

**Monongahela Power Company  
Harrison Power Station  
Haywood, West Virginia**

**Class II Administrative Update  
and  
Title V Minor Modification  
Application**

**Installation of a Refined Coal Facility**

**January 29, 2016**

## **Table of Contents**

<b>1.</b>	<b>Application for Class II Administrative Update</b>	
<b>2.</b>	<b>Application Fee</b>	
<b>3.</b>	<b>Business Certificate</b>	<b>Attachment A</b>
<b>4.</b>	<b>Plot Plan</b>	<b>Attachment E</b>
<b>5.</b>	<b>Process Flow Diagram</b>	<b>Attachment F</b>
<b>6.</b>	<b>Process Description</b>	<b>Attachment G</b>
<b>7.</b>	<b>Safety Data Sheets (SDS)</b>	<b>Attachment H</b>
<b>8.</b>	<b>Equipment Units Table</b>	<b>Attachment I</b>
<b>9.</b>	<b>Emission Points Data Summary Sheet</b>	<b>Attachment J</b>
<b>10.</b>	<b>Fugitive Emissions Data Summary</b>	<b>Attachment K</b>
<b>11.</b>	<b>Air Pollution Control Device Sheet</b>	<b>Attachment M</b>
<b>12.</b>	<b>Supporting Emission Calculations</b>	<b>Attachment N</b>
<b>13.</b>	<b>Public Notice/Class II Legal AD</b>	<b>Attachment P</b>
<b>14.</b>	<b>Title V Permit Revision Information</b>	<b>Attachments S, S1</b>



WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
**DIVISION OF AIR QUALITY**  
 601 57<sup>th</sup> Street, SE  
 Charleston, WV 25304  
 (304) 926-0475  
[www.dep.wv.gov/daq](http://www.dep.wv.gov/daq)

**APPLICATION FOR NSR PERMIT  
 AND  
 TITLE V PERMIT REVISION  
 (OPTIONAL)**

PLEASE CHECK ALL THAT APPLY TO NSR (45CSR13) (IF KNOWN):

- CONSTRUCTION     MODIFICATION     RELOCATION  
 CLASS I ADMINISTRATIVE UPDATE     TEMPORARY  
 CLASS II ADMINISTRATIVE UPDATE     AFTER-THE-FACT

PLEASE CHECK TYPE OF 45CSR30 (TITLE V) REVISION (IF ANY):

- ADMINISTRATIVE AMENDMENT     MINOR MODIFICATION  
 SIGNIFICANT MODIFICATION

IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS ATTACHMENT S TO THIS APPLICATION

**FOR TITLE V FACILITIES ONLY:** Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

**Section I. General**

1. Name of applicant (as registered with the WV Secretary of State's Office): <b>Monongahela Power Company</b>		2. Federal Employer ID No. (FEIN): <b>23-3020481</b>	
3. Name of facility (if different from above): <b>Harrison Power Station</b>		4. The applicant is the: <input type="checkbox"/> OWNER <input type="checkbox"/> OPERATOR <input checked="" type="checkbox"/> BOTH	
5A. Applicant's mailing address: <b>800 Cabin Hill Drive (Room A-301) Greensburg, PA 15601</b>		5B. Facility's present physical address: <b>Route 20, Haywood, WV 26366-0600</b>	
6. <b>West Virginia Business Registration.</b> Is the applicant a resident of the State of West Virginia? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO – If YES, provide a copy of the <b>Certificate of Incorporation/Organization/Limited Partnership</b> (one page) including any name change amendments or other Business Registration Certificate as <b>Attachment A</b> . – If NO, provide a copy of the <b>Certificate of Authority/Authority of L.L.C./Registration</b> (one page) including any name change amendments or other Business Certificate as <b>Attachment A</b> .			
7. If applicant is a subsidiary corporation, please provide the name of parent corporation: <b>FirstEnergy Corp.</b>			
8. Does the applicant own, lease, have an option to buy or otherwise have control of the proposed site? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO – If YES, please explain: <b>Applicant owns the site</b> – If NO, you are not eligible for a permit for this source.			
9. Type of plant or facility (stationary source) to be <b>constructed, modified, relocated, administratively updated</b> or <b>temporarily permitted</b> (e.g., coal preparation plant, primary crusher, etc.): <b>Refined coal system involving the application of sorbent chemicals to the coal prior to combustion, to aid in air pollution control.</b>		10. North American Industry Classification System (NAICS) code for the facility: <b>221112</b>	
11A. DAQ Plant ID No. (for existing facilities only): <b>033-00015</b>		11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only): <b>R30-03300015-2015; R13-2988</b>	

**All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.**

<p>12A.</p> <ul style="list-style-type: none"> <li>For <b>Modifications, Administrative Updates</b> or <b>Temporary permits</b> at an existing facility, please provide directions to the <i>present location</i> of the facility from the nearest state road;</li> <li>For <b>Construction</b> or <b>Relocation permits</b>, please provide directions to the <i>proposed new site location</i> from the nearest state road. Include a <b>MAP</b> as <b>Attachment B</b>.</li> </ul> <p><b>From the junction of State Route 20 and US Route 19 near Haywood, West Virginia, take Route 20 approximately one mile west to the facility entrance (on the right).</b></p>		
12B. New site address (if applicable): <b>N/A</b>	12C. Nearest city or town: <b>Haywood, WV</b>	12D. County: <b>Harrison</b>
12.E. UTM Northing (KM): <b>4,359.489</b>	12F. UTM Easting (KM): <b>557.392</b>	12G. UTM Zone: <b>17</b>
<p>13. Briefly describe the proposed change(s) at the facility:  <b>A Refined Coal Facility will be installed for the application of sorbent chemicals to the coal, prior to combustion in the boilers, to aid in air pollution control. The sorbents will be delivered to the site via trucks for unloading into the silos and storage tanks, then mixed and applied to the coal on the conveyors. (See Attachment G for a more detailed process description).</b></p>		
14A. Provide the date of anticipated installation or change: <b>3/1/2016</b> <ul style="list-style-type: none"> <li>If this is an <b>After-The-Fact</b> permit application, provide the date upon which the proposed change did happen:     /     /</li> </ul>	14B. Date of anticipated Start-Up if a permit is granted: <b>6/15/2016</b>	
14C. Provide a <b>Schedule</b> of the planned <b>Installation of/Change</b> to and <b>Start-Up</b> of each of the units proposed in this permit application as <b>Attachment C</b> (if more than one unit is involved).		
15. Provide maximum projected <b>Operating Schedule</b> of activity/activities outlined in this application: ( <b>Refined Coal Facility</b> ) Hours Per Day: <b>24</b> Days Per Week: <b>7</b> Weeks Per Year: <b>52</b> ( <b>Truck deliveries = 8 hrs/7 days/52 weeks</b> )		
16. Is demolition or physical renovation at an existing facility involved? <input type="checkbox"/> <b>YES</b> <input checked="" type="checkbox"/> <b>NO</b>		
17. <b>Risk Management Plans.</b> If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see <a href="http://www.epa.gov/ceppo">www.epa.gov/ceppo</a> ), submit your <b>Risk Management Plan (RMP)</b> to U. S. EPA Region III.		
18. <b>Regulatory Discussion.</b> List all Federal and State air pollution control regulations that you believe are applicable to the proposed process ( <i>if known</i> ). A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance ( <i>if known</i> ). Provide this information as <b>Attachment D</b> .		
<b>Section II. Additional attachments and supporting documents.</b>		
19. Include a check payable to WVDEP – Division of Air Quality with the appropriate <b>application fee</b> (per 45CSR22 and 45CSR13).		
20. Include a <b>Table of Contents</b> as the first page of your application package.		
21. Provide a <b>Plot Plan</b> , e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as <b>Attachment E</b> (Refer to <b>Plot Plan Guidance</b> ) . <ul style="list-style-type: none"> <li>Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).</li> </ul>		
22. Provide a <b>Detailed Process Flow Diagram(s)</b> showing each proposed or modified emissions unit, emission point and control device as <b>Attachment F</b> .		
23. Provide a <b>Process Description</b> as <b>Attachment G</b> . <ul style="list-style-type: none"> <li>Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).</li> </ul>		
<b>All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.</b>		

24. Provide **Material Safety Data Sheets (MSDS)** for all materials processed, used or produced as **Attachment H**.  
 – For chemical processes, provide a MSDS for each compound emitted to the air.

25. Fill out the **Emission Units Table** and provide it as **Attachment I**.

26. Fill out the **Emission Points Data Summary Sheet (Table 1 and Table 2)** and provide it as **Attachment J**.

27. Fill out the **Fugitive Emissions Data Summary Sheet** and provide it as **Attachment K**.

28. Check all applicable **Emissions Unit Data Sheets** listed below:

<input type="checkbox"/> Bulk Liquid Transfer Operations	<input checked="" type="checkbox"/> Haul Road Emissions	<input type="checkbox"/> Quarry
<input type="checkbox"/> Chemical Processes	<input type="checkbox"/> Hot Mix Asphalt Plant	<input type="checkbox"/> Solid Materials Sizing, Handling and Storage Facilities
<input type="checkbox"/> Concrete Batch Plant	<input type="checkbox"/> Incinerator	<input type="checkbox"/> Storage Tanks
<input type="checkbox"/> Grey Iron and Steel Foundry	<input type="checkbox"/> Indirect Heat Exchanger	
<input type="checkbox"/> General Emission Unit, specify		

Fill out and provide the **Emissions Unit Data Sheet(s)** as **Attachment L**.

29. Check all applicable **Air Pollution Control Device Sheets** listed below:

<input type="checkbox"/> Absorption Systems	<input type="checkbox"/> Baghouse	<input type="checkbox"/> Flare
<input type="checkbox"/> Adsorption Systems	<input type="checkbox"/> Condenser	<input type="checkbox"/> Mechanical Collector
<input type="checkbox"/> Afterburner	<input type="checkbox"/> Electrostatic Precipitator	<input type="checkbox"/> Wet Collecting System

Other Collectors, specify: **Bin Vent Filters**

Fill out and provide the **Air Pollution Control Device Sheet(s)** as **Attachment M**.

30. Provide all **Supporting Emissions Calculations** as **Attachment N**, or attach the calculations directly to the forms listed in Items 28 through 31.

31. **Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as **Attachment O**.

➤ Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.

32. **Public Notice.** At the time that the application is submitted, place a **Class I Legal Advertisement** in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and **Example Legal Advertisement** for details). Please submit the **Affidavit of Publication** as **Attachment P** immediately upon receipt.

33. **Business Confidentiality Claims.** Does this application include confidential information (per 45CSR31)?

YES     NO

➤ If **YES**, identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's "**Precautionary Notice – Claims of Confidentiality**" guidance found in the **General Instructions** as **Attachment Q**.

### **Section III. Certification of Information**

34. **Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable **Authority Form** below:

<input type="checkbox"/> Authority of Corporation or Other Business Entity	<input type="checkbox"/> Authority of Partnership
<input type="checkbox"/> Authority of Governmental Agency	<input type="checkbox"/> Authority of Limited Partnership

Submit completed and signed **Authority Form** as **Attachment R**.

*All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.*

35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

**Certification of Truth, Accuracy, and Completeness**

I, the undersigned  **Responsible Official** /  **Authorized Representative**, hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

**Compliance Certification**

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

SIGNATURE  DATE: JAN 27, 2016  
(Please use blue ink) (Please use blue ink)

35B. Printed name of signee: **Gary J. Dinzeo** 35C. Title: **Director, Harrison Plant**

35D. E-mail: **gdinzeo@firstenergycorp.com** 36E. Phone: **304-584-2233** 36F. FAX: **304-368-2566**

36A. Printed name of contact person (if different from above): **James A. Lefik** 36B. Title: **Engineer IV**

36C. E-mail: **jlefik@firstenergycorp.com** 36D. Phone: **724-838-6136** 36E. FAX: **234-678-2384**

**PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:**

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Attachment A: Business Certificate               | <input checked="" type="checkbox"/> Attachment K: Fugitive Emissions Data Summary Sheet |
| <input type="checkbox"/> Attachment B: Map(s)  | <input checked="" type="checkbox"/> Attachment L: Emissions Unit Data Sheet(s)          |
| <input type="checkbox"/> Attachment C: Installation and Start Up Schedule            | <input checked="" type="checkbox"/> Attachment M: Air Pollution Control Device Sheet(s) |
| <input type="checkbox"/> Attachment D: Regulatory Discussion                         | <input checked="" type="checkbox"/> Attachment N: Supporting Emissions Calculations     |
| <input checked="" type="checkbox"/> Attachment E: Plot Plan                          | <input type="checkbox"/> Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans |
| <input checked="" type="checkbox"/> Attachment F: Detailed Process Flow Diagram(s)   | <input checked="" type="checkbox"/> Attachment P: Public Notice                         |
| <input checked="" type="checkbox"/> Attachment G: Process Description                | <input type="checkbox"/> Attachment Q: Business Confidential Claims                     |
| <input checked="" type="checkbox"/> Attachment H: Material Safety Data Sheets (MSDS) | <input type="checkbox"/> Attachment R: Authority Forms                                  |
| <input checked="" type="checkbox"/> Attachment I: Emission Units Table               | <input checked="" type="checkbox"/> Attachment S: Title V Permit Revision Information   |
| <input checked="" type="checkbox"/> Attachment J: Emission Points Data Summary Sheet | <input checked="" type="checkbox"/> Application Fee                                     |

*Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this application. Please DO NOT fax permit applications.*

**FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:**

- Forward 1 copy of the application to the Title V Permitting Group and:
- For Title V Administrative Amendments:
  - NSR permit writer should notify Title V permit writer of draft permit,
- For Title V Minor Modifications:
  - Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,
  - NSR permit writer should notify Title V permit writer of draft permit.
- For Title V Significant Modifications processed in parallel with NSR Permit revision:
  - NSR permit writer should notify a Title V permit writer of draft permit,
  - Public notice should reference both 45CSR13 and Title V permits,
  - EPA has 45 day review period of a draft permit.

