

COUNTY OF



ALLEGHENY

RICH FITZGERALD
COUNTY EXECUTIVE

Air Quality Program

301 39th Street, Clack Health Center Building 7, Pittsburgh, PA 15201-1811
ph: 412.578.8103 • 24-hr: 412.687.ACHD (2243) • www.alleghenycounty.us/healthdepartment

SUBMISSION FORM – AIR POLLUTION MITIGATION PLAN

WATCH/WARNING PLAN INFORMATION

The Air Pollution Mitigation Plan is submitted by affected facilities to meet the requirements of Allegheny County regulations found in §2106.06 (Mon Valley Air Pollution Episode) of Article XXI.

01 Facility Information

Name of Facility	U. S. Steel Mon Valley Works – Edgar Thomson Plant		
Address	13th and Braddock Avenues		
City State Zip+4	Braddock, PA 15104		
Permit #	0051	Phone	412-273-4730

02 Environmental Contact Information (Person to contact regarding technical details of this mitigation plan)

Name/Title	Coleen M Davis, Coordinating Manager - Environmental		
Address	13th and Braddock Avenues		
City State Zip+4	Braddock, PA 15104		
Email	cdavis@uss.com	Phone	(412) 273-4730

03 Responsible Official Information

Name/Title	Kurt A. Barshick		
Address	P. O. Box 878		
City State Zip+4	Dravosburg, PA 15034		



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Email	<u>kbarshick@uss.com</u>	Phone	(412) 675-2600
04	AFFIDAVIT		
<p>I certify that, subject to the penalties of Title 18Pa. C.S.A. Section 4904 and 35 P.S. Section 4009(b)(2), I am the responsible official having primary responsibility for the operation of the facilities to which this air pollution mitigation plan applies and that the information provided in this mitigation plan is true, accurate and complete to the best of my knowledge, information and belief formed after reasonable inquiry.</p>			
Signature:		Date	12/27/2021
Typed/Printed Name:	Kurt A. Barshick		



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05 List all equipment or processes at your facility that emit PM₁₀ and/or PM_{2.5}

1. Boiler No. 1
2. Boiler No. 2
3. Boiler No. 3
4. Blast Furnace No 1 Stoves
5. Blast Furnace No 1 Misc Fuel Combustion
6. Blast Furnace No 1 Raw Materials Handling
7. Blast Furnace No 1 Dust Catcher Dust handling
8. Blast Furnace No 1 Slag handling
9. Blast Furnace No 1 Fugitives – Casthouse Roof Monitor
10. Blast Furnace Baghouse
11. Blast Furnace No 3 Stoves
12. Blast Furnace No 3 Misc Fuel Combustion
13. Blast Furnace No 3 Raw Materials Handling
14. Blast Furnace No 3 Dust Catcher Dust handling
15. Blast Furnace No 3 Slag handling
16. Blast Furnace No 3 Fugitives – Casthouse Roof Monitor
17. Blast Furnace Flare
18. BOP shop Misc Fuel Combustion
19. BOP Operations Mixer Baghouse – Hot Metal Transfer/ Hot Metal Desulfurization
20. BOP Vessel Process (Gas Cleaning Scrubber) – Vessels F and R
21. BOP Shop Misc Operations Secondary Baghouse - Iron Slag Skimming After Desulfurization, Furnace Charging, Furnace Tapping, Steel Slag Dumping
22. BOP Flux Handling – Railcar Unloading Baghouse
23. BOP Flux Handling – Transfer Tower Baghouse
24. BOP Flux Handling – Flux Handling #1 Baghouse
25. BOP Flux Handling – Flux Handling #1 Baghouse
26. BOP Building Fugitives
27. LMF Baghouse Process Operation
28. BOP Shop Flux Handling – Lime Flux
29. Vacuum Degassing Process Operation
30. Caster/ LMF Misc Fuel Combustion
31. Cooling Towers
32. Plant-wide Misc Fuel Combustion



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- 33. Blast Furnace Slag Storage Piles
- 34. Paved Roads
- 35. Unpaved roads
- 36. Contractor activities
- 37. Diesel Locomotives

WATCH PHASE OF MITIGATION PLAN

- 06** How will your facility ensure that equipment which produces particulate emissions is operating in a manner consistent with optimal engineering practices?

Parametric monitoring and process set points (BOP Primary Scubber flow and dp, and Blast Furnace, Mixer, BOP Secondary, and LMF Baghouses fan amps and dp) will be reviewed to ensure processes and pollution control equipment are operating in a manner consistent with optimal engineering practices as identified in the process or pollution control equipment procedures.

- 07** How will your facility ensure that air pollution control equipment is maintained in optimal working condition?

Each air pollution control equipment has electrical and mechanical preventative maintenance tasks, as applicable, scheduled to ensure the equipment is in optimal working condition.

- 08** How will your facility ensure that actions taken in blocks 05 and 06 are properly monitored, recorded, and reported to the Health Department?

Verification of actions taken will be reviewed by and signed off on by an appropriate area manager or designee in the Watch Phase Checklist which will be made available for submission to ACHD.

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WARNING PHASE OF MITIGATION PLAN

09 How will your facility ensure that procedures are in place so enough staff and resources are available to implement the Mon Valley Air Pollution Warning Phase within 24 hours of the notification from ACHD?

USS will ensure that there are sufficient staff and resources (U. S. Steel employees and/or contractors) available to implement the Mon Valley Air Pollution Warning Phase within 24 hours of the Department's notification to the source of a Mon Valley Air Pollution Watch.

10 For every process and piece of equipment, list all available methods to reduce PM_{2.5}/PM₁₀ emissions from your four-year hourly average. During an actual warning phase, the actions to reduce emissions must last the length of the episode.

1. Actions will be implemented as decided upon in the Watch Phase. Actions may include the items listed below on a case-by-case basis.
2. ***Safety is of paramount importance, when developing mitigation actions/strategies in accordance with this plan.***
 - a. ***No action will be taken unless it is deemed safe.***
 - b. ***USS can deviate from the plan, if it is necessary to ensure safe operations.***
3. Any non-essential plant or contractor activity contributing to airborne dust will be curtailed.
 - a. Dry vac truck services
 - b. Sandblast activity
 - c. Other contractor activity as determined during the evaluation conducted in the Watch Phase
4. Notify Union Railroad Company (313-573-4051) to eliminate engine idling, any engine unnecessary movement if possible, and/or reduce speeds.
5. Implement operational adjustments evaluated in the Watch Phase to minimize slag handling emissions and take corrective actions including additional quenching, if necessary.



