



APPENDIX C-1

FirstEnergy Redacted Consent Order and Agreement

**Bureau of Air Quality
Department of Environmental Protection**

[This page intentionally left blank.]

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

In The Matter Of:

FirstEnergy Generation, LLC	:	SO ₂ 1 hour NAAQS
Bruce Mansfield Generating Station	:	Nonattainment;
128 Ferry Hill Rd	:	Portions of Beaver Co.
Shippingport, PA 15077-0128	:	

CONSENT ORDER AND AGREEMENT

This Consent Order and Agreement ("COA") is entered into this 21st day of September, 2017 by and between the Commonwealth of Pennsylvania, Department of Environmental Protection ("Department" or "DEP"), and FirstEnergy Generation, LLC ("FirstEnergy").

The Department has found and determined the following:

~~A. The Department is the agency with the duty and authority to administer and enforce the Air Pollution Control Act, Act of January 8, 1960, P.L. 2119 (1959), as amended, 35 P.S. § 4001 et seq. ("APCA"); Section 1917 A of the Administrative Code of 1929, Act of April 9, 1929, P.L. 177, as amended, 71 P.S. § 510-17; and the rules and regulations promulgated thereunder.~~

~~B. FirstEnergy is an Ohio limited liability company authorized to do business in Pennsylvania, with a mailing address of 76 South Main Street, Akron, Ohio 44308.~~

~~C. FirstEnergy owns a coal-fired, steam electrical generation station ("Bruce Mansfield Facility"), located at 128 Ferry Hill Road in Shippingport Borough, Beaver County, Pennsylvania.~~

D. The Bruce Mansfield Facility is presently covered by Title V Operating Permit No. 04-00235, which expires on April 2, 2018.

E. The Bruce Mansfield Facility presently includes the following sulfur dioxide (SO₂) emitting sources ("SO₂ Emitting Sources"):

- 1) Three Foster Wheeler boilers (Units 1, 2, and 3), each nominally rated at 7,914 MMBtu/hr. Units 1 and 2 exhaust through a common stack (Chimney 1), and Unit 3 has its own stack (Chimney 2).
- 2) Three Auxiliary Boilers, each nominally rated at 248 MMBtu/hr.
- 3) Two Diesel Generators, each nominally rated at 3,000 BHP.

F. Each of the Bruce Mansfield Facility's SO₂ Emitting Sources described in Paragraph E, above, is an air contamination source as that term is defined in Section 3 of the APCA, 35 P.S. § 4003.

G. SO₂ emissions are controlled by flue gas desulfurization units (FGD); one FGD for each of the 3 Units. Units 1 & 2 have identical venturi FGD's and Unit 3 has a horizontal co-current design FGD (collectively "FGDs").

Background of Requirements for Commonwealth to Submit Revision to State Implementation Plan (SIP)

H. On June 22, 2010, the United States Environmental Protection Agency (EPA) promulgated a revised primary (health-based) national ambient air quality standard (NAAQS) for Sulfur Dioxide (SO₂). See 75 FR 35520, June 22, 2010 (hereinafter "2010 1-Hour SO₂ NAAQS"). Specifically, the EPA established a new 1-hour standard at a level of 75 parts per billion (ppb), which is met at an ambient air quality monitoring site when the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations is less than or equal to 75 ppb. These revised SO₂ standards became effective on August 23, 2010.

I. On August 5, 2013, at 78 FR 47191, EPA designated the following municipalities in Beaver County as being in nonattainment for the 2010 1-Hour SO₂ NAAQS: Industry Borough, Shippingport Borough, Midland Borough, Brighton Township, Potter Township, and Vanport Township ("Beaver nonattainment area"). The designations took effect October 4, 2013.

J. Pursuant to Section 191 of the Clean Air Act (CAA), 42 U.S.C. § 7514, the Commonwealth of Pennsylvania was required to develop and submit to EPA a State Implementation Plan revision ("SIP revision") to address the Beaver nonattainment area within 18 months (April 4, 2015) from the effective date of the 2010 1-Hour SO₂ NAAQS nonattainment designations.

K. On March 18, 2016, effective April 18, 2016, EPA published a final action to find that Pennsylvania failed to submit a SIP revision to satisfy nonattainment area planning requirements of the CAA for the 2010 1-Hour SO₂ NAAQS.

L. Specific statutory requirements for a SIP submittal can be found in Section 172(e) of the CAA.

M. The SIP revision is subject to a public comment period and opportunity for a public hearing.

N. Because the Bruce Mansfield Facility is a point source located in the Beaver nonattainment area with SO₂ emissions that are reasonably expected to contribute to nonattainment of the area, it was included in atmospheric dispersion modeling for demonstration of attainment per Appendix W to 40 C.F.R. Part 51 and in accordance with Guidance for 1-Hour Sulfur Dioxide (SO₂) Nonattainment Area State Implementation Plans (SIP) Submissions.

