of SO₂ are not available for any hour, that hour shall not be included in the efficiency calculation.

3. Particulate Matter less than 10 microns (PM₁₀)

- a. Until retirement of Unit 2, and permanent cessation of coal burning in Units 3 and 4, the Permittee shall demonstrate compliance with the PM₁₀ emission limitations specified in Condition III.A.1.c and III.A.2.a(3) by conducting annual stack tests. The Permittee shall use EPA Method 5 or Method 5B in 40 CFR Part 60, Appendix A, or Method 5 as described in 40 CFR Part 63, Subpart UUUUU, Table 5 or Method 201A in 40 CFR Part 51, Appendix M for filterable PM₁₀, and Method 202 in 40 CFR Part 51, Appendix M for condensable PM₁₀.
[40 CFR 145(f)(6), A.A.C. R18-2-312]
- b. Within 90 days of conversion to pipeline-quality natural gas operation for Units 3 and/or Unit 4, the Permittee shall demonstrate compliance with the PM₁₀ emission limitations in Condition III.A.2.b(3) by conducting a performance test in accordance with the test method specified in Condition III.D.3.a above. After completion of the initial performance test, continuous compliance shall be demonstrated through use of pipeline-quality natural gas.
[A.A.C. R18-2-312]
- c. A test protocol shall be submitted to ADEQ a minimum of thirty (30) days prior to the scheduled testing. The protocol shall identify which method(s) will be used to demonstrate compliance.
[40 CFR 145(f)(6), A.A.C. R18-2-312]
- d. Each test shall consist of three runs, with each run at least 120 minutes in duration and each run collecting a minimum sample of 60 dry standard cubic feet. Results shall be reported in lb/MMBtu using the calculation in 40 CFR Part 60, Appendix A, Method 19.
[40 CFR 145(f)(6), A.A.C. R18-2-312]
- e. In addition to required stack tests, the Permittee shall monitor particulate emissions for compliance with the emission limitations in accordance with any applicable Compliance Assurance Monitoring (CAM) plan in

Attachment "E" of the permit. The averaging time for any other demonstration of PM₁₀ compliance or exceedance shall be based on a 6-hour average.

[40 CFR 145(f)(6)]

E. Recordkeeping Requirements

The Permittee shall maintain the following records for at least five years:

1. All CEMS data, including the date, place, and time of sampling or measurement; parameters sampled or measured; and results.
[40 CFR 145(f)(7)(i)]
2. Daily 30-day rolling emission rates for NO_x and SO₂, and SO₂ removal efficiency, when applicable, for each unit, calculated in accordance Conditions III.D.1, III.D.2.a, and III.D.2.b of this Section.
[40 CFR 145(f)(7)(ii)]
3. Records of quality assurance and quality control activities for emissions measuring systems, including, but not limited to, any records required by 40 CFR Part 75.
[40 CFR 145(f)(7)(iii)]
4. Records of the relative accuracy test for hourly NO_x and SO₂ lb/hr measurement and hourly heat input measurement.
[40 CFR 145(f)(7)(iv)]
5. Records of all major maintenance activities conducted on emission units, air pollution control equipment, and CEMS.
[40 CFR 145(f)(7)(v)]
6. Any other records required by 40 CFR Part 75.
[40 CFR 145(f)(7)(vi)]
7. If any of the Units 3 and 4 are converted to natural gas operation in 2025, a record of a current valid purchase contract, tariff sheet, transportation contract, or other acceptable documentation specifying the maximum total sulfur content of the pipeline-quality natural gas. This record shall be updated annually.
[A.A.C. R18-2-306.A.4]

F. Reporting Requirements

1. All reports and notifications under this Section shall be submitted to the ADEQ Director and the EPA Administrator.
[40 CFR 145(f)(8)]
2. The Permittee shall notify the Director and the EPA Administrator within 15 days of the permanent shut down of Unit 2.
[A.A.C. R18-2-306.A.5]
3. Within 15 days of permanent cessation of coal burning coal in Units 3 and 4, the Permittee shall notify the Director and the EPA Administrator.
[A.A.C. R18-2-306.A.5]
4. If the Permittee chooses to convert any of Units 3 and 4 to natural gas operation,

the Permittee shall notify the Director and the EPA Administrator at least 30 days prior to such conversion.

[A.A.C. R18-2-306.A.5]

5. Within 30 days of every second calendar quarter (i.e., semi-annually), the Permittee shall submit a report that lists the 30-day-rolling emission rate for NO_x and SO₂, and SO₂ removal efficiency calculated in accordance with Conditions III.D.1, III.D.2.a, and III.D.2.b, respectively, including the results of any relative accuracy test audit performed during the two preceding calendar quarters.

[40 CFR 145(f)(8)(ii)]

6. Within 30 days after conversion to pipeline-quality natural gas, and within 30 days of every second calendar quarter thereafter (i.e., semi-annually), the Permittee shall submit a report that lists the daily 30-day rolling emission rates for NO_x and SO₂, for each unit, calculated in accordance with Conditions III.D.1 and III.D.2.a, respectively, including the results of any relative accuracy test audit performed during the two preceding calendar quarters.

[A.A.C. R18-2-306.A.5]

7. The Permittee may request, and the Department may authorize in writing, different semi-annual reporting dates to harmonize with other semi-annual reporting under the then-effective permit.

[A.A.C. R18-2-306.A.5]