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- a. Actions impacting operations during each Warning Phase will be implemented on a case by case inversion event.
- b. Actions considered will include:
 - i. short-term stops,
 - ii. longer term maintenance outages,
 - iii. Material handling including fluxes and briquettes based on operational data reviewed and discussions held during the Watch Phase. All actions will be documented.
 - iv. Apply seasonal dust suppressant on paved and unpaved roads and lots:

6. Plant protection will document any required enforcement of diesel-idling rule.

7. *Actions may include the items listed below on a case-by-case basis but may not include all items listed based on current weather data, operational data and available weather prediction tools.*

8. *The Warning Plan may be revised based on lessons learned during implementation of the Plan.*

a. *U. S. Steel will advise the Department in writing of any change affecting the technical content or the implementation of the Plan no mor than 30 days following the change.*

b. *The revised Warning Plan will be effective upon submission to the Department.*

Note: Information used to evaluate the above action items will include the ACHD's current forecast, available weather data, USS's internal operations data and PM_{2.5} prediction tools.

11 For each piece of equipment and process, determine which emission reduction methods are feasible. List whether each method is feasible or infeasible and provide a justification for your determination.

1. Boiler No. 1

- a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
- b. Ensure environmental work practices are being followed to minimize emissions – Feasible
- c. Fuel switching – Infeasible/Ineffective, it would not result in emission reductions as process gases would need to be flared so fuel switching would lead to an increase in emissions

2. Boiler No. 2

- a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible



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- b. Ensure environmental work practices are being followed to minimize emissions – Feasible
 - c. Fuel switching – Infeasible/Ineffective, it would not result in emission reductions as process gases would need to be flared so fuel switching would lead to an increase in emissions
3. Boiler No. 3
- a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
 - c. Fuel switching – Infeasible/Ineffective, it would not result in emission reductions as process gases would need to be flared so fuel switching would lead to an increase in emissions
4. Blast Furnace No 1 Stoves
- a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
 - c. Fuel switching – Infeasible/Ineffective, it would not result in emission reductions as process gases would need to be flared so fuel switching would lead to an increase in emissions
5. Blast Furnace No 1 Misc Fuel Combustion
- a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
 - c. Fuel switching – Infeasible/Ineffective, it would not result in emission reductions as process gases would need to be flared so fuel switching would lead to an increase in emissions
6. Blast Furnace No 1 Raw Materials Handling
- a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
7. Blast Furnace No 1 Dust Catcher Dust handling
- a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
8. Blast Furnace No 1 Slag handling
- a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
9. Blast Furnace No 1 Fugitives – Roof Monitor

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- a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
10. Blast Furnace Baghouse
- a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
11. Blast Furnace No 3 Stoves
- a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
 - c. Fuel switching – Infeasible/Ineffective, it would not result in emission reductions as process gases would need to be flared so fuel switching would lead to an increase in emissions
12. Blast Furnace No 3 Misc Fuel Combustion
- a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
 - c. Fuel switching – Infeasible/Ineffective, it would not result in emission reductions as process gases would need to be flared so fuel switching would lead to an increase in emissions
13. Blast Furnace No 3 Raw Materials Handling
- a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
14. Blast Furnace No 3 Dust Catcher Dust handling
- a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
15. Blast Furnace No 3 Slag handling
- a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
16. Blast Furnace No 3 Fugitives – Roof Monitor
- a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible



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17. Blast Furnace Flare
 - a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
 - c. Fuel switching – infeasible. The purpose of the flare is to consume excess process gas.
18. BOP shop Misc Fuel Combustion
 - a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
 - c. Fuel switching – Infeasible/Ineffective, it would not result in emission reductions as process gases would need to be flared so fuel switching would lead to an increase in emissions
19. BOP Operations Mixer Baghouse – Hot Metal Transfer/ Hot Metal Desulfurization
 - a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
20. BOP Vessel Process (Gas Cleaning Scrubber) – Vessels F and R
 - a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
21. BOP Shop Misc Operations Secondary Baghouse - Iron Slag Skimming After Desulfurization, Furnace Charging, Furnace Tapping, Steel Slag Dumping
 - a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
22. BOP Flux Handling – Railcar Unloading Baghouse
 - a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
23. BOP Flux Handling – Transfer Tower Baghouse
 - a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
24. BOP Flux Handling – Flux Handling #1 Baghouse
 - a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible



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- b. Ensure environmental work practices are being followed to minimize emissions – Feasible
- 25. BOP Flux Handling – Flux Handling #1 Baghouse
 - a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
- 26. LMF Baghouse Process Operation
 - a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
- 27. BOP Shop Flux Handling – Lime Flux
 - a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
- 28. Vacuum Degassing Process Operation
 - a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
- 29. Caster/ LMF Misc Fuel Combustion
 - a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
- 30. Cooling Towers
 - a. None – the cooling towers provides cooling water to the plant and must support the processes that remain in operation.
- 31. Plant-wide Misc Fuel Combustion
 - a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
- 32. Blast Furnace Slag Storage Piles
 - a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
 - c. Increase water quenching as appropriate
- 33. Paved Roads



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- a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
 - c. Increase road sweeping and/ or watering – feasible
 - d. Evaluate seasonal dust suppressant application- feasible
34. Unpaved roads
- a. Follow work practices/Environmental Management System procedures to minimize fugitive emissions - Feasible
 - b. Ensure environmental work practices are being followed to minimize emissions – Feasible
 - c. Increase road watering – feasible
 - d. Evaluate seasonal additional dust suppressant application – feasible
35. Production Curtailment –
- a. Edgar Thomson is an integrally connected process. The Blast Furnaces operates most efficiently and least emissively when operated at steady state. Altering the production schedule /process at the Blast Furnace which then affects the BOP and Caster can result in instability in the furnace which can result in more emissions (ie unplanned bleeder openings, cold iron and furnace, and iron and/or steel beaching) and unsafe conditions.
 - b. The planned actions focus on fugitive emissions emitted at ground level below inversion ceiling which do not have the characteristics to break through. These actions will have a greater impact without risking other environmental concerns, safety, and facility assets.
- 12 How will your facility ensure that actions taken in block 10 are properly monitored, recorded, and reported to the Health Department?

Verification of actions taken will be reviewed by and signed off on by an appropriate area manager or designee in the Warning Phase Checklist which will be made available for submission to ACHD Checklist.

13 Provide an active spreadsheet containing the following:

- Calculations of your facility’s PM_{2.5} and PM₁₀ emissions for each of the past four years (2017-2020) in tons/year for every piece of equipment and process;
- Calculation of average four year emissions of PM_{2.5} and PM₁₀ in lbs/hr for each piece of equipment and process;
- Feasible PM_{2.5} and PM₁₀ emission reductions in lbs/hr that will occur during a warning phase for every piece of equipment and process as well as the facility total; and
- Feasible PM_{2.5} and PM₁₀ emission reductions in percent reduced from the hourly four year average for every piece of equipment and process as well as the facility total percent reduction.