O. DEP performed a modeling determination ("Modeling Determination") for the Beaver nonattainment area, concluding that the area would achieve modeled attainment of the 2010 1-hour SO₂ NAAQS if the Bruce Mansfield Facility SO₂ Emitting Sources were subject to certain enforceable emission limitations. The Modeling Determination is incorporated into the SIP revision.

P. Contingency measures are a required component of the SIP revision pursuant to Section 172(c)(9) of the CAA.

ORDER

After full and complete negotiation of all matters set forth in this Consent Order and Agreement and upon mutual exchange of covenants contained herein, the parties desiring to avoid litigation and intending to be legally bound, it is hereby ORDERED by the Department and AGREED to by FirstEnergy as follows:

1. ~~Authority.~~ This Consent Order and Agreement is an Order of the Department authorized and issued pursuant to Sections 4 and 10.1 of the APCA, 35 P.S. §§ 4004 and 10.1, and Section 1917-A of the Administrative Code, 71 P.S. § 510-17.

2. ~~Findings.~~

a. FirstEnergy agrees that the findings in Paragraphs A through E and G are true and correct, and, in any matter or proceeding involving FirstEnergy and the Department, FirstEnergy shall not challenge the accuracy or validity of these findings.

b. The parties do not authorize any other persons to use the findings in this COA in any matter or proceeding.

3 Required Action.

a. **Emission Restrictions:** On and after October 1, 2018, FirstEnergy shall begin calculating a lb/hr 30-operating day rolling average SO₂ emission rate for Unit 1 (Source ID 031) and Unit 2 (Source ID 032) from Chimney 1 (Stacks S01-S04), and a 30-operating day rolling average SO₂ emission rate for Unit 3 (Source ID 033) from Chimney 2 (Stacks S05 and S06), at the Bruce Mansfield Facility using data from the Department-certified Continuous Emission Monitoring Systems (CEMS) at the Bruce Mansfield Facility. The 30-operating day rolling average SO₂ emissions rate shall be calculated using the procedures outlined in the Mercury and Air Toxics Standards (MATS) regulations in 40 C.F.R. Parts 60 and 63. The 30-operating day rolling average SO₂ emissions rate for Units 1 and 2 cannot exceed the result of EQ-1, below, with Chimney 1 and Chimney 2 in service, calculated daily. In addition, the 30-operating day rolling average emissions rate cannot exceed 7,362 lb/hr for Units 1 and 2 combined. The 30-operating day rolling average SO₂ emissions rate cannot exceed 3,584 lb/hr for Unit 3.

$$\text{EQ-1: CH1SO2 Lim} = -1.38\text{E-}04 \times \text{CH2SO2}^2 - 0.920 \times \text{CH2SO2} + 7100$$

Where:

CH1SO2 Lim: Chimney 1 SO₂ lb/hr 30day rolling average Limit

$$\text{CH1SO2 Lim} \leq 7,362 \text{ lb/hr}$$

CH2SO2: Chimney 2 SO₂ lb/hr 30 day rolling average.

$$\text{CH2SO2} \leq 3,584 \text{ lb/hr}$$

Compliance with this limit shall be illustrated by a clear display of the calculated emission rate and actual emission rate, available at all times in the control room at the Bruce Mansfield Facility using data from the Department-certified CEMS.

b. **Emissions Monitoring.** Beginning on and after October 1, 2018, FirstEnergy shall use its Department-certified CEMS to demonstrate compliance with the new emission restrictions as detailed in Paragraph 3.a. of this COA, above. In accordance with the current version of the Department's Continuous Source Monitoring Manual, FirstEnergy shall continue to provide quarterly reports of emissions data as recorded by the CEMS to the Department.

c. **Flue Gas Desulfurization.** FirstEnergy shall achieve at least a 95% removal efficiency from the FGDs following the general requirements contained in 25 Pa. Code Chapter 139.11. FirstEnergy shall annually test for removal efficiency of the FGDs by using a combination of CEMS data and coal sampling in accordance with the procedures outlined in 40 CFR Part 60, Appendix A, Method 19. Three test runs shall be conducted concurrently in the two flues that feed each unit. Each test run shall be a minimum of sixty minutes in duration. A report of the efficiency test shall be provided annually to the Department. Each Report shall be provided to the person identified in Paragraph 9. The first report shall be submitted within one (1) year of the final execution of this COA and annually thereafter. FirstEnergy shall maintain records of the operation of and emissions monitoring from the FGDs, including the annual efficiency report.

