Region 3 Plan Summary
Weirton Area, West Virginia Sulfur Dioxide (SO_2) Maintenance Plan

Title: Sulfur Dioxide (SO_2) Maintenance Plan for the City of Weirton and the Butler and Clay Magisterial Districts (Part 4 of the SO_2 Redesignation Request for the City of Weirton, West Virginia Including the Clay and Butler Magisterial Districts in Hancock County)

Federal Register Dates: January 10, 2005, 70 FR 1664 (Final rule), 70 FR 1673 (Proposed rule); March 9, 2005, 70 FR 11552 (Final rule- correction).

EPA Effective date: March 11, 2005.

State Submittal Date: July 27, 2004.

Affected Areas: City of Weirton (part) and Butler and Clay Magisterial Districts in Hancock County.

Summary of the Plan: On July 27, 2004, West Virginia submitted a formal redesignation (to attainment) request and a maintenance plan SIP revision for the City of Weirton including the Clay and Butler Magisterial District area in Hancock County, West Virginia. A modeling-based demonstration was performed showing attainment of each national ambient air quality standards (NAAQS) for SO_2. Modeling results submitted with the attainment demonstration indicated future NAAQS maintenance of the area. On May 5, 2004 (69 FR 24986), EPA had fully approved the modeled attainment demonstration for the City of Weirton, including the Clay and Butler Magisterial Districts of Hancock County, West Virginia.

The primary industries in the area are steel and coke production, and electrical power generation. The major source changes in the area consist of permanent shutdowns, which will help to reinforce the continued attainment in the area. A shift in employment from manufacturing to commercial business and the declining steel industry and ancillary industries in the area indicate a continued decrease in SO_2 emissions from stationary sources. These major sources include:

Weirton Steel Corp., Integrated Steel Mill
Wheeling Pittsburgh Steel Corporation, Integrated Steel Mill and Coke Batteries
Koppers Inc., Coke Oven By-Product (chemicals) Production
American Electric Power (AEP), Cardinal Plant, Electric Utility
First Energy Corp., Sammis Plant, Electrical Utility
First Energy Corp., Toronto Plant, Electrical Utility

Emission Inventory: The modeled inventory used in the approved attainment demonstration is also used in the maintenance plan. This inventory reflects allowable

emission rates from Weirton Steel Corporation and Wheeling-Pittsburgh Steel Corporation, as well as from all relevant sources of SO_2 in the nonattainment area, which are enforceable via permits, regulations, and consent orders. Any major sources wishing to construct or make a major modification within the attainment area are required to obtain an Prevention of Significant Deterioration (PSD) permit through State regulation 45CSR14. The PSD program would require that a modeling demonstration be performed to ensure ongoing NAAQS compliance. These along with requirements of the minor source permit program covered under State regulation 45CSR13 assure the maintenance of the NAAQS for SO_2.

Control Measures/Regulations Included As Part of the Plan: The applicable control measures are the same as those approved by EPA as part of the SO_2 attainment demonstration. A consent order approved by EPA for the Weirton Steel Corporation facility stipulates the following emission limitations:

Weirton Steel Corporation, Weirton Facility SO_2 Emission Limits	
SO_2 Emissions Unit	**SO_2 Emission Limit**
Sinter Plant	Shall not be operated by the Company
High Pressure Boilers 1 and 2	Shall not be operated by the Company.
Low Pressure Boilers LP1, LP2, LP3, LP4, and LP15	Shall not be operated by the Company.
Coal	Shall not be fired at any boiler operated by the Company.
SO_2 emissions from High Pressure Boilers 3, 4 and 5	Shall be limited by restricting the firing of fuel oil to a rate dependent upon the sulfur content of the fuel oil fired as described in Appendix A to the CO. The allowable fuel oil firing rate shall be the 3-hour block average derived from Appendix A expressed in total gallons of fuel oil fired at High Pressure Boilers 3, 4, and 5 over a 3-hour period.
The percentage of sulfur contained in the fuel oil purchased to be fired at the company's high pressure boilers	Shall not exceed 3%.
Total fuel oil and sulfur content fired at boilers 3, 4 and 5	Shall be limited to the product of (gpm) x (%S) being less than or equal to the emission factor of 91.7 as per the

	curve in Appendix A of the CO.
The BOP Waste Heat Boiler	Shall be pre-heated using steam sparging. Fuel fired at the Waste Heat Boiler shall be limited to Natural Gas, Mixed Gas, or steel making process gas.
Foster Wheeler Boilers #101 and #102	Shall have a combined limit of 109.73 lbs per hour of SO_2. These boilers shall be limited to firing only blast furnace gas, natural gas, and mixed gas (comprised of approximately 70% natural gas and 30% air.
Hot Mill Reheat Furnaces, Hydrochloric Acid Regeneration Plant combustion sources, and Annealing Furnaces	Shall be limited to firing only natural gas and mixed gas (comprised of approximately 70% natural gas and 30% air).
Blast Furnaces designated #2 and #3	Shall not recommence operation.
Blast Furnace #1 Stoves	Shall be limited to 60.1 lbs. per hour of SO_2.
Blast Furnace #1	Shall be limited to 42.1 lbs per hour of SO_2.
Blast Furnace #4 Stoves	Shall be limited to 60.1 lbs per hour of SO_2.
Blast Furnace #4 Flare	Shall be limited to 42.1 lbs per hour of SO_2.
Slag Granulator	Shall be limited to 50 lbs per hour of SO_2**.**