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This spreadsheet will be used to calculate actual emission reductions that will be reported to the Health Department after warning phases have ended.

14 How much time will be required for your facility to implement the emission reductions in block 10?

USS will initiate the emission reduction actions within 2 hours of initial notification and will have plan fully implemented within 24 hours of initial notification



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INSTRUCTIONS	
Submission Form for the Air Pollution Mitigation Plan	
<u>Block 01</u> Facility Information	The facility name for the operation at that particular address should be used and not the name of the larger corporation. Use the address for the actual facility and not the company headquarters, if different. The most recent permit number should be included. If it is not known, it can be left blank.
<u>Block 02</u> Environmental Contact Information	Fill in the contact information of the individual (e.g. employee or consultant) who will be contacted to provide environmental technical information for the Air Pollution Mitigation Plan
<u>Block 03</u> Responsible Official Information	This address and phone number are for the office where the responsible official works the majority of the time. See block 04 instructions for information regarding the responsible official.
<u>Block 04</u> Affidavit	This affidavit must be signed by the responsible official. A Responsible Official is a President, Vice President, Secretary, Treasurer, General Partner, General Manager, a member of a Board of Directors, or Owner, depending on business structure. CORPORATION – President, Vice President, Secretary, Treasurer, or duly authorized person BUSINESS – Sole Proprietor or General Partner GOVERNMENT ENTITY – Ranking elected official or principal executive officer
<u>Blocks 05–08</u> Watch Phase of Mitigation Plan	The responses that you provide in blocks 05 through 08 will be specific to your equipment and facility. Below are some general ideas that may help you in how to approach these requirements. <ul style="list-style-type: none"> • Staff related <ul style="list-style-type: none"> • Review procedures with employees to ensure all equipment is properly operating in a way to minimize air emissions. • Schedule additional or on-call employees for upcoming shifts to ensure facility is fully staffed for a warning phase. • Conduct a shift meeting(s) to remind employees to prioritize the environmental impact of their operations to reduce emissions. • Share any other procedures which would help ensure sufficient staff levels and available resources to implement a warning phase. • Equipment related



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	<ul style="list-style-type: none"> • Inspect any equipment or processes which may have a potential to increase emissions to ensure proper operation and maintenance. • Implement improved operation and maintenance practices beyond standard operating procedures. • Ensure the facility is following the idling requirements under Act 124 of the PA Department of Environmental Protection regulations. • Conduct maintenance on all pollution control equipment. • Share any other procedures which help ensure the facility is operating in a manner consistent with good engineering practices. • Share any other procedures which help ensure the air pollution control equipment is maintained in good working condition.
<p><u>Block 09</u> Warning Phase of Mitigation Plan</p>	<p>A good starting point in completing this block is to refer to the table found in section II of your facility’s air quality permit titled “Emission Unit Identification” and identify which units emit particulate matter. There may be other equipment, not listed in the section II table, that can be included in the block 09 list.</p>
<p><u>Block 10</u> Warning Phase of Mitigation Plan</p>	<p>Block 10 should explain what actions the facility could possible take to ensure that hourly emissions are reduced.</p> <p>Possible methods include:</p> <ul style="list-style-type: none"> • Reduction in material throughput • Reduction in operating time • Increased use of controls or suppression equipment • Changes in raw materials <p>Examples of possible actions include:</p> <ul style="list-style-type: none"> • Reduce production by a certain percentage or rate from normal operating conditions. A reduction from a potential maximum production rate will not be accepted if it is too high compared to normal operating rates for the relevant time period, thereby not resulting in an actual reduction in pollution. • Reduce usage of diesel fuel or other PM_{2.5} or PM₁₀ creating fuel types or switch fuel types to lower PM_{2.5} or PM₁₀ as allowed by the relevant permits. • Bring in additional employees to allow the facility to operate in the best environmentally responsible manner. • Delay production to a future day when a mitigation plan is not needed. • Delay any non-essential activities to a future day when a mitigation plan is not needed.



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	<ul style="list-style-type: none"> • Fully or partially enclose material movement and other work activities which produce dust and other particulate matter (PM_{2.5} or PM₁₀ emissions). • Modify work practices to decrease PM_{2.5} or PM₁₀ emissions such as: <ul style="list-style-type: none"> ○ Slowing material handling ○ Fully or partially enclose material movement and other work activities which produce dust and other particulate matter (PM_{2.5} or PM₁₀ emissions). • Stop or decrease unnecessary transportation activities and reduce travel speed on necessary transportation. • Employ additional roadway wetting or other activities to minimize road dust creation. • Add any other measures which reduce PM_{2.5} or PM₁₀ emissions.
<p><u>Block 11</u> Warning Phase of Mitigation Plan</p>	<p>Emission reduction methods that are feasible can be eliminated from consideration for other reasons as long as adequate justification is given.</p>
<p><u>Block 12</u> Warning Phase of Mitigation Plan</p>	<p>The Health Department will require a report, submitted after the warning phase has ended, itemizing what actions were taken to meet the requirements of the warning phase.</p>
<p><u>Block 13</u> Warning Phase of Mitigation Plan</p>	<p>The spreadsheet must include actual plant emissions of PM_{2.5} and PM₁₀ for all equipment listed in block 09 for each of the past four years (2017-2020) in tons/year. These calculations can be copied directly from the spreadsheets submitted to the Health Department for emissions inventories.</p> <p>For each piece of equipment and process, emissions from the last four years must be provided in tons/year.</p> <p>For each piece of equipment and process, proposed feasible emission reductions must be provided in lbs/hr.</p> <p>The hourly average will be calculated for each unit and process by adding yearly emissions together and dividing by the total number of hours that the unit emitted over four years.</p> <p>In the case of a batch process, calculations will need to take into account the number of hours in each batch and the number of batches in a year.</p>

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<p><u>Block 14</u> Warning Phase of Mitigation Plan</p>	<p>Section 2106.06 of county air quality regulations requires that an affected facility is able to implement the requirements of the warning phase within 24 hours.</p>
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Mitigation Plan Checklist

The following checklist is provided as a list of items required for a complete mitigation plan submission. If at any time you have questions about your application, please call JoAnn Truchan 412-578-7981 or Jayme Graham 412-578-8129.

- Has the responsible official signed and dated the first page (block 04)?
- Have you provided an active spreadsheet showing actual emissions for every piece of equipment and process of PM_{2.5} and PM₁₀ for the past four years in tons per year?
- Does the spreadsheet include the average actual PM_{2.5} and PM₁₀ emissions from every piece of equipment and process for the past four years in lbs/hr?
- Does the spreadsheet include the PM₁₀ and PM_{2.5} reduction that will be achieved from every piece of equipment and process in lbs/hr and % from the four year hourly average during the warning phase?
- Have you provided a complete response for each of the fourteen blocks?