d. **Contingency Measures.** In accordance with Section 172(c) of the CAA, FirstEnergy shall implement the following contingency measures:

i. If SO₂ emissions from Units 1, 2, and 3 exceed 99% of the limits in Paragraph 3.a., FirstEnergy shall, within 48 hours, begin a full system audit of Units 1, 2, and 3 SO₂ controls. The audit shall document the operating parameters of the sources and their control devices and evaluate whether the units and control

devices were operating effectively. If the units and/or control devices were not operating effectively, FirstEnergy shall identify corrective actions to be implemented to ensure that the limits in Paragraph 3.a. are not exceeded. Only one audit in a seven operating day period is required if SO₂ emissions from Units 1, 2, and 3 exceed 99% of the limits in Paragraph 3.a.. The audit shall be documented and records maintained on site, and a report documenting the audit provided to DEP within 45 days of completing the audit.

ii. At any time after October 1, 2018, if any Department SO₂ monitor within the Beaver nonattainment area measures a 1-hour concentration exceeding 75 ppb, the Department will notify Jewel Acquisition, Koppel Tubular, Shell, and FirstEnergy in writing. A 1-hour SO₂ concentration that exceeds 75 ppb at any Department SO₂ monitor in the Beaver nonattainment area will be referred to herein as a "daily exceedance." FirstEnergy shall identify whether Unit 1, Unit 2, and/or Unit 3 were running at the time of the exceedance, and within a reasonable time period leading up to the exceedance. If Unit 1, Unit 2, and/or Unit 3 were running at the time of the exceedance, and within a reasonable time period leading up to the exceedance, FirstEnergy shall perform an analysis of meteorological data on the day the daily exceedance occurred to ensure that the daily exceedance was not due to SO₂ emissions from that source. The meteorological data analysis may include trajectories run at three different heights (one at stack height and two more within the boundary layer) by NOAA's Hysplit program or an equivalent program, hourly meteorological data collected at the FirstEnergy Beaver Valley nuclear power station to determine stability parameters within the river valley,

and/or an analysis of Pittsburgh International Airport's radiosonde data and modeled upper air data. The overall goal of the meteorological data analysis is to investigate if emissions from the source could have potentially mixed down to the SO₂ monitor measuring the exceedance. The source's finding must be submitted in writing to the Department within 45 days of the Department notifying FirstEnergy.

~~4. Stipulated Penalties:~~

~~a. In the event FirstEnergy fails to comply with the emission limitations in Paragraph 3.a., above, and emissions monitoring in Paragraph 3.b., above, FirstEnergy shall be in violation of this COA and, in addition to other applicable remedies, shall pay a civil penalty in accordance with Compliance Assurance Policy for CEMS on Combustion Units (TGD No. 273-4000-005).~~

~~b. Any payment under this paragraph shall neither waive FirstEnergy's duty to meet its obligations under this COA nor preclude the Department from commencing an action to compel FirstEnergy's compliance with the terms and conditions of this COA. The payment resolves only FirstEnergy's liability for civil penalties arising from the violation of this COA for which the payment is made.~~

~~5. Additional Remedies:~~

~~a. In the event FirstEnergy fails to comply with any provision of this COA, the Department may, in addition to the remedies prescribed herein, pursue any remedy available for a violation of an order of the Department, including an action to enforce this COA.~~

~~b. The remedies provided by this paragraph and Paragraph 4 are cumulative, and the exercise of one does not preclude the exercise of any other. The failure of the Department~~

to pursue any remedy shall not be deemed to be a waiver of that remedy. The payment of a stipulated civil penalty, however, shall preclude any further assessment of civil penalties for the violation for which the stipulated civil penalty is paid.

6. ~~Reservation of Rights.~~ The Department reserves the right to require additional measures to achieve compliance with applicable law. FirstEnergy reserves the right to challenge any action which the Department may take to require those measures.

7. ~~Liability of Operator.~~ FirstEnergy shall be liable for any violations of this COA, including those caused by, contributed to, or allowed by its officers, agents, employees, or contractors.

8. ~~Transfer of Site.~~

a. The duties and obligations under this COA shall not be modified, diminished, terminated or otherwise altered by the transfer of any legal or equitable interest in the Bruce Mansfield Facility or any part thereof.

b. If FirstEnergy intends to transfer any legal or equitable interest in the Bruce Mansfield Facility which is affected by this COA, FirstEnergy shall serve a copy of this COA upon the prospective transferee of the legal and equitable interest at least 30 days prior to the contemplated transfer and shall simultaneously inform the Southwest Regional Office of the Department of such intent.