**All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.**



VOID IF NOT CASHED WITHIN 90 DAYS

2620493

50-937

213

Check No. 2620493

CHECK DATE

01 25 2016

AMOUNT

\*\*\*\*\*1,000.00

PAY TO THE ORDER OF WV DEPT OF ENVIRONMENTAL PROTECTION AIR POLLUTION CONTROL FUND 601 57TH STREET SE CHARLESTON, WV 25304

EXACTLY \*\*\*\*\*1,000 DOLLARS 00 CENTS

Handwritten signature of Steven R. Staud

Treasurer FirstEnergy Corp.

JPMorgan Chase Bank, Syracuse, NY 13206

⑈ 2620493 ⑆ ⑆ 021309379 ⑆ 601864788 ⑆

VENDOR NO. 0010032914 DOC NO. 2000025157

PO NO	INVOICE / RCPT #	DATE	DOCUMENT #	VENDOR INV AMT	DISCOUNT	NET AMOUNT
	HAR45CSR13	01/22/2016	1902000653	1,000.00	0.00	1,000.00
	HARRISON PERMIT FEE					

FOR WORKERS COMPENSATION INQUIRY, CONTACT ASSOCIATED COMPENSATION RESOURCES AT 216-731-8215. ALL OTHER CHECK INQUIRY, CONTACT FIRSTENERGY ACCOUNTS PAYABLE HELP DESK AT 814-539-3200.

**Attachment A**  
**Business Certificate**

**WEST VIRGINIA  
STATE TAX DEPARTMENT  
BUSINESS REGISTRATION  
CERTIFICATE**

ISSUED TO:  
**MONONGAHELA POWER COMPANY  
DBA HARRISON POWER STATION  
PO BOX 1392  
FAIRMONT, WV 26555-1392**

BUSINESS REGISTRATION ACCOUNT NUMBER: **1007-8196**

This certificate is issued on: **06/25/2010**

*This certificate is issued by  
the West Virginia State Tax Commissioner  
in accordance with W Va. Code § 11-12.*

*The person or organization identified on this certificate is registered  
to conduct business in the State of West Virginia at the location above.*

**This certificate is not transferrable and must be displayed at the location for which issued.**

This certificate shall be permanent until cessation of the business for which the certificate of registration was granted or until it is suspended, revoked or cancelled by the Tax Commissioner.

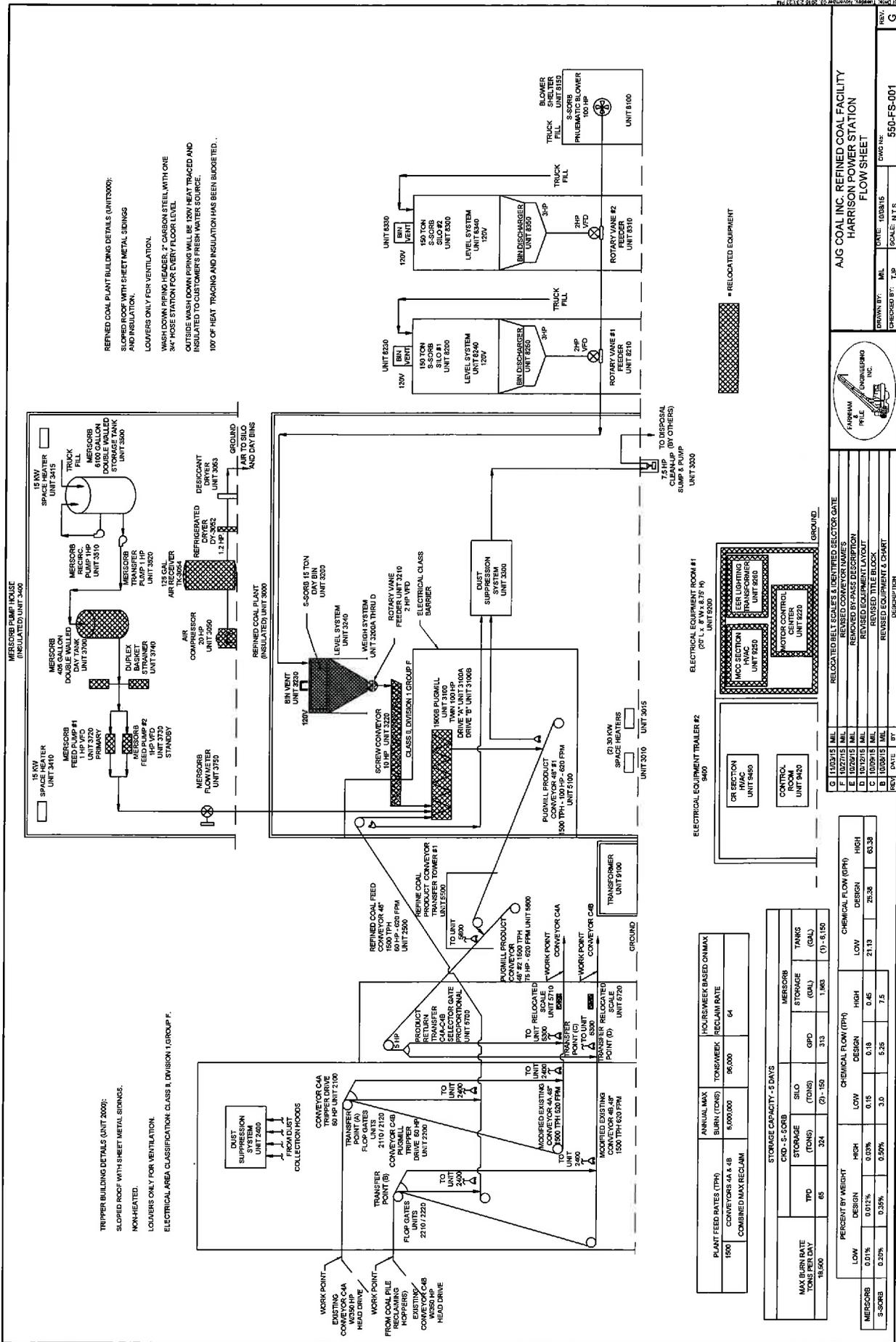
Change in name or change of location shall be considered a cessation of the business and a new certificate shall be required.

TRAVELING/STREET VENDORS: Must carry a copy of this certificate in every vehicle operated by them.  
CONTRACTORS, DRILLING OPERATORS, TIMBER/LOGGING OPERATIONS: Must have a copy of this certificate displayed at every job site within West Virginia.

**Attachment E**  
**Plot Plan**



**Attachment F**  
**Process Flow Diagram**



**AUG COAL INC. REFINED COAL FACILITY**  
**HARRISON POWER STATION**  
**FLOW SHEET**

DRAWN BY: MIL  
 CHECKED BY: TJP  
 SCALE: AS SHOWN  
 DATE: 08/28/15  
 SHEET NO: 550-FS-001

15000000  
 CHANGING  
 FILE  
 INC.

TO DISPOSAL  
 2 HP  
 CLAMP & PUMP  
 UNIT 3030

ELECTRICAL EQUIPMENT ROOM #1  
 (20' L. x 8' W. x 8.75' H.)  
 UNIT 2000

ELECTRICAL EQUIPMENT TRAILER #2  
 9400

OR SECTION  
 UNIT 9450

CONTROL  
 UNIT 9400

MCC SECTION  
 IYAC  
 UNIT 2000

TO DISPOSAL  
 2 HP  
 CLAMP & PUMP  
 UNIT 3030

UNIT 1510  
 ROTARY VANE #2  
 FEEDER  
 UNIT 1510

UNIT 1510  
 BIN  
 HEAT  
 120W

**Attachment G**  
**Process Description**



# Production of Refined Coal

using the

# Chem-Mod Process

This report contains confidential and proprietary information regarding the Chem-Mod Process. This report is intended for use in applications to regulatory entities for construction permits. Recipients of this package may use the information for this intended purpose only. Recipients may not disseminate information regarding the chemical components, reactions, or processes to others without the express permission of Chem-Mod LLC.



## Purpose

The facility and process described in this report is designed to produce a Refined Coal fuel as described in Title 26, Section 45 of the United States Code. This code requires that for a fuel to qualify as a Refined Coal, it must exhibit reduced emission of Nitrogen Oxides ( $\text{NO}_x$ ) combined with reduced emission of either Sulfur Dioxide ( $\text{SO}_2$ ) or Mercury (Hg) when burnt in the production of steam.

Most Refined Coal production facilities will be constructed at the facility which will burn the fuel (host facility). This eliminates the need to protect the Refined Coal from weathering as it can be produced and supplied on a just in time basis. Likewise it allows for reliable compliance with the regulatory requirement that the Refined Coal be burned in the production of steam. This report is written to describe such an installation.

## Process

The Chem-Mod Process uses proprietary chemical sorbent additives to reduce the formation of  $\text{NO}_x$  and for the capture of Hg when coal is burned to produce steam for commercial use, industrial processes, or the generation of electricity.

The Chem-Mod solution is a dual-reagent coal pretreatment method which uses a halogen for mercury oxidation and a dry-powder sorbent for capture of mercury and other oxidized metals. The halogen is added to the coal as a salt solution, in this case 52%  $\text{CaBr}_2$  in water. The Chem-Mod trade name for this additive is MerSorb. The dry powder sorbent is made from raw feed, product and by-product materials from the cement industry. The Chem-Mod trade name for this additive is S-Sorb. The S-Sorb properties are specified for different rank coals to avoid unwanted balance-of-plant (BoP) or emissions issues. The component materials in the S-Sorb are dictated by the applicable specification. These two reagents are typically added to the coal when the coal is bunkered for firing in the steam generator. The product of the coal and additives is called Refined Coal.

When coal is burned Mercury (Hg) is released from the mineral matrix in elemental form ( $\text{Hg}^0$ ). Mercury in coal is mainly associated with sulfide minerals such as pyrite. The  $\text{Hg}^0$  is gaseous at all temperatures throughout the boiler and air quality control (AQC) system, and as it is comparatively non-reactive, most all is released up the stack. When refined coal is burned the MerSorb is thermally decomposed in the furnace and the Bromine (Br) reacts with  $\text{Hg}^0$  to produce the oxidized form ( $\text{Hg}^{2+}$ ). The  $\text{Hg}^{2+}$  form is very reactive and can be removed from the flue gases in a number of ways. It can react with solid particles such as the S-Sorb. It also can be absorbed on powdered activated carbon (PAC) or in wet scrubber liquor. The metals captured by the S-Sorb, including Hg are bound in a zeolite-type structure, which are not leachable to the environment. TCLP data show that Chem-Mod refined coal ash has lower levels of most constituents compared to untreated coal. TCLP levels are consistently less than RCRA limits and in most all cases are below Drinking Water limits. In the Chem-Mod solution,  $\text{NO}_x$



emissions are reduced by reaction with the S-Sorb.  $\text{NO}_x$  is reduced by simple base-acid chemical reactions with elements in the S-Sorb.

Chem-Mod in cooperation with B&W also offers an alternative TriSorb (three-sorbent) solution, which includes the use of Mitagent™ in conjunction with the original solution (MerSorb plus S-Sorb). Mitagent reduces the amount of Br required for Hg oxidation, and also reacts with non-metal gas-phase species such as Selenium (Se), Phosphorus (P) and Arsenic (As). The latter two elements are known to cause SCR catalyst deactivation. Phosphorus occurs in higher concentrations in some Powder River Basin coals, and As is common in high-sulfur Eastern coals. It should be added that the S-Sorb also is known to react with gas-phase As and consequently improve catalyst lifetimes.

## Facility

Sorbents are delivered to the facility in various ways, depending upon the production capacity of the facility. S-Sorb and Mitagent are delivered as a dry bulk product usually supplied in pneumatic tank trucks or rail cars. MerSorb is provided as an aqueous solution delivered in tank trucks, rail cars, or chemical totes.

Upon receipt, the sorbents are conveyed or pumped to appropriate on site storage facilities; tanks or tote storage areas for the liquid MerSorb and silos for the dry S-Sorb. Again, the size of the on site storage containers are determined by the production capacity of the facility to provide a reasonable on site volume for production. Containment structures will be constructed to comply with applicable regulations.

Coal is diverted from the existing host plant feed system to the Refined Coal facility for the purpose of adding the sorbents to produce a Refined Coal. The conveyors and mixers of the Refined Coal facility are of sufficient capacity to process all coal used by the host facility at the maximum rate the host facility reclaims the coal from its storage yard. The coal is conveyed to the mixer where it is combined with the S-Sorb, MerSorb, and possibly Mitagent. The MerSorb is pumped from the storage tank(s) to the mixer using a metering pump which can be controlled to provide the proper mass of sorbent to the coal stream. The S-Sorb and Mitagent are conveyed to the mixer using proportional feeders which can be controlled to provide the required mass of sorbent to the coal stream. The coal and sorbents are then thoroughly mixed in a mechanical device sized to provide even distribution of the sorbents with the coal. The Refined Coal is then conveyed back to the host facility's coal reclaim system for use in the furnaces.

Scales, flow meters, volumetric controls, pressure, temperature, and other instrumentation is provided as necessary to properly control the process. Inputs from the measuring devices are fed to a process control system which controls all components to properly proportion and blend the components to produce a consistent product.



The facility is designed such that all coal flow can bypass the facility at any time so as not to adversely impact operation of the host facility in the unlikely event that the Refined Coal facility is inoperable.