ACHD Episode Rule: Watch Phase Checklist

Date and Time of ACHD Notification: _____

Verification of Actions taken (Write OK on provided line; if not OK, please explain):

Actions will be implemented as decided upon in the Watch Phase. Actions may include the items listed below on a case-by-case basis.

1. Parametric Monitoring

- a. Blast Furnace Baghouse
 - i. Total Fan amp _____
 - ii. Module 1 dp _____
 - iii. Module 2 dp _____
 - iv. Module 3 dp _____
 - v. Module 4 dp _____
- b. Secondary/ Fugitive Baghouse
 - i. Total Fan amp _____
 - ii. Module 1 dp _____
 - iii. Module 2 dp _____
 - iv. Module 3 dp _____
 - v. Module 4 dp _____
 - vi. Module 5 dp _____
 - vii. Module 6 dp _____
 - viii. Module 7 dp _____
 - ix. Module 8 dp _____
 - x. Module 9 dp _____
 - xi. Module 10 dp _____
- c. Mixer Baghouse
 - i. Module 1 dp _____
 - ii. Module 2 dp _____
 - iii. Module 3 dp _____
 - iv. Module 4 dp _____
 - v. Module 5 dp _____
 - vi. Module 6 dp _____
 - vii. Module 7 dp _____
 - viii. Module 8 dp _____
 - ix. Module 9 dp _____
 - x. Module 10 dp _____
 - xi. Module 11 dp _____
 - xii. Module 12 dp _____
- d. LMF Baghouse
 - i. Module 1 dp _____
 - ii. Module 2 dp _____
 - iii. Module 3 dp _____
 - iv. Module 4 dp _____

- v. Module 5 dp _____
- vi. Module 6 dp _____
- e. Primary Scrubber
 - i. Water flow _____
 - ii. Dp _____

2. BF Slag Handling and storage piles

- a. Minimize unnecessary handling _____
- b. Additional water added? _____
- c. Minimize storage piles _____
- d. Quench sprays operating properly? _____

ACHD Episode Rule: Warning Phase Checklist

Date and Time of ACHD Notification: _____

Verification of Actions taken (Write OK on provided line; if not OK, please explain):

Actions will be implemented as decided upon in the Watch Phase. Actions may include the items listed below on a case-by-case basis.

1. Parametric Monitoring

- a. Blast Furnace Baghouse
 - i. Total Fan amp _____
 - ii. Module 1 dp _____
 - iii. Module 2 dp _____
 - iv. Module 3 dp _____
 - v. Module 4 dp _____
- b. Secondary/ Fugitive Baghouse
 - i. Total Fan amp _____
 - ii. Module 1 dp _____
 - iii. Module 2 dp _____
 - iv. Module 3 dp _____
 - v. Module 4 dp _____
 - vi. Module 5 dp _____
 - vii. Module 6 dp _____
 - viii. Module 7 dp _____
 - ix. Module 8 dp _____
 - x. Module 9 dp _____
 - xi. Module 10 dp _____
- c. Mixer Baghouse
 - i. Module 1 dp _____
 - ii. Module 2 dp _____
 - iii. Module 3 dp _____
 - iv. Module 4 dp _____
 - v. Module 5 dp _____
 - vi. Module 6 dp _____
 - vii. Module 7 dp _____
 - viii. Module 8 dp _____
 - ix. Module 9 dp _____
 - x. Module 10 dp _____
 - xi. Module 11 dp _____
 - xii. Module 12 dp _____
- d. LMF Baghouse
 - i. Module 1 dp _____
 - ii. Module 2 dp _____
 - iii. Module 3 dp _____
 - iv. Module 4 dp _____

- v. Module 5 dp _____
 - vi. Module 6 dp _____
 - e. Primary Scrubber
 - i. Water flow _____
 - ii. Dp _____
- 2. Any non-essential plant or contractor activity contributing to airborne dust will be curtailed**
- a. Dry Vac Truck activity _____
 - b. Sandblast activity _____
 - c. Other contractor activity as determined during the evaluation conducted in the Watch Phase _____
- 3. BF Slag Handling and storage piles**
- a. Minimize unnecessary handling _____
 - b. Additional water added ? _____
 - c. Minimize storage piles _____
 - d. Quench sprays operating properly? _____
- 4. Notify Union Railroad Company (313-573-4051) to eliminate engine idling, any engine unnecessary movement if possible, and/or reduce speeds _____**
- 5. Implement operational adjustments evaluated in the watch phase**
- a. Actions impacting operations during each Warning Phase will be implemented on a case by case inversion event. _____
 - b. Actions considered will include:
 - i. short-term stops consideration _____
 - ii. longer term maintenance outages _____
 - iii. Material handling including fluxes and briquettes based on operational data reviewed and discussions held during the Watch Phase _____
 - iv. Increase road sweeping and/ or road watering _____
 - v. Apply dust suppressant on unpaved roads if last application was more than 72 hours previous (April through October):
- 6. Plant protection will document any necessary enforcement of ACHD's diesel-idling rule. _____**
- 7. Environmental Procedure Review**
- a. Blast Furnace Operating _____
 - b. Blast Furnace Maintenance _____
 - c. BOP Operating _____
 - d. BOP Maintenance _____
 - e. Caster Operating _____
 - f. Caster Maintenance _____
 - g. SUM including Power House _____