9. ~~Correspondence with Department.~~ All correspondence with the Department concerning this COA shall be addressed to:

Mark Gorog, PE
Regional Air Quality Program Manager
Pennsylvania Department of Environmental Protection
400 Waterfront Drive
Pittsburgh, PA 15222-4745
Phone: (412) 442-4000
Fax: (412) 442-4194

10. ~~Correspondence with FirstEnergy.~~ All correspondence with FirstEnergy concerning this COA shall be addressed to:

Air Program Manager
FirstEnergy Corp
76 South Main Street
Akron, OH 44308
Phone: 330-315-7383
Fax: 330-777-6524

FirstEnergy shall notify the Department whenever there is a change in the contact person's name, title, or address. Service of any notice or any legal process for any purpose under this COA, including its enforcement, may be made by mailing a copy by first class mail to the above address.

11. ~~Severability.~~ The paragraphs of this COA shall be severable and should any part hereof be declared invalid or unenforceable, the remainder shall continue in full force and effect between the parties.

12. ~~Entire Agreement.~~ This COA shall constitute the entire integrated agreement of the parties. No prior or contemporaneous communications or prior drafts shall be relevant or admissible for purposes of determining the meaning or extent of any provisions herein in any litigation or any other proceeding.

~~13. **Attorney Fees.** The parties shall bear their respective attorney fees, expenses and other costs in the prosecution or defense of this matter or any related matters, arising prior to execution of this COA.~~

~~14. **Modifications.** No changes, additions, modifications, or amendments of this COA shall be effective unless they are set out in writing and signed by the parties hereto.~~

~~15. **Titles.** A title used at the beginning of any paragraph of this COA may be used to aid in the construction of that paragraph, but shall not be treated as controlling.~~

~~16. **This COA shall not be considered as a limitation or abridgment of the Department's rights and duties to take action as necessary to implement emergency control strategies under Section 6.2 of the APCA, 35 P.S. § 4006.2, nor FirstEnergy's rights to challenge such actions.**~~

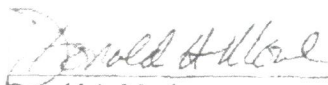
~~18. **Termination.** FirstEnergy's obligations under this COA shall terminate upon issuance of an air quality operating permit ("Title V Renewal") for the Bruce Mansfield facility that incorporates the provisions of an EPA approved State Implementation Plan.~~

~~19. **Counterparts.** This Consent Order and Agreement may be signed in counterparts, each of which shall be deemed to be an original and all of which together shall constitute one and the same instrument. Facsimile signatures or those transmitted by electronic means shall be valid and effective.~~

~~20. **This COA does not grant a variance from any requirement of the APCA, the Clean Air Act, 42 U.S.C. § 7401 *et seq.*, or any regulations promulgated under either of these statutes; nor does it purport to modify any requirement of Pennsylvania's State Implementation Plan as approved under the Section 110 of the Clean Air Act, 42 U.S.C. § 7410.**~~

IN WITNESS WHEREOF, the parties hereto have caused this COA to be executed by their duly authorized representatives. The undersigned representatives of FirstEnergy certify under penalty of law, as provided by 18 Pa. C.S. § 4904, that they are authorized to execute this COA on behalf of FirstEnergy; that FirstEnergy consents to the entry of this COA as a final ORDER of the Department; and that FirstEnergy hereby knowingly waives its rights to appeal this COA and to challenge its content or validity, which rights may be available under Section 4 of the Environmental Hearing Board Act, the Act of July 13, 1988, P.L. 530, No. 1988-94, 35 P.S. § 7514; the Administrative Agency Law, 2 Pa. C.S. § 103(a) and Chapters 5A and 7A; or any other provision of law.

FOR FIRSTENERGY
GENERATION, LLC:



Donald A. Moul
President,
FirstEnergy Generation, LLC

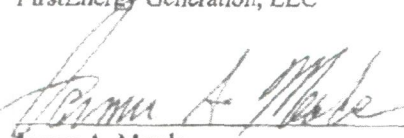
FOR THE COMMONWEALTH OF
PENNSYLVANIA, DEPARTMENT OF
ENVIRONMENTAL PROTECTION:



Mark Gorog, P.E.
Southwest Region
Air Quality Program



Peter J. Kotsehas
Vice President, Fossil Fleet Operations
FirstEnergy Generation, LLC



James A. Meade
Attorney for FirstEnergy Generation, LLC



Michael J. Heilman
Assistant Regional Counsel