The essential compliance provisions of the operating permit issued by the WVDEP to Wheeling-Pittsburgh Steel Corporation are listed below. In addition, the permittee shall comply with the essential provisions of 45CSR4, 45CSR6, 45CSR10, 45CSR13, 45CSR14, and 45CSR30 provided that the permittee shall comply with any more stringent requirements set forth under the specific requirements of this permit.

1. Maximum emissions to the atmosphere from the Excess Coke Oven Gas (COG) Flare (Emission Point 1EF) shall not exceed the following limits:

Hourly Emissions	Maximum Hourly Emissions during the	Annual Emissions

(lb/hr)	Desulfurization Outage	(tpy)
39.8	396*	294.0

* Annual emissions account for the desulfurization unit being down 672 hours per year for scheduled maintenance and maximum hydrogen sulfide concentration of 479 grains per 100 cu. ft. of COG.

2. In order to maintain compliance with the annual emission limit, the daily flow rate of COG to the excess COG flare (emission point 1EF) shall not exceed 7.1 MM standard cubic feet per day over a thirty-day rolling average. The permittee shall keep daily records of the flow rate of COG to the flare and correct the measured flow rate to a standard temperature of 68°F. Compliance shall be determined using a thirty-day rolling average.

3. Maximum SO_2 emissions to the atmosphere from boilers # 6 and # 7 (emission point) shall not exceed the following limits:

	Boiler #6	Boiler #7
Hourly SO_2 Rate (lb/hr)	20.4	20.4
Hourly SO_2 Rate during Desulfurization Outage (lb/hr)	203.1*	203.1*
Annual SO_2 Rate* (TPY)	150.7	150.7

*Annual Emission accounts for the desulfurization unit being down 672 hours per year for scheduled maintenance and maximum hydrogen sulfide concentration of 479 grains per 100 cu. ft. of COG.

4. Boilers #5, 6 and 7 shall only combust COG.

5. In order to maintain compliance with the SO_2 emission limits specified above, the hydrogen sulfide concentration level in the COG stream from the by-products plant shall not exceed 50 grains of hydrogen sulfide per one hundred (100) cubic feet of COG except as noted in # 6 below. Compliance with the allowable hydrogen sulfide concentration level shall be based on three (3) hour averaging periods.

6. In order to maintain compliance with the SO_2 emission limits specified above while the desulfurization unit is down for scheduled maintenance, the permittee shall calculate and record the hourly sulfur dioxide emission rate of the flare and boilers #6 and #7 over a 24-hour period using the recorded mean hydrogen sulfide concentration level and the recorded standard flow rate for the respective day. These records shall be kept on site for a period of at least five years.

7. The permittee shall be limited to a maximum of twenty-eight (28) days in any calendar year for planned maintenance outages of the desulfurization unit in the coke-by-products recovery plant. No outage period shall extend beyond 336 hours. The start of a planned maintenance shall begin at the time of the first hour of a three-hour average concentration that is greater than 50 grains of H_2 S/100 cubic feet of COG. The planned maintenance shall be concluded at the time of the first hour of a three-hour average concentration that is less than or equal to 50 grains of H_2 S/100 cubic feet of COG.

8. The permittee shall notify the Director in writing thirty (30) days prior to undertaking any planned maintenance outage of the desulfurization unit which shall include a detailed explanation of each and every maintenance and/or repair activity intended to be undertaken.

9. The permittee shall select the period for the planned maintenance outage that would prevent, to the greatest extent practicable, any violation of the NAAQS for SO_2 using, at a minimum, air quality dispersion modeling to determine what periods represent the most favorable dispersion of excess SO_2 emissions. To ensure maintenance of the 24-hour NAAQS for SO_2 ,a modeling target for SO_2 concentrations for the high 24-hour value of 265 $\mu g/m^3$ shall be used to provide a margin of 100 $\mu g/m^3$ for other source impacts within the immediate vicinity of the facility.

10. Prior to any planned maintenance outage of the desulfurization unit, the permittee shall prepare and submit an SO_2 mitigation plan to the Director outlining what measures the permittee will employ during the outage to ensure continued attainment of the NAAQS.

11. No later than thirty (30) days after completing a planned maintenance outage of the desulfurization unit, the permittee shall submit a report identifying the SO_2 impacts associated with the planned outage. The report shall include any deviation of the SO_2 mitigation plan that was submitted for the outage period.