2017

Source	PM10 (tons/yr)	PM2.5 (tons/yr)	PM10 (lb/hr)	PM2.5 (lb/hr)
No. 1 Boiler - NG	0.016953	0.007645	0.003871	0.001746
No. 1 Boiler - COG	0.609264	0.274766	0.139101	0.062732
No. 1 Boiler - BFG	14.92856	6.732487	3.408347	1.537098
No. 2 Boiler - NG	0.015443	0.006965	0.003526	0.00159
No. 2 Boiler - COG	0.350614	0.15812	0.080049	0.036101
No. 2 Boiler - BFG	8.988179	4.053492	2.052096	0.925455
No. 3 Boiler - NG	0.012751	0.00575	0.002911	0.001313
No. 3 Boiler - COG	0.295115	0.133091	0.067378	0.030386
No. 3 Boiler - BFG	8.882492	4.00583	2.027966	0.914573
No. 1 Blast Furnace Stoves - NG	0.002463	0.001111	0.000562	0.000254
No. 1 Blast Furnace Stoves - COG	0.057373	0.025874	0.013099	0.005907
No. 1 Blast Furnace Stoves - BFG	1.615513	0.728565	0.368839	0.166339
No. 1 Blast Furnace Misc. Fuel Combustion - NG	0.309827	0.309827	0.070737	0.070737
No. 1 Blast Furnace Misc. Fuel Combustion - COG	1.180281	0.873679	0.269471	0.19947
No. 1 Blast Furnace Fume Supression - COG	0.641621	0.474947	0.146489	0.108435
No. 1 Blast Furnace Raw Materials Handling	0.983405	0.148916	0.224522	0.033999
No. 1 Blast Furnace Dust Catcher Dust Handling	0.000328	4.97E-05	7.5E-05	1.14E-05
No. 1 Blast Furnace Slag Handling	0.064774	0.009809	0.014789	0.002239
No. 1 and No. 3 Blast Furnace Casthouse Baghouse	0.005138	0.002317	0.001173	0.000529
No. 1 Blast Furnace Casthouse - Fugitives - Roof Monitor	8.906535	4.016673	2.033456	0.917049
No. 3 Blast Furnace Casthouse - Fugitives - Roof Monitor	7.562132	3.410373	1.726514	0.778624
No. 3 Blast Furnace Stoves - NG	0.003115	0.001405	0.000711	0.000321
No. 3 Blast Furnace Stoves - COG	0.087271	0.039357	0.019925	0.008986
No. 3 Blast Furnace Stoves - BFG	2.96992	1.339376	0.678064	0.305794
No. 3 Blast Furnace Misc. Fuel Combustion - NG	0.261761	0.261761	0.059763	0.059763
No. 3 Blast Furnace Misc. Fuel Combustion - COG	1.14484	0.847444	0.261379	0.19348
No. 3 Blast Furnace Fume Supression - COG	0.538969	0.398961	0.123052	0.091087
No. 3 Blast Furnace Raw Materials Handling	0.834964	0.126437	0.190631	0.028867
No. 3 Blast Furnace Dust Catcher Dust Handling	0.000279	4.22E-05	6.37E-05	9.64E-06

No. 3 Blast Furnace Slag Handling	0.054996	0.008328	0.012556	0.001901
Blast Furnace Gas Flare	1.056022	0.476245	0.241101	0.108732
BOP Shop Misc. Fuel Combustion - NG	0.115927	0.115927	0.026467	0.026467
BOP Shop Misc. Fuel Combustion - COG	1.0968	0.811884	0.250411	0.185362
BOP Operations Mixer Baghouse: Hot Metal Transfer / Hot Metal Desulfurization	0.175235	0.099458	0.040008	0.022707
BOP Vessel Process (Gas Cleaning Scrubber) - Vessel F and Vessel R	18.99255	18.42561	4.336198	4.20676
BOP Shop Miscellaneous Operations Secondary Baghouse: Iron Slag Skimming After Desulfurization, Furnace Charging, Furnace Tapping, Steel Slag Dumping	2.319307	1.133884	0.529522	0.258878
BOP Shop Miscellaneous Operations: Iron Slag Skimming before BOF and Vessel Residual Slag Dump	5.312705	4.395501	1.212946	1.003539
BOP Flux Handling: Railcar Unloading Baghouse	0.324065	0.100376	0.073988	0.022917
BOP Flux Handling: Transfer Tower Baghouse	0.162033	0.050188	0.036994	0.011458
BOP Flux Handling: Flux Handling #1 Baghouse	0.486098	0.150564	0.110981	0.034375
BOP Flux Handling: Flux Handling #2 Baghouse	0.486098	0.150564	0.110981	0.034375
BOP Building Fugitives	0.0298	0.0146	0.006804	0.003333
LMF Baghouse Process Operation	1.306813	1.272423	0.298359	0.290508
BOP Shop Flux Handling - Lime Flux	0.503955	0.076313	0.115058	0.017423
Vacuum Degassing Process Operation	0.166355	0.166355	0.037981	0.037981
Caster / LMF Misc. Fuel Combustion - NG	0.041887	0.041887	0.009563	0.009563
Caster / LMF Misc. Fuel Combustion - COG	0.050482	0.037368	0.011526	0.008532
Cooling Tower	9.028129	0.042584	2.061217	0.009722
Plant-Wide Misc. Fuel Combustion - NG	0.038158	0.038158	0.008712	0.008712
Storage Piles	1.10754	0.348084	0.252863	0.079471
Paved Roadways	0.058898	0.014457	0.013447	0.003301
Unpaved Roadways	18.32254	1.832254	4.183229	0.418323
2017 Total	132.4186	62.66717		

2018

Source	PM10 (tons/yr)	PM2.5 (tons/yr)	PM10 (lb/hr)	PM2.5 (lb/hr)
No. 1 Boiler - NG	0.0369	0.0167	0.008425	0.003813
No. 1 Boiler - COG	0.6072	0.2738	0.13863	0.062511
No. 1 Boiler - BFG	14.0376	6.3307	3.204932	1.445365
No. 2 Boiler - NG	0.0198	0.0089	0.004521	0.002032
No. 2 Boiler - COG	0.3495	0.1576	0.079795	0.035982
No. 2 Boiler - BFG	9.3666	4.2242	2.138493	0.964429
No. 3 Boiler - NG	0.0179	0.0081	0.004087	0.001849
No. 3 Boiler - COG	0.3268	0.1474	0.074612	0.033653
No. 3 Boiler - BFG	8.6383	3.8957	1.972215	0.889429
No. 1 Blast Furnace Stoves - NG	0.0039	0.0018	0.00089	0.000411
No. 1 Blast Furnace Stoves - COG	0.0672	0.0303	0.015342	0.006918
No. 1 Blast Furnace Stoves - BFG	2.5424	1.1466	0.580457	0.261781
No. 1 Blast Furnace Misc. Fuel Combustion - NG	0.437	0.437	0.099772	0.099772
No. 1 Blast Furnace Misc. Fuel Combustion - COG	1.2801	0.9476	0.29226	0.216347
No. 1 Blast Furnace Fume Supression - COG	0.1622	0.1201	0.037032	0.02742
No. 1 Blast Furnace Raw Materials Handling	1.8738	0.2838	0.427808	0.064795
No. 1 Blast Furnace Dust Catcher Dust Handling	0.0003	0.0001	6.85E-05	2.28E-05
No. 1 Blast Furnace Slag Handling	0.0659	0.01	0.015046	0.002283
No. 1 and No. 3 Blast Furnace Casthouse Baghouse	0.0085	0.0038	0.001941	0.000868
No. 1 Blast Furnace Casthouse - Fugitives - Roof Monitor	9.629	4.3425	2.198402	0.991438
No. 3 Blast Furnace Casthouse - Fugitives - Roof Monitor	7.8706	3.5495	1.796941	0.810388