### **Effects on Host Facility**

The primary effect on the host facility is the reduction of NO<sub>x</sub> and Hg air emissions from the facility. NO<sub>x</sub> is reduced by adsorption in the boiler. Hg is reduced by the oxidation of elemental mercury and the subsequent capture of mercuric compounds in ceramicized matrices in the ash which is captured as fly ash or bottom ash in the host facility's collection systems.

The Refined Coal facility may add three to five transfer points to the fuel handling system, depending on the configuration of the existing reclaim system. These transfer points will be controlled for fugitive dust in the same manner as existing systems or as required by regulation.

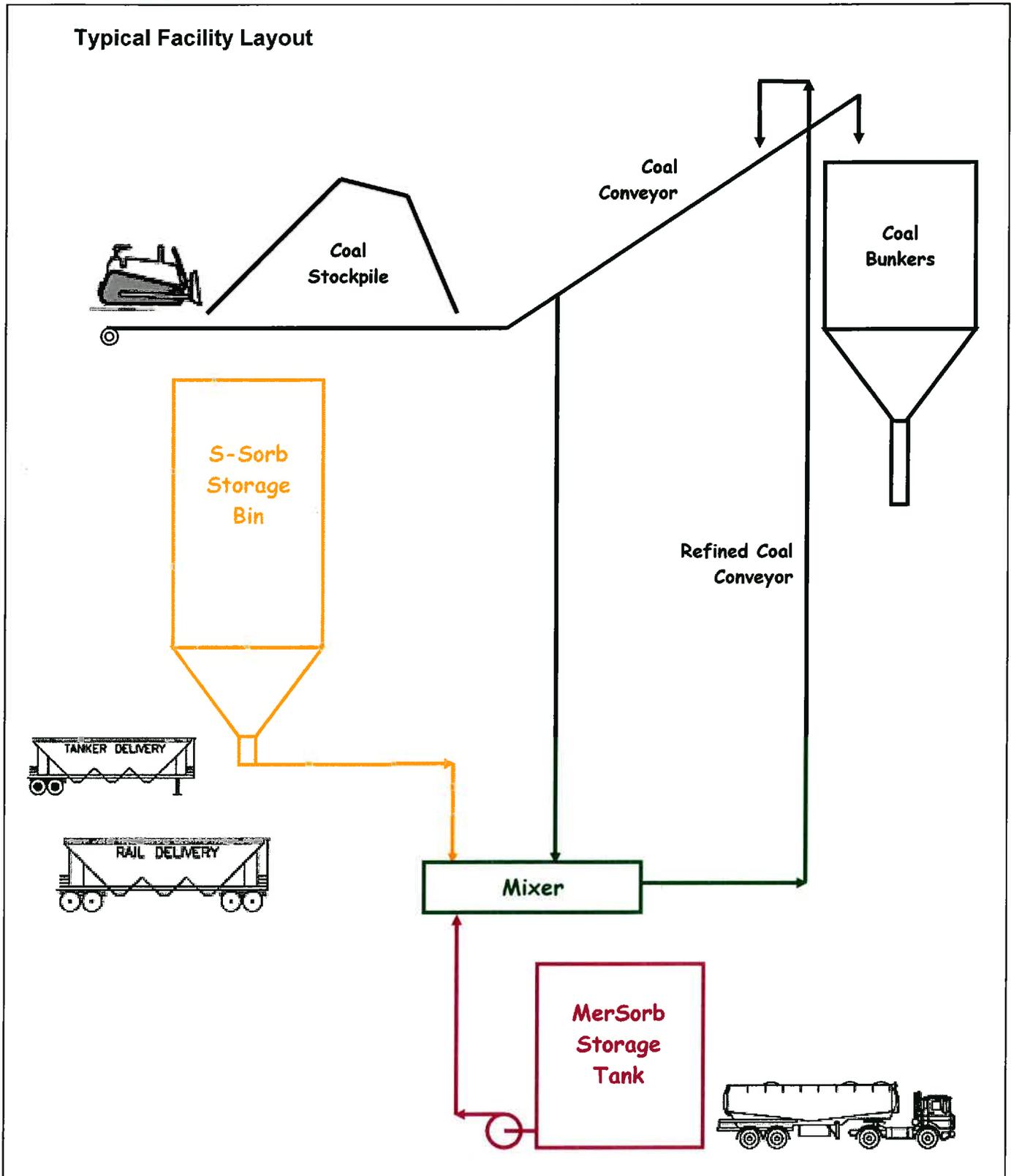
The sorbent additives essentially increase the "ash" component of the fuel and report to the ash collection equipment of the host facility. The sorbents will typically increase the ash percentage of the fuel 0.3%. The host facility must be capable of handling this increased ash loading in the flue gas particulate removal and handling systems.

In some facilities burning subbituminous coals, boiler deposits and corrosion of downstream flue gas components have been observed. These detrimental effects have been resolved by changes in plant operating procedures and in some cases material retrofits.

Stations have benefitted from increased SCR catalyst life due to S-Sorb and Mitagent reacting with gas phase Arsenic and Phosphorous.

Stations equipped with wet flue gas desulfurization equipment may utilize the Tri-Sorb version of refined coal to allow use of halogen oxidizers for Hg control by counteracting the effect halogens have on Selenium species which may cause water quality issues in scrubbed units.

### Typical Facility Layout



### **Introduction**

This document provides a detailed description of the layout and operation of the proposed Refined Coal System that will be installed at the Harrison Plant. For a general introduction to the Refined Coal program please refer to “Production of Refined Coal utilizing the Chem Mod Process”. That document provides a description of the Refined Coal Program (IRS Section 45), information on the sorbents used in the process, how the sorbents reduce emissions, and description of a typical installation.

### **System Overview**

The Refined Coal System at Harrison will consist of a mixer and the associated chemical application equipment necessary to add the required Chem-Mod sorbents to the coal necessary to produce refined coal. The unit numbers called out in this document reference the equipment unit number designated in the process flow diagram (Farnham & Pfile drawing 550-FS-0001) which provides a graphic presentation of the system.

### **Pug Mill Mixer**

The mixer (UNIT 3100) will be installed in a new process building which receives coal from Conveyors 4A/B via a new pugmill feed conveyor (UNIT 2500). Conveyors 4A/B will be tripped via flop gates that allow the coal to either be fed to the mixer to produce refined coal or to bypass the mixer so that the boiler can be operated on coal directly reclaimed from the yard to minimize detrimental impact on the power station availability. The mixer will be a twin screw pug mill which has a capacity of processing 1500+ tons of coal per hour. The sorbents (MerSorb and S-Sorb) will be added to mixer along with the coal at the feed end of the mixer.

### **MerSorb System**

The MerSorb application system will be located in a new pumphouse adjacent to the refined coal process building. The primary components of this system will be a 405 gallon day storage tank (UNIT 3700), application pumps (UNITS 3720, 3730), and a flow meter (UNIT 3750).

### **S-Sorb System**

The S-Sorb application system will be installed inside the refined coal process building. The primary components will be a 15 ton day bin (UNIT 3200), rotary vane feeder (UNIT 3210) to control the application rate, and a screw conveyor (UNIT 3220) to move the S-Sorb to the mixer.

### **Bulk Storage**

In addition to the application systems there will be bulk storage systems for MerSorb and S-Sorb. For S-Sorb there will be two 150 ton capacity silos (UNITS 8200/8300) and a transfer blower (UNIT 8100). For MerSorb there will be a 4400 gallon storage tank (UNIT 3500) and transfer pumps (UNITS

3510/3520). These systems provide for bulk storage of sorbents on site to ensure availability. They also provide the means to transfer from the bulk storage containers to the day bin/tank for application.

### **Power and Control**

The facility has a new Motor Control Center to provide power to all components. The MCC will be fed from the station bus via a new transformer. The facility has a PLC based control system. The PLC receives input from process instrumentation and provides output control signals to all components in the system. The PLC will be installed along with the MCC in a new electrical building.

### **Process**

The coal being fed to the boiler house will be diverted from the discharge of Conveyors 4A and 4B at a trip installed in a new transfer tower. Coal will be transported from the trip via a new conveyor (UNIT 2500) into the mixer. Scales installed in the new pugmill discharge conveyor (UNIT 5100) senses the coal flow rate through the system and transmits that information to the PLC. The facility PLC calculates the required flow rates of MerSorb and S-Sorb for the given coal flow.

MerSorb will be pumped from the day tank by an application pump, through a flow meter and into a distribution manifold in the mixer where it will be applied to the coal. The application pumps will be fitted with variable frequency drives that will be controlled by the PLC. The measured flow rate will be communicated to the PLC which continuously adjusts the pump speed to match the flow of MerSorb to the coal flow.

S-Sorb will be fluidized in the day bin and discharged via a rotary vane feeder. The vane feeder will be fitted with a variable frequency drive that will be controlled by the PLC. The day bin sits on load cells which supply net weight indication to the PLC. As S-Sorb is discharged from the bin the change in weight will be used by the PLC to calculate the application rate of the S-Sorb. The PLC continuously adjusts the vane feeder to match flow of S-Sorb to the coal flow. The S-Sorb will be discharged from the vane feeder into a transfer screw conveyor which discharges the S-Sorb to the mixer where it will be applied to the coal.

The mixer discharges the now refined coal to the pugmill discharge conveyors (UNITS 5100/5600). The pugmill discharge conveyor discharges the refined coal back to Conveyors 4A/B downstream of the extraction point in another new transfer structure via a flop gate (UNIT 5700) where the coal can be sent to Conveyor 4A or 4B.

### **Application Rates**

The required sorbent application rates are established to comply with the NO<sub>x</sub> and Hg emission reduction requirements of the Section 45 Refined Coal program. The required rate per unit of coal is determined in testing at the University of North Dakota's Energy and Environmental Research Center.

These rates are quantified as a percentage of sorbent by weight to the coal. Over time these rates may vary as there are changes in the coal being burned and improvements to the sorbents are made. Additionally rates may change with changes to the boiler and associated pollution control devices.

Since the completion of the original test program and permitting process, Chem-Mod has worked with the various utilities burning refined coal to reduce the sorbent applications necessary to qualify the coal as refined coal. In the case of the Harrison installation the current application rates for the sorbents have been significantly reduced due to enhancements to the sorbents and the emission control equipment installed at Harrison. For Harrison, the application rates that will be used are given in the table below.

	<u>Lo</u>		<u>Hi</u>			
<b>Coal Reclaim Rate</b>	600	TPH	1500	TPH	<b>Coal Full Burn Rate</b>	774 TPH      18,576 TPD
<b>MerSorb Rate</b>	0.012%					
	10.14	GPH	25.35	GPH	314 GPD at Full Burn	114,596 GPY at Full Burn
<b>S-Sorb Rate</b>	0.350%					
	2.10	TPH	5.25	TPH	65 TPD at Full Burn	23,731 TPY at Full Burn

It is anticipated that these rates will remain in effect for the life of the project; however they may be changed in order to keep the refined coal in compliance with the IRS regulation.

**Attachment H**  
**Safety Data Sheets (SDS)**



# S-SORB<sup>®</sup> III

## SAFETY DATA SHEET

Revision Date: 12/23/2015

Supersedes: 05/11/2015

Version 6

---

### SECTION 1: IDENTIFICATION OF SUBSTANCE/MIXTURE AND COMPANY

---

#### Product Identifier

**Product Form:** Mixture  
**Product Name:** S-Sorb<sup>®</sup> III  
**CAS No.** 7789-41-5  
**Chemical Family:** A mineral composite of calcium aluminosilicate compounds and other calcium compounds containing iron, magnesium, and sulfur  
**Synonyms:** Calcium Aluminosilicate, Cement Kiln Dust

#### Intended Use of Product

Coal additive for Mercury Emission Reduction

#### Name, Address, and Telephone Number of Responsible Party

Chem-Mod LLC  
2 Pierce Place  
20<sup>th</sup> Floor  
Itasca, IL 44224  
Telephone: 866-846-4789

#### Emergency Telephone Number:

1- 412-889-7718

---

### SECTION 2: HAZARDS IDENTIFICATION

---

#### Classification of Substance (GHS-US)

Serious Eye Irritant, Category 2A  
Skin Irritant, Category 2

#### Label Elements (GHS-US)

##### Hazard Pictogram(s)



**Signal Word**  
Warning



# S-SORB<sup>®</sup> III

## SAFETY DATA SHEET

Revision Date: 12/23/2015

Supersedes: 05/11/2015

Version 6

### Hazard Statements

- H319 Causes serious eye irritation.
- H315 Causes skin irritation.
- H303 May be harmful if swallowed.
- H333 May be harmful if inhaled.

### Precautionary Statements

- P280 Wear eye protection, long sleeves and pants, protective gloves.
- P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.
- P337+313 IF EYE IRRITATION PERSISTS: Seek medical advice/attention.
- P302+352 IF ON SKIN: Wash thoroughly with soap and water.
- P332+313 IF SKIN IRRITATION OCCURS: Seek medical advice/attention.
- P264 Wash hands, forearms, and exposed areas thoroughly after handling.
- P363 Wash contaminated clothing before reuse.
- P301+330+331 IF SWALLOWED: Rinse mouth - Do NOT induce vomiting - Drink plenty of water.
- P261 Avoid breathing dust
- P284 In case of inadequate ventilation wear respiratory protection

### Other Hazards

No additional information available.

### SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

SUBSTANCE NAME	FORMULA	CAS No.	%	GHS-US Classification
Calcium carbonate	CaCO <sub>3</sub>	1217-65-3	10 - 70	Eye Irritant, Category 2B
Calcium hydroxide	CaOH(2)	1305-62-0	3 – 10	Serious Eye Irritant, Category 2A Skin Irritant, Category 2
Calcium oxide	CaO	1305-78-8	2 – 10	Serious Eye Irritant, Category 2A Skin Irritant, Category 2
Aluminum oxide	Al <sub>2</sub> O <sub>3</sub>	1344-28-1	4 – 30	Eye Irritant, Category 2B
Iron oxide	Fe <sub>2</sub> O <sub>3</sub>	1309-37-1	1 – 5	Eye Irritant, Category 2B
Magnesium oxide	MgO	1309-48-4	0 – 2	Eye Irritant, Category 2B
Calcium sulfate	CaSO <sub>4</sub>	7778-18-9	0 – 7	Eye Irritant, Category 2B Skin Irritant, Category 2
Nuisance dusts (various)		13397-24-5	< 1	Eye Irritant, Category 2B



# S-SORB® III

## SAFETY DATA SHEET

Revision Date: 12/23/2015

Supersedes: 05/11/2015

Version 6

---

### **SECTION 4: FIRST AID MEASURES**

---

#### **First Aid Measures**

##### **General:**

Never give anything by mouth to an unconscious person.  
If you feel unwell, seek medical advice.

##### **Eye Contact:**

Rinse thoroughly with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF irritation continues, seek immediate medical assistance.

##### **Skin Contact:**

Remove contaminated clothing. Wash thoroughly with soap and water. IF irritation occurs, seek medical assistance.

##### **Ingestion:**

Rinse mouth, do not induce vomiting. Drink plenty of water.

##### **Inhalation:**

When symptoms occur: go to open air and ventilate suspected area. Remove person to fresh air and rest in position for comfortable breathing. If you feel unwell, seek medical advice.

#### **Symptoms (most important both acute and delayed)**

After eye contact, may cause eye irritation

After skin contact, may cause irritation

After ingestion, may cause discomfort in

After inhalation, may cause irritation of upper respiratory tract.

#### **Indication immediate medical attention and special treatment is needed**

Discomfort or distress in affected individual

---

### **SECTION 5: FIRFIGHTING MEASURES**

---

#### **Extinguishing Media:**

S-Sorb III is a nonflammable dry powder.

For fires involving materials surrounding or containing this product, all conventional media correct for the material involved are acceptable.

#### **Special Hazards:**

None



# S-SORB<sup>®</sup> III

## SAFETY DATA SHEET

Revision Date: 12/23/2015

Supersedes: 05/11/2015

Version 6

---

### **Special Protective Equipment / Precautions for Firefighters:**

Firefighters should use SCBA in enclosed structures.

---

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

---

### **Personal Precautions / Protective Equipment:**

Wear appropriate PPE, including:

- Safety glasses or goggles
- Long sleeves and pants
- Gloves

Ventilate area to clear dust.

### **Emergency Procedures:**

Stop leak if possible and safe to do so.

For large spills, dike the area and collect the material for re-use or later disposal. Pick up material with shovels or other similar equipment.

Collect remaining / small spill amounts with the aid of vacuum. Place material into containers for later disposal. Move containers from spilled area.

### **Environmental Precautions:**

S-Sorb III is not identified as a hazardous material.

### **Methods and Material for Containment and Disposal:**

Use mechanical means such as shovels and power equipment to pick up material. Material should be recovered for re-use whenever possible. Use vacuums to greatest extent possible to recover spilled material into drums, tanks, or other containers.

Scrape up any wetted material and place in appropriate container. Allow material to "dry" before disposal. Do not attempt to wash S-Sorb III down drains.

Dispose of waste material in accordance with federal, state, and local requirements.

---

## **SECTION 7: HANDLING AND STORAGE**

---

### **Precautions for Safe Handling:**

Wear appropriate PPE, including:

- Safety glasses or goggles
- Long sleeves and pants
- Gloves



# S-SORB® III

## SAFETY DATA SHEET

Revision Date: 12/23/2015

Supersedes: 05/11/2015

Version 6

Avoid contact with skin or eyes.

Remove clothing that is contaminated with S-Sorb III. Launder clothing before reuse.

Supply trucks are offloaded by pressurizing tank truck to low pressure (max 14 psig [1 bar]). A leak during transfer may create a dust cloud. Avoid entering such clouds without respirator equipped with a NIOSH/MSHA approved dust cartridge.

Receiving silos or bins must be fitted with appropriate vent filter systems to control fugitive emission.

**Conditions for Safe Storage:**

Keep S-Sorb III dry. Normal temperatures and pressures do not affect the material. Material should be stored in silos or bins constructed from mild steel. Silos or bins must be kept closed to keep water out of the material.

**SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION**

**Control Parameters (Occupational Exposure Limits or Biological Limits)**

S-Sorb III Not Evaluated (NE). Control parameters for major ingredients are listed below.

<b>Calcium carbonate</b>		
USA ACGIH	TLV (TWA, STEL, CEIL)	10mg/m <sup>3</sup> (T), 20mg/m <sup>3</sup> , NE
USA OSHA	PEL (TWA, STEL, CEIL)	15mg/m <sup>3</sup> (T)-5mg/m <sup>3</sup> (R), NE, NE
<b>Calcium hydroxide</b>		
USA ACGIH	TLV (TWA, STEL, CEIL)	5mg/m <sup>3</sup> (T), NE, NE
USA OSHA	PEL (TWA, STEL, CEIL)	5mg/m <sup>3</sup> (T), NE, NE
<b>Calcium oxide</b>		
USA ACGIH	TLV (TWA, STEL, CEIL)	2mg/m <sup>3</sup> (T), NE, NE
USA OSHA	PEL (TWA, STEL, CEIL)	5mg/m <sup>3</sup> (T), NE, NE
<b>Aluminum oxide</b>		
USA ACGIH	TLV (TWA, STEL, CEIL)	10mg/m <sup>3</sup> (T), NE, NE
USA OSHA	PEL (TWA, STEL, CEIL)	15mg/m <sup>3</sup> (T)-5mg/m <sup>3</sup> (R), NE, NE
<b>Iron oxide</b>		
USA ACGIH	TLV (TWA, STEL, CEIL)	5mg/m <sup>3</sup> (T), NE, NE
USA OSHA	PEL (TWA, STEL, CEIL)	5mg/m <sup>3</sup> (T), NE, NE
<b>Magnesium oxide</b>		
USA ACGIH	TLV (TWA, STEL, CEIL)	10mg/m <sup>3</sup> (T), NE, NE
USA OSHA	PEL (TWA, STEL, CEIL)	10mg/m <sup>3</sup> (T), NE, NE



# S-SORB® III

## SAFETY DATA SHEET

Revision Date: 12/23/2015

Supersedes: 05/11/2015

Version 6

### Control Parameters (cont.)

<b>Calcium sulfate</b>		
USA ACGIH	TLV (TWA, STEL, CEIL)	10mg/m <sup>3</sup> (T), NE, NE
USA OSHA	PEL (TWA, STEL, CEIL)	10mg/m <sup>3</sup> (T)-5mg/m <sup>3</sup> (R), NE, NE
<b>Nuisance dust (various)</b>		
USA ACGIH	TLV (TWA, STEL, CEIL)	10mg/m <sup>3</sup> (T), NE, NE
USA OSHA	PEL (TWA, STEL, CEIL)	10mg/m <sup>3</sup> (T), NE, NE

### Engineering Controls:

If fugitive release areas are enclosed, provide local exhaust ventilation for those areas. Where there is possibility of exposure, eyewash station should be provided close to the work area.

### Individual Protection Measures

**Eye/Face Protection:** For normal operations, safety glasses with side shields are required. When performing operations on pressurized vessels (offloading delivery trucks) or when performing maintenance where significant dust generation is possible, wear unvented or indirectly vented goggles. In extremely dusty or unpredictable environments, wear unvented or indirectly vented goggles to avoid eye irritation or injury. Contact lenses should not be worn when working with S-Sorb III.

**Skin Protection:** Prevention is essential to avoiding potentially severe skin injury. Avoid contact with wet S-Sorb III. If contact occurs, promptly wash affected area with soap and water. Where prolonged exposures to S-Sorb III might occur, wear impervious clothing and gloves to prevent skin contact. Where required, wear sturdy boots that are impervious to water to eliminate foot and ankle exposure. Do not rely on barrier creams; barrier creams should not be used in place of impervious gloves and clothing.

**Respiratory:** A respirator is not indicated under normal handling. In conditions where user may be exposed to splashes or puffs of dust, wear a dust mask. In extremely dusty environments where dense dust clouds are likely, a respirator fitted with MSHA/NIOSH approved dust cartridge should be worn.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

<b><u>Appearance:</u></b>	Gray to white powder.
<b><u>Odor:</u></b>	Normally odorless but may have faint "earth" odor
<b><u>Odor threshold:</u></b>	Not Available
<b><u>pH (in water):</u></b>	10 to 12.5
<b><u>Melting/freezing point:</u></b>	Not Applicable
<b><u>Boiling point:</u></b>	> 1000°C



# S-SORB<sup>®</sup> III

## SAFETY DATA SHEET

Revision Date: 12/23/2015

Supersedes: 05/11/2015

Version 6

---

<b><u>Flash point:</u></b>	Not Applicable
<b><u>Evaporation rate:</u></b>	Not Available
<b><u>Flammability:</u></b>	Non-flammable
<b><u>Flammability limits:</u></b>	Not Applicable
<b><u>Explosive limits:</u></b>	Not Applicable
<b><u>Vapor pressure:</u></b>	Not Available
<b><u>Vapor density:</u></b>	Not Available
<b><u>Relative density:</u></b>	2.6 – 2.8 (water = 1.0)
<b><u>Solubility:</u></b>	2 – 20% (in water)
<b><u>Partition coefficient:</u></b>	Not Available
<b><u>Auto-ignition temp:</u></b>	Not Applicable
<b><u>Decomposition temp:</u></b>	> 1000°C
<b><u>Viscosity:</u></b>	Varies with temperature

---

### SECTION 10: STABILITY AND REACTIVITY

---

<b><u>Reactivity:</u></b>	Reacts with water to form calcium hydroxide producing a slight release in heat. Heat release is dependent upon the amount of calcium oxide present in the S-Sorb III. Dissolving S-Sorb III in hydrofluoric acid will produce silicon tetrafluoride gas which is corrosive. S-Sorb III is primarily a byproduct of production of Portland cement; as such it has weak cementitious properties. It will form a weak solid mass if the correct amount of water is added.
<b><u>Chemical stability:</u></b>	Stable under normal pressure and temperature
<b><u>Possibility of Hazardous Reactions:</u></b>	None known
<b><u>Conditions to Avoid (Stability):</u></b>	Avoid contact with incompatible materials
<b><u>Incompatible Materials:</u></b>	S-Sorb III is alkaline and is incompatible with acids, ammonium salts, and aluminum metal.
<b><u>Hazardous Decomposition Products:</u></b>	None known



**SECTION 11: TOXICOLOGICAL INFORMATION**

**Acute Toxicity:**

Not Available for S-Sorb III. Toxicity for major constituents is as follows:

<b>Calcium carbonate</b>	
LD50 Acute Oral Toxicity – rat	6,450 mg/kg
LD50 Acute Dermal Toxicity	Not available
LC50 Inhalation Toxicity	Not available
<b>Calcium hydroxide</b>	
LD50 Acute Oral Toxicity – mouse	7,300 mg/kg
LD50 Acute Dermal Toxicity	Not available
LC50 Inhalation Toxicity	Not available
<b>Calcium oxide</b>	
LD50 Acute Oral / Dermal Toxicity	Not available
LC50 Inhalation Toxicity	Not available
<b>Aluminum oxide</b>	
LD50 Acute Oral / Dermal Toxicity	Not available
LC50 Inhalation Toxicity	Not available
<b>Iron oxide</b>	
LD50 Acute Oral Toxicity – rat	4,068 mg/kg
LD50 Acute Dermal Toxicity – rabbit	2008 mg/kg
LC50 Inhalation Toxicity – rat	>203 mg/l
<b>Magnesium oxide</b>	
LD50 Acute Oral Toxicity – rat	4,068 mg/kg
LD50 Acute Dermal Toxicity – rabbit	2008 mg/kg
LC50 Inhalation Toxicity – rat	>203 mg/l
<b>Calcium sulfate</b>	
LD50 Acute Oral / Dermal	Not available
LC50 Inhalation Toxicity	Not available



# S-SORB<sup>®</sup> III

## SAFETY DATA SHEET

Revision Date: 12/23/2015

Supersedes: 05/11/2015

Version 6

### **Serious Eye Damage / Irritation:**

Causes serious eye irritation.

Prolonged exposure to S-Sorb III dust is corrosive to the eyes and may cause burns or external ulcers.

Prolonged contact may cause conjunctivitis.

### **Skin Corrosion / Irritation:**

Causes slight skin irritation.

Prolonged exposure to wet S-Sorb III is corrosive to the skin. The extent of damage depends on duration of contact. Chronic dermatitis may follow repeated contact at elevated concentrations.

### **Respiratory or Skin Sensitization:**

Not classified

### **Germ Cell Mutagenicity:**

Not classified

### **Carcinogenicity:**

No component of this product is present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by the following programs:

**NTP:** US. National Toxicology Program (NTP) Report on Carcinogens

**IARC:** US. IARC Monographs on Occupational Exposures to Chemical Agents

**OSHAS:** US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

**ACGIH:** US. ACGIH Threshold Limit Values

**Crystalline Silica:** S-Sorb III is a manufactured product which is made up of a mixture of calcium compounds which have been processed by calcining, therefore the silica contained in the mixture is contained in oxide compounds with other constituents. Some S-Sorb III is produced with mined minerals to supplement the processed minerals. This mined material may contain trace amounts of crystalline silica.