12. Visible emissions from the excess COG flare shall not exceed twenty percent (20%) opacity except upon the first eight (8) minutes of starting the thermal oxidizer. After this point, visible emissions from this emission point shall not exceed forty percent (40%) opacity for this time period. The permittee shall demonstrate compliance with this condition by taking visual observations using EPA Method 22 once a month. If the permittee observes visible emissions from the flare using Method 22, the permittee shall conduct an additional observation within 24-hours using EPA Method 9 to determine the opacity of the visible emissions being emitted from the flare.

13. The Sinter Plant shall not be operated by the permittee unless the proper permit is obtained from the Director.

14. The permittee shall operate and maintain a continuous hydrogen sulfide monitor and

recorder for the purpose of monitoring the hydrogen sulfide concentration of the sweetened COG before it is routed to any combustion unit or source utilizing COG. This monitor shall be installed and maintained in accordance with Performance Specification 7 of Appendix B of 40 CFR 60.

15. The permittee shall maintain in accordance with the manufacturer's instructions, flow-measuring devices for the purpose of measuring and recording the amount of COG consumed by the excess COG flare and Boilers #6 and #7. The permittee shall keep daily records of the amount of COG consumed by the above mentioned units.

16. The permittee shall maintain the automatic re-ignition system in accordance with the manufacturer's specifications.

17. The permittee shall not vent any noncombusted COG into the open atmosphere through the excess COG flare. The permittee shall record the date and time of an event when the flare was not in operation and COG was being emitted to the atmosphere through the excess COG flare. The permittee shall submit a report explaining the event and measures taken to prevent a recurrence of the event. These records shall be maintained on site for a period of at least five years.

18. No later than ninety (90) days after issuance of the permit, the permittee shall continuously maintain a system around the facility to prevent public access.

19. Compliance with the allowable emission limits of this permit shall be calculated using the appropriate amount of COG combustion by the excess COG flare on a volumetric basis, higher heat value of 568 Btu/cu. ft. for COG, and the following factors: Carbon Monoxide (0.37 lb/MM Btu), Nitrogen oxides (0.068 lb/MM Btu), Particulate Matter (0.012 lb/MM Btu), Particulate Matter 10 microns (0.012 lb/MM Btu), Volatile Organic Compounds (0.14 lb/MM Btu). The permittee shall determine the amount of each pollutant emitted on a monthly basis using the above mentioned information and appropriate engineering calculations. The permittee shall keep a 12-month rolling total for each of the above mentioned pollutants.

20. In the event of unforeseen circumstances beyond the control of the permittee, the permittee may exceed the SO_2 emission limit for the flare as stated in provision # 1 of this permit in order to prevent an anticipated excursion of the SO_2 NAAQS from occurring in the local area, which includes the city of Weirton, West Virginia. The permittee shall document in the Desulfurization System Outage Report, the unforeseen circumstances, the SO_2 emissions rate calculation, and the modeling results, to document the necessity of the temporary increase in the flare's SO_2 allowable emissions rate.

21. Boiler # 5 (emission point 1D S11) shall not be operated unless the permittee obtains the proper permit from the Director prior to restarting the boiler.

22. The permittee shall fire only natural gas at coke plant boiler # 8 (emission point 1D, S11), unless an applicable permit is obtained from the Director.

23. Sulfur dioxide emissions from pushing Coke Oven Batteries #1, #2, and # 3 shall not exceed 10.48 pounds SO_2 per hour (emission point SO5).

24. Sulfur dioxide emissions from pushing at Coke Oven Battery #8 shall not exceed 15.72 pounds per hour of SO_2 (emission point SO6).

25. Compliance with the allowable emission limits established in provision 23 and 24 above shall be calculated using an emission factor of 0.1078 pounds per tons of coal charged and multiplied by the hourly average tons of coal charged to the batteries each month.

Contingency Measures: West Virginia will rely on ambient air monitoring data in the Weirton area to track compliance with the NAAQS for SO_2 and to determine the need to implement contingency measures. In the event that an exceedance of the SO_2 standards is recorded, the State will review the monitored ambient SO_2 data, review local monitored meteorological data, and assess compliance of local targeted facilities. In the event that all sources are found to be in compliance with applicable SIP and permit emission limits, the State will perform the necessary analysis to determine the cause(s) of the exceedance, and determine what additional control measures are necessary to impose on the area's stationary sources to continue to maintain attainment of the NAAQS for SO_2 .

If an exceedance of an SO_2 NAAQS occurs, the State will notify the subject companies that the potential exists for a NAAQS violation. The subject companies must then prepare a detailed plan of action containing control measures for implementation in the event of a violation., This plan of action shall include an implementation timeline and shall be submitted to the State within 6 months of notification that the potential exists for a violation. The final milestone of this action plan and timeline should state that the contingency measures will be implemented no later than 18 months after the State informs the subject companies that a violation of the standards has occurred. Any additional control measures will be submitted to EPA for approval and incorporation into the SIP.

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