No. 3 Blast Furnace Stoves - NG	0.0013	0.0006	0.000297	0.000137
No. 3 Blast Furnace Stoves - COG	0.0293	0.0132	0.006689	0.003014
No. 3 Blast Furnace Stoves - BFG	1.064	0.4798	0.242922	0.109543
No. 3 Blast Furnace Misc. Fuel Combustion - NG	0.3554	0.3554	0.081142	0.081142
No. 3 Blast Furnace Misc. Fuel Combustion - COG	1.0353	0.7663	0.23637	0.174954
No. 3 Blast Furnace Fume Supression - COG	0.1323	0.0979	0.030205	0.022352
No. 3 Blast Furnace Raw Materials Handling	1.5317	0.2319	0.349703	0.052945
No. 3 Blast Furnace Dust Catcher Dust Handling	0.0003	0	6.85E-05	0
No. 3 Blast Furnace Slag Handling	0.0539	0.0082	0.012306	0.001872
Blast Furnace Gas Flare	0.167	0.0753	0.038128	0.017192
BOP Shop Misc. Fuel Combustion - NG	0.165	0.165	0.037671	0.037671
BOP Shop Misc. Fuel Combustion - COG	0.9462	0.7004	0.216027	0.159909
BOP Operations Mixer Baghouse: Hot Metal Transfer / Hot Metal Desulfurization	0.1862	0.1057	0.042511	0.024132
BOP Vessel Process (Gas Cleaning Scrubber) - Vessel F and Vessel R	35.6519	34.5877	8.139703	7.896735
BOP Shop Miscellaneous Operations				
Secondary Baghouse: Iron Slag Skimming After Desulfurization, Furnace Charging, Furnace Tapping, Steel Slag Dumping	2.2805	1.1149	0.520662	0.254543
BOP Shop Miscellaneous Operations: Iron Slag Skimming before BOF and Vessel Residual Slag Dump	5.2153	4.3178	1.190708	0.985799
BOP Flux Handling: Railcar Unloading Baghouse	0.3241	0.1004	0.073995	0.022922

BOP Flux Handling: Transfer Tower Baghouse	0.162	0.0502	0.036986	0.011461
BOP Flux Handling: Flux Handling #1 Baghouse	0.4861	0.1506	0.110982	0.034384
BOP Flux Handling: Flux Handling #2 Baghouse	0.4861	0.1506	0.110982	0.034384
BOP Building Fugitives	0.0209	0.0102	0.004772	0.002329
LMF Baghouse Process Operation	1.2842	1.2504	0.293196	0.285479
BOP Shop Flux Handling - Lime Flux	1.1382	0.1724	0.259863	0.039361
Vacuum Degassing Process Operation	0.1664	0.1664	0.037991	0.037991
Caster / LMF Misc. Fuel Combustion - NG	0.0909	0.0909	0.020753	0.020753
Caster / LMF Misc. Fuel Combustion - COG Cooling Tower	0.0492 7.7263	0.0364 0.0377	0.011233 1.763995	0.008311 0.008607
Plant-Wide Misc. Fuel Combustion - NG Storage Piles	0.1786 1.1075	0.1786 0.3481	0.040776 0.252854	0.040776 0.079475
Paved Roadways	0.0589	0.0145	0.013447	0.003311
Unpaved Roadways	18.3225	1.8323	4.183219	0.418333
2018 Total	143.938	76.3314	32.86256	17.42726

2019

Source	PM10 (tons/yr)	PM2.5 (tons/yr)	PM10 (lb/hr)	PM2.5 (lb/hr)
No. 1 Boiler - NG	0.060586	0.027323	0.013832	0.006238
No. 1 Boiler - COG	0.20197	0.091084	0.046112	0.020796
No. 1 Boiler - BFG	5.239998	2.363136	1.196347	0.539529
No. 2 Boiler - NG	0.060027	0.027071	0.013705	0.006181
No. 2 Boiler - COG	0.285104	0.128576	0.065092	0.029355
No. 2 Boiler - BFG	7.705347	3.47496	1.759212	0.79337
No. 3 Boiler - NG	0.048046	0.021668	0.010969	0.004947
No. 3 Boiler - COG	0.176284	0.079501	0.040248	0.018151
No. 3 Boiler - BFG	4.9848	2.248047	1.138082	0.513253
No. 1 Blast Furnace Stoves - NG	3.32E-05	1.5E-05	7.59E-06	3.42E-06
No. 1 Blast Furnace Stoves - COG	0.12075	0.054456	0.027569	0.012433
No. 1 Blast Furnace Stoves - BFG	2.433093	1.097277	0.555501	0.25052
No. 1 Blast Furnace Misc. Fuel Combustion - NG	0.440348	0.440348	0.100536	0.100536
No. 1 Blast Furnace Misc. Fuel Combustion - COG	0.674378	0.499195	0.153968	0.113971
No. 1 Blast Furnace Fume Supression - COG	4.98E-05	3.68E-05	1.14E-05	8.41E-06
No. 1 Blast Furnace Raw Materials Handling	1.719697	0.260411	0.392625	0.059455
No. 1 Blast Furnace Dust Catcher Dust Handling	0.000312	4.73E-05	7.13E-05	1.08E-05
No. 1 Blast Furnace Slag Handling	0.060995	0.009236	0.013926	0.002109
No. 1 and No. 3 Blast Furnace Casthouse Baghouse	0.008488	0.003828	0.001938	0.000874
No. 1 Blast Furnace Casthouse - Fugitives - Roof Monitor	8.980457	4.05001	2.050333	0.92466
No. 3 Blast Furnace Casthouse - Fugitives - Roof Monitor	6.537483	2.948277	1.492576	0.673123