### **Reproductive Toxicity:**

Not classified

### **Specific Target Organ Toxicity (single exposure):**

Not classified

### **Specific Target Organ Toxicity (repeated exposure):**

Not classified

### **Symptoms/Injuries after Inhalation:**

Inhalation of this material may be corrosive to the respiratory system. Inhalation of low concentrations may cause sore throat, coughing, choking, difficulty in breathing, and symptoms of headache. Chronic exposure may lead to bronchial irritation with chronic cough.

### **Symptoms/Injuries after Eye Contact:**

Causes eye irritation.

### **Symptoms/Injuries after Ingestion:**

Prolonged exposure to elevated concentrations of this material may be corrosive to the digestive tract.



# S-SORB<sup>®</sup> III

## SAFETY DATA SHEET

Revision Date: 12/23/2015

Supersedes: 05/11/2015

Version 6

---

**Conditions Aggravated By Exposure:**

Respiratory Disorders; Dermatitis or other skin disorders

---

**SECTION 12: ECOLOGICAL INFORMATION**

---

**Ecotoxicity**

No data available

**Persistence and degradability**

No data available

**Bioaccumulative potential**

No data available

**Mobility in the Soil**

No data available

**Other Adverse Effects**

No ecological information or effects are known at this time.

---

**SECTION 13: DISPOSAL CONSIDERATIONS**

---

Dispose in accordance with local, state and federal requirements.

**RCRA Information:** This material, if discarded as produced, is not a RCRA "listed" hazardous waste. Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. It is the responsibility of the generator to fully characterize for toxicity and other RCRA parameters prior to disposal (40 CFR 261).

---

**SECTION 14: TRANSPORTATION INFORMATION**

---

<b>UN No.:</b>	Not a UN listed material
<b>UN Proper Shipping Name:</b>	Not Applicable
<b>DOT No.:</b>	Not a DOT controlled material (United States)
<b>Hazard Class:</b>	Not Applicable
<b>Hazard Labels:</b>	Not Applicable
<b>Packaging Group:</b>	Not Applicable
<b>DOT Special Provisions:</b>	Not Applicable



# S-SORB<sup>®</sup> III

## SAFETY DATA SHEET

Revision Date: 12/23/2015

Supersedes: 05/11/2015

Version 6

**DOT Packaging Exceptions:** Not Applicable

**DOT Packaging Non Bulk:** Not Applicable

**DOT Packaging Bulk:** Not Applicable

**Additional Information**

**Emergency Response Guide (ERG):** Not Applicable

**Other Information:** None

**Transport by Sea**

**DOT Vessel Stowage Location:** Not Applicable

**MFAG-No.:** Not Applicable

**Transport by Air**

**DOT Quantity Limit – Passenger Aircraft:** Not Applicable

**DOT Quantity Limit – Cargo Only Aircraft:** Not Applicable

---

### **SECTION 15: REGULATORY INFORMATION**

---

**U.S. Regulatory Information:**

**Stratospheric Ozone Depletion Statement:**

This product neither contains nor is directly manufactured with any controlled ozone depleting substances, Class 1 and 11.

**SARA Hazard Classes:**

SARA Title III Section 313 Toxic Release reporting: This product is not listed or subject to the release reporting requirements of Section 313.

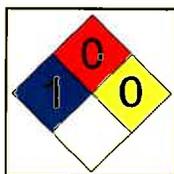
**RCRA Information:**

This material, if discarded as produced, is not a RCRA “listed” hazardous waste. Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. It is the responsibility of the generator to fully characterize for toxicity and other RCRA parameters prior to disposal (40 CFR 261).

**Canadian Regulatory Information:**

Not controlled under WHMIS (Canada)

**NFPA**



**WHMIS**

HEALTH	1
FLAMMABILITY	0
REACTIVITY	0
PERSONAL PROTECTION	

**SECTION 16: OTHER INFORMATION**

This revision is written for administrative purposes. No technical changes are made by this revision.

**General Disclaimer:**

The information provided in this SDS is correct to the best of our knowledge, information, and belief at the date of publication. The information given is designed as a guide for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

**Commercial Disclaimer**

**SELLER MAKES NO WARRANTY, EXPRESSED OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY CHEM-MOD LLC.**



# MERSORB<sup>®</sup>

## SAFETY DATA SHEET

Revision Date: 12/23/2015

Supersedes: 15/11/2015

Version 6

---

### SECTION 1: IDENTIFICATION OF SUBSTANCE/MIXTURE AND COMPANY

---

#### Product Identifier

**Product Form:** Mixture  
**Product Name:** MerSorb<sup>®</sup>  
**CAS No.** 7789-41-5  
**Formula:** CaBr<sub>2</sub> + H<sub>2</sub>O  
**Chemical Family:** Halide Salt Solution  
**Synonyms:** Calcium Bromide Solution, Brine Solution

#### Intended Use of Product

Coal additive for Mercury Emission Reduction

#### Name, Address, and Telephone Number of Responsible Party

Chem-Mod LLC  
2 Pierce Place  
20<sup>th</sup> Floor  
Itasca, IL 44224  
Telephone: 866-846-4789

#### Emergency Telephone Number:

1-412-889-7718

---

### SECTION 2: HAZARDS IDENTIFICATION

---

#### Classification of Substance (GHS-US)

Serious Eye Irritant, Category 2A  
Skin Irritant, Category 3

#### Label Elements (GHS-US)

##### Hazard Pictogram(s)



##### Signal Word

Warning

**Hazard Statements**

- H319 Causes serious eye irritation.
- H316 Causes mild skin irritation.
- H303 May be harmful if swallowed.
- H333 May be harmful if inhaled.

**Precautionary Statements**

- P280 Wear eye protection, long sleeves and pants, protective gloves.
- P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
- P337+313 IF EYE IRRITATION PERSISTS: Seek medical advice/attention.
- P264 Wash hands, forearms, and exposed areas thoroughly after handling.
- P363 Wash contaminated clothing before reuse.
- P301+330+331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Drink plenty of water.
- P261 Avoid breathing mist, spray, or vapors.
- P284 In case of inadequate ventilation wear respiratory protection.

**Other Hazards**

No additional information available.

**SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS**

SUBSTANCE NAME	FORMULA	CAS No.	%	GHS-US Classification
Calcium Bromide	CaBr <sub>2</sub>	7789-41-5	≥ 51.5	Serious Eye Irritant, Category 2A Skin Irritant, Category 3
Water	H <sub>2</sub> O	7732-18-5	≤ 48.5	None

**SECTION 4: FIRST AID MEASURES**

**First Aid Measures**

**General:**

Never give anything by mouth to an unconscious person.  
If you feel unwell, seek medical advice.

**Eye Contact:**

Rinse thoroughly with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF irritation continues, seek immediate medical assistance.

**Skin Contact:**

Wash thoroughly with soap and water. Remove contaminated clothing.



# MERSORB<sup>®</sup>

## SAFETY DATA SHEET

Revision Date: 12/23/2015

Supersedes: 15/11/2015

Version 6

### **Ingestion:**

Rinse mouth, do not induce vomiting. Drink plenty of water.

### **Inhalation:**

When symptoms occur: go to open air and ventilate suspected area. Remove person to fresh air and rest in position for comfortable breathing. If you feel unwell, seek medical advice.

### **Symptoms (most important both acute and delayed)**

After eye contact, may cause eye irritation

After skin contact, may cause irritation

After ingestion, may cause nausea

After inhalation, may cause irritation of upper respiratory tract, drowsiness, or dizziness

### **Indication immediate medical attention and special treatment is needed**

Discomfort or distress in affected individual

---

## **SECTION 5: FIRFIGHTING MEASURES**

---

### **Extinguishing Media:**

MerSorb is a nonflammable solution.

For fires involving materials surrounding or containing this product, all conventional media correct for the material involved are acceptable.

### **Special Hazards:**

Exposure to elevated temperature (>700°C/1300°F) may cause thermal decomposition resulting in release of bromine, hydrogen bromide, and/or calcium oxides.

### **Special Protective Equipment / Precautions for Firefighters:**

Firefighters should use SCBA in enclosed structures.

---

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

---

### **Personal Precautions / Protective Equipment:**

Wear appropriate PPE, including:

- Safety glasses or goggles
- Long sleeves and pants
- Rubberized gloves

Ventilate area to clear mist or vapors



# MERSORB®

## SAFETY DATA SHEET

Revision Date: 12/23/2015

Supersedes: 15/11/2015

Version 6

### **Emergency Procedures:**

Stop leak if possible and safe to do so.

For large spills, dike the area and collect the material for re-use or later disposal.

Collect remaining/small spill amounts with the aid of wet vacuum and water absorbent material.

Place sorbents into containers for later disposal. Move containers from spilled area.

### **Environmental Precautions:**

Calcium Bromide is not identified as a hazardous material.

### **Methods and Material for Containment and Disposal:**

Use water proof diking materials to contain large leaks.

Use pumps or wet vacuums to greatest extent possible to recover spilled material into drums, tanks, or other containers.

While there is no discharge limit for Calcium Bromide solutions, good practice includes avoiding discharge to the environment. Dispose of collected absorbed material in accordance with federal, state, and local regulations.

---

## **SECTION 7: HANDLING AND STORAGE**

---

### **Precautions for Safe Handling:**

Wear appropriate PPE, including:

- Safety glasses or goggles
- Long sleeves and pants
- Rubberized gloves

Avoid contact with eyes or skin.

Supply trucks are offloaded by pressurizing tank truck to low pressure (max 14 psig [1 bar]). A leak during transfer may create a mist or vapor cloud. Avoid entering such clouds without a NIOSH/MSHA approved organic/acid gas cartridge.

### **Conditions for Safe Storage:**

Storage containers (tanks, drums, etc.) should be constructed of corrosion resistant materials or coated with corrosion resistant material. Recommended materials of construction for containers are polyethylene, stainless steel, carbon steel with all internal surfaces coated with epoxy.



---

### SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

---

#### Control Parameters (Occupational Exposure Limits or Biological Limits)

Calcium Bromide		
USA ACGIH	TLV (TWA, STEL, CEIL)	Not established
USA OSHA	PEL (TWA, STEL, CEIL)	Not established

#### Engineering Controls:

If fugitive release areas are enclosed, provide local exhaust ventilation for those areas. Where there is possibility of exposure, eyewash station should be provided close to the work area.

#### Individual Protection Measures

**Eye/Face Protection:** For normal operations, safety glasses with side shields are required. When performing operations on pressurized vessels (offloading delivery trucks) or when performing maintenance where spray of material is possible, wear tight fitting chemical goggles.

**Skin Protection:** Use rubberized work gloves. Long sleeved shirts and long pants should be worn. Protective barrier creams may be used on exposed skin surfaces.

**Respiratory:** A respirator is not indicated under normal handling. Should a leak result in misting or vapor cloud, allow the cloud to dissipate before entering the area. If a vapor cloud must be entered, use NIOSH/MSHA approved organic/acid gas cartridge respirator.

---

### SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

---

<b><u>Appearance:</u></b>	Clear liquid.
<b><u>Odor:</u></b>	Normally odorless but may have faint "earth" odor
<b><u>Odor threshold:</u></b>	Not Available
<b><u>pH:</u></b>	6 to 8
<b><u>Melting/freezing point:</u></b>	Not Available
<b><u>Boiling point:</u></b>	264°F
<b><u>Flash point:</u></b>	Not Applicable
<b><u>Evaporation rate:</u></b>	Not Available
<b><u>Flammability:</u></b>	Non-flammable
<b><u>Flammability limits:</u></b>	Not Applicable
<b><u>Explosive limits:</u></b>	Not Applicable



---

<b><u>Vapor pressure:</u></b>	Not Available
<b><u>Vapor density:</u></b>	Not Available
<b><u>Relative density:</u></b>	> 1.68 (water = 1.0)
<b><u>Solubility:</u></b>	Miscible
<b><u>Partition coefficient:</u></b>	Not Available
<b><u>Auto-ignition temp:</u></b>	Not Applicable
<b><u>Decomposition temp:</u></b>	> 1300°F
<b><u>Viscosity:</u></b>	Varies with temperature

---

### SECTION 10: STABILITY AND REACTIVITY

---

<b><u>Reactivity:</u></b>	Not reactive under normal pressure and temperature
<b><u>Chemical stability:</u></b>	Stable under normal pressure and temperature
<b><u>Possibility of Hazardous Reactions:</u></b>	None
<b><u>Conditions to Avoid (Stability):</u></b>	None known
<b><u>Incompatible Materials:</u></b>	Strong oxidizing agents or water reactive materials.
<b><u>Hazardous Decomposition Products:</u></b>	Thermal decomposition may produce hydrogen bromide, bromine, or oxides of calcium.

---

### SECTION 11: TOXICOLOGICAL INFORMATION

---

**Acute Toxicity**            Not Classified

Calcium Bromide	
LD50 Acute Oral Toxicity – rat	4,068 mg/kg
LD50 Acute Dermal Toxicity – rabbit	2,008 mg/kg
LC50 Inhalation Toxicity – rat	>203 mg/l

**Serious Eye Damage / Irritation:**

Causes serious eye irritation.

Prolonged exposure to elevated concentrations of this material is corrosive to the eyes and may cause burns or external ulcers. Direct contact with the aqueous solutions may cause conjunctival edema and corneal damage. Prolonged contact to concentrated solutions may cause conjunctivitis.



**Skin Corrosion / Irritation:**

Causes slight skin irritation.

Prolonged exposure to elevated concentrations of this material is corrosive to the skin. During prolonged skin contact, this material can penetrate the unprotected skin slowly. The extent of damage depends on duration of contact. Chronic dermatitis may follow repeated contact at elevated concentrations

**Respiratory or Skin Sensitization:**

The results of a test on guinea pigs showed this substance to be a weak skin sensitizer. No results for respiratory sensitization.