No. 3 Blast Furnace Stoves - NG	8.59E-06	3.87E-06	1.96E-06	8.85E-07
No. 3 Blast Furnace Stoves - COG	0.036946	0.016662	0.008435	0.003804
No. 3 Blast Furnace Stoves - BFG	0.862185	0.388829	0.196846	0.088774
No. 3 Blast Furnace Misc. Fuel Combustion - NG	0.090994	0.090994	0.020775	0.020775
No. 3 Blast Furnace Misc. Fuel Combustion - COG	0.208328	0.154211	0.047563	0.035208
No. 3 Blast Furnace Fume Supression - COG	0.000134	9.94E-05	3.07E-05	2.27E-05
No. 3 Blast Furnace Raw Materials Handling	1.251884	0.189571	0.285818	0.043281
No. 3 Blast Furnace Dust Catcher Dust Handling	0.000227	3.44E-05	5.19E-05	7.86E-06
No. 3 Blast Furnace Slag Handling	0.044403	0.006724	0.010138	0.001535
Blast Furnace Gas Flare	0.138024	0.062246	0.031512	0.014211
BOP Shop Misc. Fuel Combustion - NG	0.244989	0.244989	0.055934	0.055934
BOP Shop Misc. Fuel Combustion - COG	0.795387	0.588769	0.181595	0.134422
BOP Operations Mixer Baghouse: Hot Metal Transfer / Hot Metal Desulfurization	0.165119	0.093716	0.037698	0.021396
BOP Vessel Process (Gas Cleaning Scrubber) - Vessel F and Vessel R	34.13568	33.1167	7.793534	7.560891
BOP Shop Miscellaneous Operations Secondary Baghouse: Iron Slag Skimming After Desulfurization, Furnace Charging, Furnace Tapping, Steel Slag Dumping	2.565635	1.25431	0.585761	0.286372
BOP Shop Miscellaneous Operations: Iron Slag Skimming before BOF and Vessel Residual Slag Dump	5.142967	4.20724	1.174193	0.960557

BOP Flux Handling: Railcar Unloading Baghouse	0.306057	0.094798	0.069876	0.021643
BOP Flux Handling: Transfer Tower Baghouse	0.153028	0.047399	0.034938	0.010822
BOP Flux Handling: Flux Handling #1 Baghouse	0.459085	0.142197	0.104814	0.032465
BOP Flux Handling: Flux Handling #2 Baghouse	0.459085	0.142197	0.104814	0.032465
BOP Building Fugitives	0.1694	0.0828	0.038676	0.018904
LMF Baghouse Process Operation	0.218487	0.212737	0.049883	0.04857
BOP Shop Flux Handling - Lime Flux	1.001637	0.151677	0.228684	0.034629
Vacuum Degassing Process Operation	0.130095	0.130095	0.029702	0.029702
Caster / LMF Misc. Fuel Combustion - NG	0.096834	0.096834	0.022108	0.022108
Caster / LMF Misc. Fuel Combustion - COG	0.037686	0.027896	0.008604	0.006369
Cooling Tower	8.538511	0.041063	1.949432	0.009375
Plant-Wide Misc. Fuel Combustion - NG	0.179223	0.179223	0.040919	0.040919
Storage Piles	1.10754	0.348084	0.252863	0.079471
Paved Roadways	0.058898	0.014457	0.013447	0.003301
Unpaved Roadways	18.32254	1.832254	4.183229	0.418323
2019 Total	127.4803	66.65701	29.1051	15.21849

2020

Source	PM10 (tons/yr)	PM2.5 (tons/yr)	PM10 (lb/hr)	PM2.5 (lb/hr)
No. 1 Boiler - NG	0.067433	0.030411	0.015396	0.006943
No. 1 Boiler - COG	0.239701	0.108101	0.054726	0.02468
No. 1 Boiler - BFG	5.712452	2.576204	1.304213	0.588174
No. 2 Boiler - NG	0.094343	0.042547	0.021539	0.009714
No. 2 Boiler - COG	0.331316	0.149417	0.075643	0.034114
No. 2 Boiler - BFG	7.980849	3.599207	1.822112	0.821737
No. 3 Boiler - NG	0.062474	0.028174	0.014263	0.006433
No. 3 Boiler - COG	0.217592	0.09813	0.049678	0.022404
No. 3 Boiler - BFG	4.997639	2.253837	1.141013	0.514575
No. 1 Blast Furnace Stoves - NG	0.022914	0.010334	0.005231	0.002359
No. 1 Blast Furnace Stoves - COG	0.113105	0.051008	0.025823	0.011646
No. 1 Blast Furnace Stoves - BFG	2.142534	0.966241	0.489163	0.220603
No. 1 Blast Furnace Misc. Fuel Combustion - NG	0.327525	0.327525	0.074777	0.074777
No. 1 Blast Furnace Misc. Fuel Combustion - COG	0.23545	0.174287	0.053756	0.039792
No. 1 Blast Furnace Fume Supression - COG	0.003073	0.002275	0.000702	0.000519
No. 1 Blast Furnace Raw Materials Handling	1.741671	0.263739	0.397642	0.060214
No. 1 Blast Furnace Dust Catcher Dust Handling	0.000314	4.76E-05	7.18E-05	1.09E-05
No. 1 Blast Furnace Slag Handling	0.061376	0.009294	0.014013	0.002122
No. 1 and No. 3 Blast Furnace Casthouse Baghouse	0.014107	0.006362	0.003221	0.001453
No. 1 Blast Furnace Casthouse - Fugitives - Roof Monitor	9.034826	4.074529	2.062746	0.930258
No. 3 Blast Furnace Casthouse - Fugitives - Roof Monitor	7.72129	3.482151	1.762852	0.795012

No. 3 Blast Furnace Stoves - NG	0.048132	0.021707	0.010989	0.004956
No. 3 Blast Furnace Stoves - COG	0.236615	0.106709	0.054022	0.024363
No. 3 Blast Furnace Stoves - BFG	4.272205	1.926681	0.975389	0.439881
No. 3 Blast Furnace Misc. Fuel Combustion - NG	0.308442	0.308442	0.070421	0.070421
No. 3 Blast Furnace Misc. Fuel Combustion - COG	0.281921	0.208687	0.064366	0.047645
No. 3 Blast Furnace Fume Supression - COG	0.007384	0.005466	0.001686	0.001248
No. 3 Blast Furnace Raw Materials Handling	1.488456	0.225395	0.33983	0.05146
No. 3 Blast Furnace Dust Catcher Dust Handling	0.000269	4.07E-05	6.14E-05	9.29E-06
No. 3 Blast Furnace Slag Handling	0.052453	0.007943	0.011976	0.001813
Blast Furnace Gas Flare	0.020392	0.009196	0.004656	0.0021
BOP Shop Misc. Fuel Combustion - NG	0.226108	0.226108	0.051623	0.051623
BOP Shop Misc. Fuel Combustion - COG	0.954636	0.70665	0.217953	0.161336
BOP Operations Mixer Baghouse: Hot Metal Transfer / Hot Metal Desulfurization	0.129668	0.073595	0.029605	0.016803
BOP Vessel Process (Gas Cleaning Scrubber) - Vessel F and Vessel R	20.22596	19.6222	4.6178	4.479955
BOP Shop Miscellaneous Operations Secondary Baghouse: Iron Slag Skimming After Desulfurization, Furnace Charging, Furnace Tapping, Steel Slag Dumping	2.860885	1.398655	0.65317	0.319328