**Germ Cell Mutagenicity:**

Not classified

**Carcinogenicity:**

No component of this product is present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by the following programs:

**NTP:** US. National Toxicology Program (NTP) Report on Carcinogens

**IARC:** US. IARC Monographs on Occupational Exposures to Chemical Agents

**OSHAS:** US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

**ACGIH:** US. ACGIH Threshold Limit Values

**Reproductive Toxicity:**

Not classified

**Specific Target Organ Toxicity (single exposure):**

Not classified

**Specific Target Organ Toxicity (repeated exposure):**

Not classified

**Symptoms/Injuries after Inhalation:**

Inhalation of this material may be corrosive to the respiratory system. Inhalation of low concentrations may cause sore throat, coughing, choking, difficulty in breathing, and symptoms of headache. Chronic exposure may lead to bronchial irritation with chronic cough.

**Symptoms/Injuries after Eye Contact:**

Causes eye irritation.

**Symptoms/Injuries after Ingestion:**

Prolonged exposure to elevated concentrations of this material may be corrosive to the digestive tract.

**Conditions Aggravated By Exposure:**

Respiratory Disorders; Dermatitis or other skin disorders



---

## **SECTION 12: ECOLOGICAL INFORMATION**

---

**Ecotoxicity:**

No data available

**Persistence and degradability**

No data available

**Bioaccumulative potential**

No data available

**Mobility in the Soil**

No data available

**Other Adverse Effects**

No ecological information or effects are known at this time.

---

## **SECTION 13: DISPOSAL CONSIDERATIONS**

---

Dispose in accordance with local, state and federal requirements.

**RCRA Information:** This material, if discarded as produced, is not a RCRA "listed" hazardous waste. Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. It is the responsibility of the generator to fully characterize for toxicity and other RCRA parameters prior to disposal (40 CFR 261).

---

## **SECTION 14: TRANSPORTATION INFORMATION**

---

<b><u>UN No.:</u></b>	Not a UN listed material
<b><u>UN Proper Shipping Name:</u></b>	Not Applicable
<b><u>DOT No.:</u></b>	Not a DOT controlled material (United States)
<b><u>Hazard Class:</u></b>	Not Applicable
<b><u>Hazard Labels:</u></b>	Not Applicable
<b><u>Packaging Group:</u></b>	Not Applicable
<b><u>DOT Special Provisions:</u></b>	Not Applicable
<b><u>DOT Packaging Exceptions:</u></b>	Not Applicable
<b><u>DOT Packaging Non Bulk:</u></b>	Not Applicable



**DOT Packaging Bulk:** Not Applicable

**Additional Information**

**Emergency Response Guide (ERG):** Not Applicable

**Other Information:** None

**Transport by Sea**

**DOT Vessel Stowage Location:** Not Applicable

**MFAG-No.:** Not Applicable

**Transport by Air**

**DOT Quantity Limit – Passenger Aircraft:** Not Applicable

**DOT Quantity Limit – Cargo Only Aircraft:** Not Applicable

---

**SECTION 15: REGULATORY INFORMATION**

---

**U.S. Regulatory Information:**

**Stratospheric Ozone Depletion Statement:**

This product neither contains nor is directly manufactured with any controlled ozone depleting substances, Class 1 and 11.

**SARA Hazard Classes:**

SARA Title III Section 313 Toxic Release reporting: This product is not listed or subject to the release reporting requirements of Section 313.

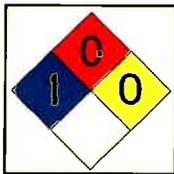
**RCRA Information:**

This material, if discarded as produced, is not a RCRA "listed" hazardous waste. Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. It is the responsibility of the generator to fully characterize for toxicity and other RCRA parameters prior to disposal (40 CFR 261).

**Canadian Regulatory Information:**

Not controlled under WHMIS (Canada)

**NFPA**



**WHMIS**

HEALTH	1
FLAMMABILITY	0
REACTIVITY	0
PERSONAL PROTECTION	

**SECTION 16: OTHER INFORMATION**

This revision is written for administrative purposes. No technical changes are made by this revision.

**General Disclaimer:**

The information provided in this SDS is correct to the best of our knowledge, information, and belief at the date of publication. The information given is designed as a guide for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

**Commercial Disclaimer**

**SELLER MAKES NO WARRANTY. EXPRESSED OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THERE OF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY CHEM-MOD LLC.**

**Attachment I**  
**Equipment Units Table**

**Attachment I**  
**Emission Units Table**  
(includes all emission units and air pollution control devices  
that will be part of this permit application review, regardless of permitting status)

Emission Unit ID <sup>1</sup>	Emission Point ID <sup>2</sup>	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type <sup>3</sup> and Date of Change	Control Device <sup>4</sup>
RDRU	EP-1	Rapid Discharge Rail Unloader to Belt Feeder	To be installed	3,000 TPH	New	Fogging System
BF-01	EP-2	72" Unloading Belt Feeder	To be installed	3,000 TPH	New	Enclosed
CV-01	EP-3	54" Load-out Conveyor	To be installed	3,000 TPH	New	Enclosed
CV-02	EP-4	60" Conveyor	To be installed	3,000 TPH	New	Enclosed
CV-03	EP-5	48" Conveyor (to Transfer Tower)	To be installed	3,000 TPH	New	Enclosed
CV-04	EP-6	60" Conveyor (stacking tubes)	To be installed	3,000 TPH	New	Enclosed
ST-03	EP-7	Stacking Tube/Coal Pile/Bulldozing	To be installed	3,000 TPH	New	N/A
RC 3100	1E	Pug Mill Mixer	2016	1,500 TPH	New	FE
RC 3200	2E	S-Sorb Day Bin	2016	15 tons	New	Bin Vent Filter/FE
RC 3500	3E	MerSorb Storage Tank	2016	6,100 gallons	New	FE
RC 3700	4E	MerSorb Day Storage Tank	2016	405 gallons	New	FE
RC 8200	5E	S-Sorb Storage Silo	2016	150 tons	New	Bin Vent Filter
RC 8300	6E	S-Sorb Storage Silo	2016	150 tons	New	Bin Vent Filter
PHaul	PHaul	Existing paved facility roadways	N/A	N/A	N/A	Water Truck

<sup>1</sup> For Emission Units (or Sources) use the following numbering system: 1S, 2S, 3S,... or other appropriate designation.

<sup>2</sup> For Emission Points use the following numbering system: 1E, 2E, 3E, ... or other appropriate designation.

<sup>3</sup> New, modification, removal

<sup>4</sup> For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.

**Attachment J**  
**Emission Points Data Summary Sheet**

**Attachment J  
EMISSION POINTS DATA SUMMARY SHEET**

**Table 1: Emissions Data**

Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type <sup>1</sup>	Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan)		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Vent Time for Emission Unit (chemical processes only)		All Regulated Pollutants - Chemical Name/CAS <sup>3</sup> (Speciate VOCs & HAPS)	Maximum Potential Uncontrolled Emissions <sup>4</sup>		Maximum Potential Controlled Emissions <sup>5</sup>		Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used <sup>6</sup>	Emission Concentration <sup>7</sup> (ppmv or mg/m <sup>3</sup> )
		ID No.	Source	ID No.	Device Type	Short Term <sup>2</sup>	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
2E	Downward Vent	RC 3200	S-Sorb Day Bin	Bin Vent 3230	Passive Bin Vent MAC 39AVSC25		475	PM/PM <sub>10</sub> / PM <sub>2.5</sub>	25.7	6.1	0.021	0.005	solid	EE	0.002 gr/ft <sup>3</sup>
5E	Downward Vent	RC 8200	S-Sorb Storage Silo	Bin Vent 8230	Passive Bin Vent C&W CP-LPR-8-S		396	PM/PM <sub>10</sub> / PM <sub>2.5</sub>	16.1	3.2	0.0026	0.0003	solid	EE	0.00025 gr/ft <sup>3</sup>
6E	Downward Vent	RC 8300	S-Sorb Storage Silo	Bin Vent 8330	Passive Bin Vent C&W CP-LPR-8-S		396	PM/PM <sub>10</sub> / PM <sub>2.5</sub>	16.1	3.2	0.0026	0.0003	solid	EE	0.00025 gr/ft <sup>3</sup>

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

- Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.
- Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (i.e. 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).
- List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS<sub>2</sub>, VOCs, H<sub>2</sub>S, Inorganics, Lead, Organics, O<sub>3</sub>, NO, NO<sub>2</sub>, SO<sub>2</sub>, SO<sub>x</sub>, all applicable Greenhouse Gases (including CO<sub>2</sub> and methane), etc. DO NOT LIST H<sub>2</sub>, H<sub>2</sub>O, N<sub>2</sub>, O<sub>2</sub>, and Noble Gases.
- Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).
- Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).
- Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).
- Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m<sup>3</sup>) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO<sub>2</sub>, use units of ppmv (See 45CSR10).

**Attachment J**  
**EMISSION POINTS DATA SUMMARY SHEET**

Table 2: Release Parameter Data

Emission Point ID No. <i>(Must match Emission Units Table)</i>	Inner Diameter (ft.)	Exit Gas			Emission Point Elevation (ft)		UTM Coordinates (km)	
		Temp. (°F)	Volumetric Flow <sup>1</sup> (acfm) <i>(at operating conditions)</i>	Velocity (fps)	Ground Level <i>(Height above mean sea level)</i>	Stack Height <sup>2</sup> <i>(Release height of emissions above ground level)</i>	Northing	Easting
2E	0.837	Ambient	1200	36.67	976	40	4359.489	557.392
5E	0.814	Ambient	750	24.04	976	60	4359.489	557.392
6E	0.814	Ambient	750	24.04	976	60	4359.489	557.392

<sup>1</sup> Give at operating conditions. Include inerts.  
<sup>2</sup> Release height of emissions above ground level.

**Attachment K**  
**Fugitive Emissions Data Summary**

## Attachment K

### FUGITIVE EMISSIONS DATA SUMMARY SHEET

The FUGITIVE EMISSIONS SUMMARY SHEET provides a summation of fugitive emissions. Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening. Note that uncaptured process emissions are not typically considered to be fugitive, and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET.

Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions).

APPLICATION FORMS CHECKLIST - FUGITIVE EMISSIONS	
1.) Will there be haul road activities?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If YES, then complete the HAUL ROAD EMISSIONS UNIT DATA SHEET.
2.) Will there be Storage Piles?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete Table 1 of the NONMETALLIC MINERALS PROCESSING EMISSIONS UNIT DATA SHEET.
3.) Will there be Liquid Loading/Unloading Operations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> If YES, complete the BULK LIQUID TRANSFER OPERATIONS EMISSIONS UNIT DATA SHEET.
4.) Will there be emissions of air pollutants from Wastewater Treatment Evaporation?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
5.) Will there be Equipment Leaks (e.g. leaks from pumps, compressors, in-line process valves, pressure relief devices, open-ended valves, sampling connections, flanges, agitators, cooling towers, etc.)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete the LEAK SOURCE DATA SHEET section of the CHEMICAL PROCESSES EMISSIONS UNIT DATA SHEET.
6.) Will there be General Clean-up VOC Operations?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
7.) Will there be any other activities that generate fugitive emissions?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET or the most appropriate form.
If you answered "NO" to all of the items above, it is not necessary to complete the following table, "Fugitive Emissions Summary."	

FUGITIVE EMISSIONS SUMMARY	All Regulated Pollutants - Chemical Name/CAS <sup>1</sup>	Maximum Potential Uncontrolled Emissions <sup>2</sup>		Maximum Potential Controlled Emissions <sup>3</sup>		Est. Method Used <sup>4</sup>
		lb/hr	ton/yr	lb/hr	ton/yr	
Haul Road/Road Dust Emissions Paved Haul Roads	PM	1.47	2.15	0.29	0.43	O, AP-42
	PM <sub>10</sub>	0.29	0.43	0.06	0.09	
	PM <sub>2.5</sub>	0.075	0.11	0.02	0.02	
Unpaved Haul Roads	N/A					
Storage Pile Emissions	N/A					
Loading/Unloading Operations (all transfer points)	N/A					
Wastewater Treatment Evaporation & Operations	N/A					
Equipment Leaks	N/A					
General Clean-up VOC Emissions	N/A					
Other	N/A					

<sup>1</sup> List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS<sub>2</sub>, VOCs, H<sub>2</sub>S, Inorganics, Lead, Organics, O<sub>3</sub>, NO, NO<sub>2</sub>, SO<sub>2</sub>, SO<sub>3</sub>, all applicable Greenhouse Gases (including CO<sub>2</sub> and methane), etc. DO NOT LIST H<sub>2</sub>, H<sub>2</sub>O, N<sub>2</sub>, O<sub>2</sub>, and Noble Gases.

<sup>2</sup> Give rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

<sup>3</sup> Give rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

<sup>4</sup> Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

**Attachment N**  
**Supporting Emission Calculations**

**Fugitive Road Dust Emissions Estimates  
Refined Coal Product Deliveries  
Harrison Power Station**

**Truck Traffic Summary**

- 950 deliveries/year (S-Sorb) + 36 deliveries/year (MerSorb) = 986 trucks/year
- 3,200 gallons/truck (liquid MerSorb); 25 tons/truck (solid S-Sorb)
- Total truck weight fully loaded = 40 tons
- Maximum coal feed rate of 1,500 TPH
- Design Application rates of MerSorb (0.0120%); S-Sorb (0.3500%)

**Total Annual Vehicle Miles Traveled (VMT)**

One-way paved roadways distance from Route 20 gate to unloading area = 0.58 miles  
Total VMT = (0.58 miles) x (2 trips) x (986 trucks) = 1,144 miles/yr

**Emission Factor Calculations**

EPA AP-42 - Chapter 13 for Paved Roads (Section 13.2.1.3)

$$EF = k \times (sL)^{0.91} \times (W)^{1.02}$$

Where:      k = 0.011 lb/VMT (PM/TSP)  
              k = 0.0022 lb/VMT (PM<sub>10</sub>)  
              k = 0.00054 lb/VMT (PM<sub>2.5</sub>)  
              sL = silt loading = 9.7 g/m<sup>2</sup>  
              W = vehicle weight = 40 tons

$$EF (PM) = (0.011) \times (9.7)^{0.91} \times (40)^{1.02} = (0.011) \times (7.906) \times (43.063) = \mathbf{3.75 \text{ lbs/VMT}}$$
$$EF (PM_{10}) = (0.0022) \times (9.7)^{0.91} \times (40)^{1.02} = (0.0022) \times (7.906) \times (43.063) = \mathbf{0.75 \text{ lb/VMT}}$$
$$EF (PM_{2.5}) = (0.00054) \times (9.7)^{0.91} \times (40)^{1.02} = (0.00054) \times (7.906) \times (43.063) = \mathbf{0.184 \text{ lb/VMT}}$$

**Emissions Estimates**

*(Assume truck travel operations of 8 hrs/day, 365 days/yr for lb/hr estimates)*

PM Annual PTE (uncontrolled) = (3.75 lb/VMT) x (1,144 VMT) = 4,290 pounds = 2.15 tons/yr  
PM Hourly PTE (uncontrolled) = (2.15 tons) x (2,000 lbs/ton) / (2,920 hrs) = 1.47 lb/hr

PM<sub>10</sub> Annual PTE (uncontrolled) = (0.75 lb/VMT) x (1,144 VMT) = 858 pounds = 0.43 ton/yr  
PM<sub>10</sub> Hourly PTE (uncontrolled) = (0.43 ton) x (2,000 lbs/ton) / (2,920 hrs) = 0.29 lb/hr

PM<sub>2.5</sub> Annual PTE (uncontrolled) = (0.184 lb/VMT) x (1,144 VMT) = 210.5 pounds = 0.11 ton/yr  
PM<sub>2.5</sub> Hourly PTE (uncontrolled) = (0.11 ton) x (2,000 lbs/ton) / (2,920 hrs) = 0.075 lb/hr

*(Assume control efficiency of 80% for water spray dust suppression on paved facility roadways)*

PM Annual PTE (controlled) = 2.15 tons/yr x (1-0.80) = **0.43 ton/yr**  
PM Hourly PTE (controlled) = 1.47 lb/hr x (1-0.80) = **0.29 lb/hr**

PM<sub>10</sub> Annual PTE (controlled) = 0.43 ton/yr x (1-0.80) = **0.09 ton/yr**  
PM<sub>10</sub> Hourly PTE (controlled) = 0.29 lb/hr x (1-0.80) = **0.06 lb/hr**

PM<sub>2.5</sub> Annual PTE (controlled) = 0.11 ton/yr x (1-0.80) = **0.02 ton/yr**  
PM<sub>2.5</sub> Hourly PTE (controlled) = 0.075 lb/hr x (1-0.80) = **0.02 lb/hr**

**Attachment P  
Public Notice  
Class II Legal AD**

## AIR QUALITY PERMIT NOTICE Notice of Application

Notice is given that the Monongahela Power Company has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Class II Administrative Update to R13-2988 and Title V Administrative Amendment to R30-03300015-2015 for a Refined Coal System for pollution control to be located at the Harrison Power Station in the town of Haywood in Harrison County, West Virginia. The latitude and longitude coordinates are: UTM Northing (KM) 4359.489, UTM Easting (KM) 557.392, and UTM Zone 17.

The applicant estimates that the increased potential to discharge the following Regulated Air Pollutants will be: PM = 0.43 tons per year; PM10 = 0.09 tons per year; and PM2.5 = 0.02 tons per year.

Startup of the operation of the Refined Coal System is scheduled to begin on or about the 15<sup>th</sup> day of June, 2016. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57<sup>th</sup> Street, SE, Charleston, West Virginia, 25304, for a period of at least thirty (30) calendar days from the date of publication of this notice.

Any questions regarding this permit application may be directed to the WVDEP Division of Air Quality at (304) 926-0499, extension 1250, during normal business hours.

Dated this the 29th Day of January, 2016.

By: Monongahela Power Company  
Gary J. Dinzeo  
Its: Director, Harrison Station  
Route 20  
Haywood, WV 26366-0600

**Attachment M**  
**Air Pollution Control Device Sheet**

# O Collectors

## Round Silo Dust Collectors

GENERATION 2.0

### General Information

**STEEL**

C&W's "O Collectors" (Round Silo Dust Collectors) offer you Pulse-Jet technology and our cartridge filters to provide an efficient yet inexpensive solution for dust control. These collectors are compact and user-friendly with a low-profile and POP in-out filter media exchange, with no tools or need to remove blow pipes. They can also expand to higher capacities without having to replace the units.

### Options

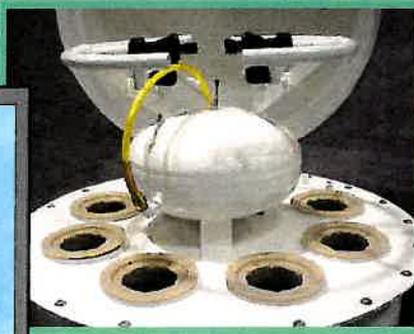
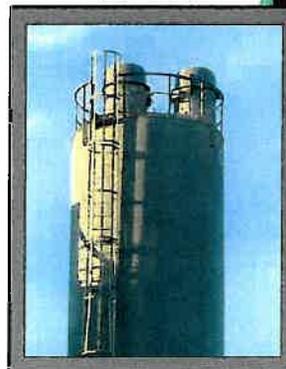
- Automatic On/Off Flow Switch
- Minihelic Gauge
- Special Adaptable Mounting Flange
- Air Tank Auto-Drain
- Silo Anti-Overflow System
- Pressure Relief Valves and Bin Indicators



### Specs

Specifications	LPR-4-S	LPR-6-S	LPR-8-S
Total Filtration Area (sq. ft.)	178	267	356
Number of Cartridges	4	6	8
Cartridge Size	8" x 39"	8" x 39"	8" x 39"
Overall Height - Steel*	72"	72"	72"
Flange Diameter	44" o.d.	44" o.d.	44" o.d.
Approx. Weight (lbs.) - Steel *	670	695	720
Compressed Air Required	3	3	3
CFM Recommended**	1,170	1,760	2,340
Min. Design Efficiency***	99.99%	99.99%	99.99%
Cleaning Mechanism	Pulse Jet	Pulse Jet	Pulse Jet

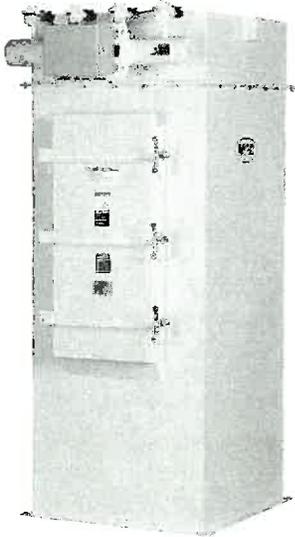
\*Includes Mounting Flange    \*\* CFM shown for typical application. Unique application may change CFM recommended    \*\*\*Using Standard Test Conditions



C&W Manufacturing and Sales Co.  
1-800-880-DUST  
www.cwmfg.com



# Air Vent Square Cartridge (AVSC) Filter



The MAC Air Vent Square Cartridge (AVSC) filters offer the same advantages as MAC's AVS filter but contain POLIPLLEET® Cartridges rather than bags and cages.

POLIPLLEET® Cartridges are thermally stable with the same permeability and burst strength as a felt bag. The pleated cartridge design offers two to three times more cloth area than a comparable sized unit equipped with felt bags.

Increased savings on valuable floor space and lower head-room restrictions make the pleated design ideal where space is a problem. Most product applications allow the pleated cartridges to be washed and returned to the filter for additional use.

MAC offers this filter in two styles: without the hopper (Style II) the filter is ideally suited as a bin vent filter for storage tanks, work bins and surge hoppers. With a 60° hopper (Style III) the filter receives dust through the hopper inlet and discharges the collected dust through an airlock for dust disposal or recycling.

## Standard Specifications

- 12 gauge carbon or 304 stainless steel construction\*
- Rated to 17" w.c. static pressure
- Full welded exterior
- Skip welded interior
- 36 cartridge units and larger have reinforced housing and tubesheet
- Broke lip flange on top plenum and housing
- Timing board enclosures: NEMA 4
- Lifting lugs: Two on top plenum
- Service door:
  - Units with 18" long bags have an 18" x 15" tall bolted inspection panel
  - Units with bags longer than 18" have an 18" wide hinged (to left side) T-handle style inspection door
- 60° hopper flanged to housing (Style III only)
- MAC white paint

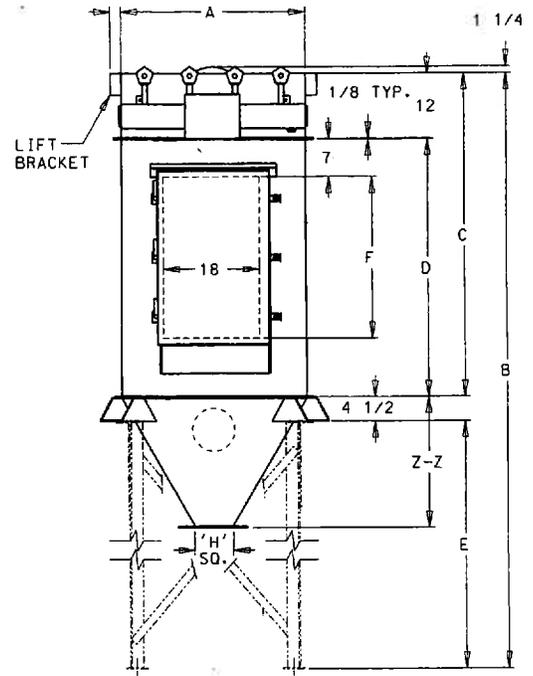
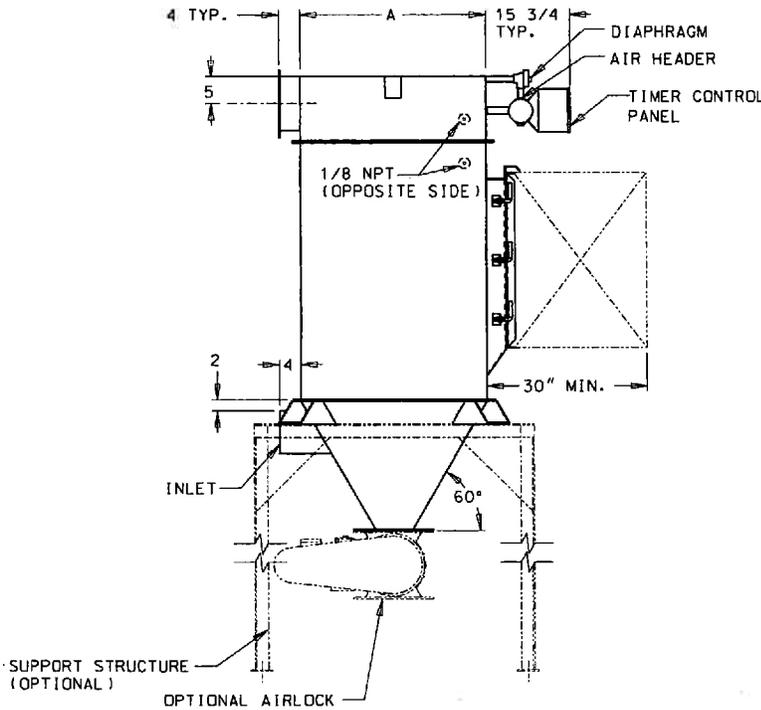
\*stainless steel includes housing, hopper and tubesheet with all carbon steel flanges and reinforced ribs

## Options

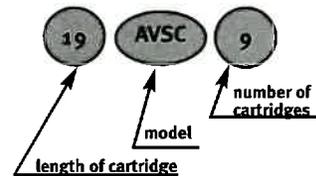
- Pressure differential gauge kit
- 316 stainless steel
- 10 gauge carbon steel construction
- Rated to 20" static pressure
- High entry inlet with bag protectors
- 70° hopper slope
- Aluminum Venturi
- NEMA 7 or 9 timer enclosure
- Exhaust weather hood with birdscreen
- Carbon steel service platform with ladder and safety cage
- Pneumatic noise reducers in solenoids
- Flanged air inlet
- Mount pads
- Side mounted or top mounted fans (restrictions exist - please contact your MAC Sales Representative)
- 4x4 mesh grate
- Support structures



Cartridges  
page 2-54



For ZZ Dimensions refer to page 2-4.



Each AVSC filter comes with an informational model number to better identify it.