BOP Shop Miscellaneous Operations:				
Iron Slag Skimming before BOF and Vessel Residual Slag Dump	5.750215	4.698935	1.312834	1.072816
BOP Flux Handling: Railcar Unloading Baghouse	0.275845	0.08544	0.062978	0.019507
BOP Flux Handling: Transfer Tower Baghouse	0.137922	0.04272	0.031489	0.009753
BOP Flux Handling: Flux Handling #1 Baghouse	0.413767	0.12816	0.094467	0.02926
BOP Flux Handling: Flux Handling #2 Baghouse	0.413767	0.12816	0.094467	0.02926
BOP Building Fugitives	0.2043	0.0999	0.046644	0.022808
LMF Baghouse Process Operation	0.244683	0.238244	0.055864	0.054393
BOP Shop Flux Handling - Lime Flux	1.121836	0.169878	0.256127	0.038785
Vacuum Degassing Process Operation	0.139528	0.139528	0.031856	0.031856
Caster / LMF Misc. Fuel Combustion - NG	0.083416	0.083416	0.019045	0.019045
Caster / LMF Misc. Fuel Combustion - COG	0.036355	0.026911	0.0083	0.006144
Cooling Tower	8.934985	0.046153	2.039951	0.010537
Plant-Wide Misc. Fuel Combustion - NG	0.156732	0.156732	0.035784	0.035784
Storage Piles	1.10754	0.348084	0.252863	0.079471
Paved Roadways	0.058898	0.014457	0.013447	0.003301
Unpaved Roadways	18.32254	1.832254	4.183229	0.418323
2020 Total	118.5824	55.36633	27.07361	12.64072

Source	4 Year Average		Reduction		Reduction	
	PM10 (lb/hr)	PM2.5 (lb/hr)	PM10 % of avg	PM2.5 % of avg	PM10 (lb/hr)	PM2.5 (lb/hr)
No. 1 Boiler - NG	0.008	0.004	NA	NA	NA	NA
No. 1 Boiler - COG	0.0871	0.0487	NA	NA	NA	NA
No. 1 Boiler - BFG	2.0994	1.1740	NA	NA	NA	NA
No. 2 Boiler - NG	0.0079	0.0033	NA	NA	NA	NA
No. 2 Boiler - COG	0.0648	0.0338	NA	NA	NA	NA
No. 2 Boiler - BFG	1.6929	0.8944	NA	NA	NA	NA
No. 3 Boiler - NG	0.0061	0.0027	NA	NA	NA	NA
No. 3 Boiler - COG	0.0512	0.0274	NA	NA	NA	NA
No. 3 Boiler - BFG	1.4132	0.7724	NA	NA	NA	NA
No. 1 Blast Furnace Stoves - NG	0.0010	0.0002	NA	NA	NA	NA
No. 1 Blast Furnace Stoves - COG	0.0169	0.0084	NA	NA	NA	NA
No. 1 Blast Furnace Stoves - BFG	0.4313	0.2262	NA	NA	NA	NA
No. 1 Blast Furnace Misc. Fuel Combustion - NG	0.0865	0.0903	NA	NA	NA	NA
No. 1 Blast Furnace Misc. Fuel Combustion - COG	0.1889	0.1766	NA	NA	NA	NA
No. 1 Blast Furnace Fume Supression - COG	0.0460	0.0453	NA	NA	NA	NA
No. 1 Blast Furnace Raw Materials Handling	0.2763	0.0527		0		
No. 1 Blast Furnace Dust Catcher Dust Handling	0.0001	0.00001		0		
No. 1 Blast Furnace Slag Handling	0.0115	0.0022		0		
No. 1 and No. 3 Blast Furnace Casthouse Baghouse	0.0016	0.0008		0		
No. 1 Blast Furnace Casthouse - Fugitives - Roof Monitor	1.8031	0.9444		0		
No. 3 Blast Furnace Casthouse - Fugitives - Roof Monitor	1.4528	0.7540		0		

No. 3 Blast Furnace Stoves - NG	0.0015	0.0002	NA	
No. 3 Blast Furnace Stoves - COG	0.0149	0.0053	NA	
No. 3 Blast Furnace Stoves - BFG	0.3894	0.1680	NA	
No. 3 Blast Furnace Misc. Fuel Combustion - NG	0.0580	0.0539	NA	
No. 3 Blast Furnace Misc. Fuel Combustion - COG	0.1482	0.1345	NA	
No. 3 Blast Furnace Fume Supression - COG	0.0386	0.0378	NA	
No. 3 Blast Furnace Raw Materials Handling	0.2194	0.0417		0
No. 3 Blast Furnace Dust Catcher Dust Handling	0.0000	0.0000		0
No. 3 Blast Furnace Slag Handling	0.0092	0.0018		0
Blast Furnace Gas Flare	0.0782	0.0467	NA	
BOP Shop Misc. Fuel Combustion - NG	0.0429	0.0400	NA	
BOP Shop Misc. Fuel Combustion - COG	0.2023	0.1599	NA	
BOP Operations Mixer Baghouse: Hot Metal Transfer / Hot Metal Desulfurization	0.0343	0.0227		0
BOP Vessel Process (Gas Cleaning Scrubber) - Vessel F and Vessel R	6.1873	6.5548		0
BOP Shop Miscellaneous Operations Secondary Baghouse: Iron Slag Skimming After Desulfurization, Furnace Charging, Furnace Tapping, Steel Slag Dumping	0.4888	0.2666		0

BOP Shop Miscellaneous Operations:							
Iron Slag Skimming before BOF and Vessel Residual Slag Dump	1.1627	0.9833					
BOP Flux Handling: Railcar Unloading Baghouse	0.0593	0.0225					
BOP Flux Handling: Transfer Tower Baghouse	0.0297	0.0112					
BOP Flux Handling: Flux Handling #1 Baghouse	0.0890	0.0337					
BOP Flux Handling: Flux Handling #2 Baghouse	0.0890	0.0337					
BOP Building Fugitives							
LMF Baghouse Process Operation	0.1740	0.2082					
BOP Shop Flux Handling - Lime Flux	0.1606	0.0305					
Vacuum Degassing Process Operation	0.0344	0.0352					
Caster / LMF Misc. Fuel Combustion - NG	0.0179	0.0175	NA				
Caster / LMF Misc. Fuel Combustion - COG	0.0094	0.0077	NA				
Cooling Tower	1.4463	0.0092	NA				
Plant-Wide Misc. Fuel Combustion - NG	0.0315	0.0301	NA				
Storage Piles	0.2095	0.0795		30%	30%	0.06	0.02
Paved Roadways	0.0109	0.0033		30%	30%	0.003	0.001
Unpaved Roadways	3.2420	0.4183		30%	30%	0.97	0.13
average plant total	24.8695	16.3229		4%	1%	1.04	0.15