MODEL	FILTER AREA	NO. OF CARTRIDGES	Dimensions (IN.)							MAX. A/L	SCFM	WEIGHT LBS.
			A	B	C	D	E	F	G			
19AVSC9	153	9	26	82 <sup>5</sup> / <sub>8</sub>	40 <sup>1</sup> / <sub>8</sub>	28	38	20	10 DIA.	MD 40	3.6	370
39AVSC9	324	9	26	102 <sup>5</sup> / <sub>8</sub>	60 <sup>1</sup> / <sub>8</sub>	48	38	30	10 DIA.	MD 40	3.6	525
19AVSC16	273	16	34 <sup>1</sup> / <sub>2</sub>	90 <sup>5</sup> / <sub>8</sub>	40 <sup>1</sup> / <sub>8</sub>	28	46	20	10 DIA.	MD 40	5.0	540
39AVSC16	576	16	34 <sup>1</sup> / <sub>2</sub>	110 <sup>5</sup> / <sub>8</sub>	60 <sup>1</sup> / <sub>8</sub>	48	46	30	10 DIA.	MD 40	5.0	735
19AVSC25	427	25	43	98 <sup>5</sup> / <sub>8</sub>	40 <sup>1</sup> / <sub>8</sub>	28	54	20	10 DIA.	MD 40	5.8	730
39AVSC25	900	25	43	118 <sup>5</sup> / <sub>8</sub>	60 <sup>1</sup> / <sub>8</sub>	48	54	30	10 DIA.	MD 40	5.8	975
39AVSC38	1298	36	51 <sup>1</sup> / <sub>2</sub>	126 <sup>5</sup> / <sub>8</sub>	60 <sup>1</sup> / <sub>8</sub>	48	62	30	10 X 20	MD 40	7.3	1260
39AVSC49	1784	49	60	134 <sup>5</sup> / <sub>8</sub>	60 <sup>1</sup> / <sub>8</sub>	48	70	30	10 X 36	MD 75	8.5	1510
39AVSC84	2904	54	68 <sup>1</sup> / <sub>2</sub>	142 <sup>5</sup> / <sub>8</sub>	60 <sup>1</sup> / <sub>8</sub>	48	78	30	10 X 36	MD 139	10.9	1890

MAC Equipment Inc.  
P.O. Box 205 • Sabetha, KS 66534  
888.821.2476 sales • 877.821.7378 service • www.macequipment.com

Air Permit Work Sheet for MAC AVSC Dust Collector

Dust Collector Model No.	39AVSC25		
Type of Collector	SILO		
Cleaning Mechanism	pulse jet w/ adjustable timer		
Fan Included	No		
Fan Power	n/a	hp	
Collector Flow Rate-max rating	2,500	acfm	
Filter Material	Spun Bond polyester		
Filter Efficiency	99.92		
Filter Media Max Pressure Drop	8	in H <sub>2</sub> O	
Total Area of Filter Media	900	sqft	
Nominal Filter Diameter	6	in	
Nominal Filter Length	3.25	ft	
Quantity of Filters	25		
Number of Compartments	1		
Number of Filters per Compartment	25		
Filtering Velocity	1.33	acfm / ft <sup>2</sup> of	
Application Flow Rate	1200	acfm	
Type of Particulate Controlled	LIME & CEMENT KILN DUST		
Name of Source(s) or Equipment being Controlled	SILO		
	inlet		outlet
Particulate Grain Loading	2.5E+00	grains / scf	2.00E-03 grains / scf
Outlet Area	0.55	ft <sup>2</sup>	
Outlet Velocity	36.67	ft / s	

C&W Manufacturing & Sales Co.  
P.O. Box 908 • Crowley, TX 76036  
817.783.5000 tel • 817.783.2353 fax info@cwmfg.com • www.cwmfg.com

Air Permit Work Sheet for C&W Dust Collector

Dust Collector Model No.	CP-LPR-8-S			
Type of Collector	SILO			
Cleaning Mechanism	pulse jet w/ adjustable timer			
Fan Included	n			
Fan Power	na	hp		
Collector Flow Rate-max rating	2,340	acfm		
Filter Material	Spun Bond polyester			
Filter Efficiency	99.99			
Filter Media Max Pressure Drop	12	in h2o		
Total Area of Filter Media	356	sqft		
Nominal Filter Diameter	8	in		
Nominal Filter Length	3.25	ft		
Quantity of Filters	8			
Number of Compartments	1			
Number of Filters per Compartment	8			
Filtering Velocity	2.11	acfm / ft2 of		
Application Flow Rate	750	acfm		
Type of Particulate Controlled	LIME & CEMENT KILN DUST			
Name of Source(s) or Equipment being Controlled	SILO			
	inlet		outlet	
Particulate Grain Loading	2.5E+00	grains / scf	2.50E-04	grains / scf
Outlet Area	0.52	ft2		
Outlet Velocity	24.04	ft / s		

**Attachment S**  
**Title V Revision Information**  
**Suggested Title V Draft Permit Language (Attachment S1)**

## Attachment S

### Title V Permit Revision Information

<b>1. New Applicable Requirements Summary</b>	
Mark all applicable requirements associated with the changes involved with this permit revision:	
<input type="checkbox"/> SIP	<input type="checkbox"/> FIP
<input checked="" type="checkbox"/> Minor source NSR (45CSR13)	<input type="checkbox"/> PSD (45CSR14)
<input type="checkbox"/> NESHAP (45CSR15)	<input type="checkbox"/> Nonattainment NSR (45CSR19)
<input type="checkbox"/> Section 111 NSPS (Subpart(s) _____)	<input type="checkbox"/> Section 112(d) MACT standards (Subpart(s) _____)
<input type="checkbox"/> Section 112(g) Case-by-case MACT	<input type="checkbox"/> 112(r) RMP
<input type="checkbox"/> Section 112(i) Early reduction of HAP	<input type="checkbox"/> Consumer/commercial prod. reqts., section 183(e)
<input type="checkbox"/> Section 129 Standards/Reqts.	<input type="checkbox"/> Stratospheric ozone (Title VI)
<input type="checkbox"/> Tank vessel reqt., section 183(f)	<input type="checkbox"/> Emissions cap 45CSR§30-2.6.1
<input type="checkbox"/> NAAQS, increments or visibility (temp. sources)	<input type="checkbox"/> 45CSR27 State enforceable only rule
<input type="checkbox"/> 45CSR4 State enforceable only rule	<input type="checkbox"/> Acid Rain (Title IV, 45CSR33)
<input type="checkbox"/> Emissions Trading and Banking (45CSR28)	<input type="checkbox"/> Compliance Assurance Monitoring (40CFR64) <sup>(1)</sup>
<input type="checkbox"/> NO <sub>x</sub> Budget Trading Program Non-EGUs (45CSR1)	<input type="checkbox"/> NO <sub>x</sub> Budget Trading Program EGUs (45CSR26)
<p><sup>(1)</sup> If this box is checked, please include <b>Compliance Assurance Monitoring (CAM) Form(s)</b> for each Pollutants Specific Emission Unit (PSEU) (See Attachment H to Title V Application). If this box is not checked, please explain why <b>Compliance Assurance Monitoring</b> is not applicable:</p> <p style="margin-left: 20px;">N/A</p>	

<b>2. Non Applicability Determinations</b>
<p>List all requirements, which the source has determined not applicable to this permit revision and for which a permit shield is requested. The listing shall also include the rule citation and a rationale for the determination.</p> <p>N/A</p>
<p><input type="checkbox"/> <b>Permit Shield Requested</b> <i>(not applicable to Minor Modifications)</i></p>

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

**3. Suggested Title V Draft Permit Language**

Are there any changes involved with this Title V Permit revision outside of the scope of the NSR Permit revision?  Yes  No If Yes, describe the changes below.

Also, please provide **Suggested Title V Draft Permit language** for the proposed Title V Permit revision (including all applicable requirements associated with the permit revision and any associated monitoring /recordkeeping/ reporting requirements), OR attach a marked up pages of current Title V Permit. Please include appropriate citations (Permit or Consent Order number, condition number and/or rule citation (e.g. 45CSR§7-4.1)) for those requirements being added / revised.

**Please refer to Attachment S1 for the suggested Title V language**

**4. Active NSR Permits/Permit Determinations/Consent Orders Associated With This Permit Revision**

Permit or Consent Order Number	Date of Issuance	Permit/Consent Order Condition Number
Title V R30-03300015-2015	06/02/2015	
R13-2988	11/09/2012	
	/ /	

**5. Inactive NSR Permits/Obsolete Permit or Consent Orders Conditions Associated With This Revision**

Permit or Consent Order Number	Date of Issuance	Permit/Consent Order Condition Number
	MM/DD/YYYY	
	/ /	
	/ /	

**6. Change in Potential Emissions**

Pollutant	Change in Potential Emissions (+ or -), TPY
PM	+0.43 TPY
PM <sub>10</sub>	+0.09 TPY
PM <sub>2.5</sub>	+0.02 TPY

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

**7. Certification For Use Of Minor Modification Procedures (Required Only for Minor Modification Requests)**

*Note: This certification must be signed by a responsible official. Applications without a signed certification will be returned as incomplete. The criteria for allowing the use of Minor Modification Procedures are as follows:*

- i. Proposed changes do not violate any applicable requirement;
- ii. Proposed changes do not involve significant changes to existing monitoring, reporting, or recordkeeping requirements in the permit;
- iii. Proposed changes do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient air quality impacts, or a visibility increment analysis;
- iv. Proposed changes do not seek to establish or change a permit term or condition for which there is no underlying applicable requirement and which permit or condition has been used to avoid an applicable requirement to which the source would otherwise be subject (synthetic minor). Such terms and conditions include, but are not limited to a federally enforceable emissions cap used to avoid classification as a modification under any provision of Title I or any alternative emissions limit approved pursuant to regulations promulgated under § 112(j)(5) of the Clean Air Act;
- v. Proposed changes do not involve preconstruction review under Title I of the Clean Air Act or 45CSR14 and 45CSR19;
- vi. Proposed changes are not required under any rule of the Director to be processed as a significant modification;

Notwithstanding subparagraph 45CSR§30-6.5.a.1.A. (items i through vi above), minor permit modification procedures may be used for permit modifications involving the use of economic incentives, marketable permits, emissions trading, and other similar approaches, to the extent that such minor permit modification procedures are explicitly provided for in rules of the Director which are approved by the U.S. EPA as a part of the State Implementation Plan under the Clean Air Act, or which may be otherwise provided for in the Title V operating permit issued under 45CSR30.

**Pursuant to 45CSR§30-6.5.a.2.C., the proposed modification contained herein meets the criteria for use of Minor permit modification procedures as set forth in Section 45CSR§30-6.5.a.1.A. The use of Minor permit modification procedures are hereby requested for processing of this application.**

(Signed):  _____ (Please use blue ink)	Date: <u>JAN</u> / <u>27</u> / <u>2016</u> _____ (Please use blue ink)
Named (typed): <b>Gary J. Dinzeo</b>	Title: <b>Director, Harrison Plant</b>

**Note: Please check if the following included (if applicable):**

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/>            | Compliance Assurance Monitoring Form(s)                 |
| <input checked="" type="checkbox"/> | Suggested Title V Draft Permit Language (Attachment S1) |

*All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.*

**HARRISON POWER STATION**  
**REFINED COAL PROJECT APPLICATION**  
**ATTACHMENT S1**

**Suggested Title V Draft Permit Language**

In accordance with Item #3 of Attachment S of the Refined Coal Project Class II Administrative Update application, the following conditions can be added to existing Title V Permit R30-03300015-2015 to incorporate the addition of the refined coal process at Harrison:

**Section 1.1: Emission Units Table**

The estimated potential emissions increase of fugitive PM/PM<sub>10</sub>/PM<sub>2.5</sub> from the installation of the Refined Coal facility result from increased delivery truck traffic on the existing paved facility roadways (Attachment N). These emissions are captured under existing Emission Unit “PVR” (Plant Paved Roads) in Table 1.1, Miscellaneous Sources, Page 8, of the above-referenced Title V permit. Emissions from truck traffic are minimized using the water trucks currently in operation at the plant.

Most of the conveying and mixing equipment for the refined coal processing system will be located in fully enclosed buildings, and does not need to appear in the Title V Emission Unit equipment list. The two (2) outdoor storage silos (S-Sorb) have insignificant emission rates for PM/PM<sub>10</sub>/PM<sub>2.5</sub> (Attachment J) and also do not need to appear in the Emissions Unit Table.

However, if the Department prefers documentation of the refined coal system in Section 1.0 of the Title V permit, we suggest adding the following to the Emission Units Table under the Harrison Material Handling Sources, Page 6, immediately after the Coal Crusher Sources CRU-01 through CRU-03:

<b>Emission Unit ID</b>	<b>Emission Point ID</b>	<b>Emission Unit Description</b>	<b>Year Installed/ Modified</b>	<b>Design Capacity</b>	<b>Control Device</b>
RC 3100	1E	Pug Mill Mixer	2016	1,500 TPH	Full Enclosure (FE)
RC 3200	2E	S-Sorb Day Bin	2016	15 tons	Bin Vent Filter/FE
RC 3500	3E	MerSorb Storage Tank	2016	6,100 gallons	FE
RC 3700	4E	Mersorb Day Storage Tank	2016	405 gallons	FE
RC 8200	5E	S-Sorb Storage Silo	2016	150 tons	Bin Vent Filter/FE
RC 8300	6E	S-Sorb Storage Silo	2016	150 tons	Bin Vent Filter/FE

**Page 44, Section 8.0: Source-Specific Requirements**

Add the phrase “RC Process” to the list of Emission Unit IDs

**Page 47, Section 8.1: Limitations and Standards**

Add the following conditions:

8.1.10. Delivered quantities of S-Sorb (tons) and MerSorb (gallons) for the refined coal processing system shall be delivered in accordance with the following requirements:

- a. Maximum 12-month rolling total delivery of S-Sorb shall not exceed 23,750 tons.
- b. Maximum 12-month rolling total delivery of MerSorb shall not exceed 115,200 gallons.

It is anticipated that these quantities will remain in effect for the life of the project; however they may be revised in order to maintain compliance with IRS regulations.

**Page 50, Section 8.4: Recordkeeping Requirements**

Add the following conditions:

8.4.6. For the Refined Coal Process, the permittee shall keep records of tons of delivered quantities of S-Sorb and gallons of MerSorb, on a 12-month rolling total basis.

8.4.7. The permittee shall keep records of the hours of operation of the Refined Coal Process facility, including the dates/times when the Refined Coal Process facility is not in normal operation.