Dan G10-D068H
045-00119

MINGO LOGAN COAL COMPANY

MOUNTAIN LAUREL COMPLEX

CARDINAL PREPARATION PLANT FACILITY
GENERAL PERMIT MODIFICATION
FACILITY ID 54-045-00119

DIVISION OF AIR QUALITY

Submittal Date: March 2015

P & A Engineers and Consultants, Inc.

312 Justice Avenue
Logan, WV 25601

Phone (304) 752-8320
Fax (304) 752-7488

March 23, 2015

RECEIVED
MAR 25 2015
WV DEP / DIV OF AIR QUALITY

Mr. William F. Durham, Director
Division of Air Quality
601 57th Street SE
Charleston, WV 25304

RE: Mingo Logan Coal Company
Cardinal Prep Plant - Modification
Facility ID: 045-00119

Dear Mr. Durham:

On behalf of Mingo Logan Coal Company, P & A Engineers and Consultants, Inc. submits the enclosed General Permit Modification Application for the above-referenced facility. Included is a check in the amount of $1,500.00, which represents the submittal fee, and two additional permit copies for your review and approval.

The application addresses the addition of one clean coal breaker, increased throughput for the met plant with associated stockpile, and the deletion of belt conveyor BC-12.

If additional information or clarification is needed, please contact me at the Logan address listed above or call 304-752-8320.

Sincerely,

Donna J. Toler
Air Quality Project Manager

donnatoler@suddenlink.net

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WVDAQ Registration Application

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WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY
601 57th Street, SE
Charleston, WV 25304
Phone: (304) 926-0475 • www.wvdep.org

APPLICATION FOR GENERAL PERMIT REGISTRATION

CONSTRUCT, MODIFY, RELOCATE OR ADMINISTRATIVELY UPDATE A STATIONARY SOURCE OF AIR POLLUTANTS

PLEASE CHECK ALL THAT APPLY (IF KNOWN):
☐ **CONSTRUCTION** ■ **MODIFICATION** ☐ **RELOCATION**
☐ **ADMINISTRATIVE UPDATE** ☐ **AFTER-THE-FACT**

FOR AGENCY USE ONLY: *PLANT I.D. #* _____
PERMIT # _____ *PERMIT WRITER:* _____

CHECK WHICH TYPE OF GENERAL PERMIT REGISTRATION YOU ARE APPLYING FOR:

■ **G10-C** – Coal Preparation and Handling
☐ **G20-B** – Hot Mix Asphalt
☐ **G30-B** – Natural Gas Compressor Stations
☐ **G40-B** – Nonmetallic Minerals Processing
☐ **G50-B** – Concrete Batch

SECTION I. GENERAL INFORMATION

1. NAME OF APPLICANT (AS REGISTERED WITH THE WV SECRETARY OF STATE'S OFFICE):
MINGO LOGAN COAL COMPANY

2. FEDERAL EMPLOYER ID NO. **(FEIN):**
13-3074446

3. APPLICANT'S MAILING ADDRESS:

PO BOX E
SHARPLES, WV 25183

5. IF APPLICANT IS A SUBSIDIARY CORPORATION, PLEASE PROVIDE THE NAME OF PARENT CORPORATION:
ARCH COAL, INC.

6. **WV BUSINESS REGISTRATION.** IS THE APPLICANT A RESIDENT OF THE STATE OF WEST VIRGINIA? ■ **YES** ☐ **NO**

⇨ IF YES, PROVIDE A COPY OF THE **CERTIFICATE OF INCORPORATION / ORGANIZATION / LIMITED PARTNERSHIP** (ONE PAGE) INCLUDING ANY NAME CHANGE AMENDMENTS OR OTHER ***BUSINESS CERTIFICATE*** AS **ATTACHMENT A.**

⇨ IF NO, PROVIDE A COPY OF THE **CERTIFICATE OF AUTHORITY / AUTHORITY OF L.L.C. / REGISTRATION** (ONE PAGE) INCLUDING ANY NAME CHANGE AMENDMENTS OR OTHER ***BUSINESS CERTIFICATE*** AS **ATTACHMENT A .**

SEE ATTACHMENT A

SECTION II. FACILITY INFORMATION

7. TYPE OF PLANT OR FACILITY (STATIONARY SOURCE) TO BE CONSTRUCTED, MODIFIED, RELOCATED OR ADMINISTRATIVELY UPDATED (E.G., COAL PREPARATION PLANT, PRIMARY CRUSHER, ETC.) :	8. STANDARD INDUSTRIAL CLASSIFICATION (SIC) CODE FOR THE FACILITY:
Add breaker CR-12; change thruput for CR-10 and met plant; delete belt BC-12	**1221**

9A. DAQ PLANT I.D. NO. (FOR AN EXISTING FACILITY:	10A. LIST ALL CURRENT 45CSR13 AND 45CSR30 (TITLE V) PERMIT NUMBERS ASSOCIATED WITH THIS PROCESS (FOR EXISTING FACILITY ONLY):
045-00119	**G10-D068F**

PRIMARY OPERATING SITE INFORMATION

11A. NAME OF PRIMARY OPERATING SITE:	12A. MAILING ADDRESS OF PRIMARY OPERATING SITE:
Cardinal Preparation Plant	**SAME AS PERMITTEE**

13A. DOES THE APPLICANT OWN, LEASE, HAVE AN OPTION TO BUY, OR OTHERWISE HAVE CONTROL OF THE *PROPOSED SITE*?

■ YES ☐ NO

⇨ IF YES, PLEASE EXPLAIN: **Lease agreement with Ark Land Company – On file at Mingo Logan Engineering Office**

⇨ IF NO, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.

14A. ⇨ FOR **MODIFICATIONS or ADMINISTRATIVE UPDATES,** AT AN EXISTING FACILITY, PLEASE PROVIDE DIRECTIONS TO THE *PRESENT LOCATION* OF THE FACILITY FROM THE NEAREST STATE ROAD;

⇨ ***FOR CONSTRUCTION OR RELOCATION PERMITS, PLEASE PROVIDE DIRECTIONS TO THE PROPOSED NEW SITE LOCATION FROM THE NEAREST STATE ROAD.***

Corridor G to Danville – Take Route 17 toward Logan, WV. Go past Sharples PO – proceed 2.5 miles to entrance to Seng Camp Hollow Road – located on main road on left at Seng Camp.

INCLUDE A MAP AS ATTACHMENT F.

15A. NEAREST CITY OR TOWN:	16A. COUNTY:
Sharples	**Logan**

17A. UTM NORTHING (KM):	18A. UTM EASTING (KM):	19A. UTM ZONE:
4195.8321	**429.7954**	**17**

1ST ALTERNATE OPERATING SITE INFORMATION

11B. NAME OF PRIMARY OPERATING SITE:	12B. MAILING ADDRESS OF PRIMARY OPERATING SITE:
_____	_____
_____	_____

13B. DOES THE APPLICANT OWN, LEASE, HAVE AN OPTION TO BUY, OR OTHERWISE HAVE CONTROL OF THE *PROPOSED SITE*?

☐ **YES** ☐ **NO**

⇨ IF **YES**, PLEASE EXPLAIN: _____

_____

⇨ IF **NO**, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.

14B. ⇨ FOR **MODIFICATIONS or ADMINISTRATIVE UPDATES,** AT AN EXISTING FACILITY, PLEASE PROVIDE DIRECTIONS TO THE *PRESENT LOCATION* OF THE FACILITY FROM THE NEAREST STATE ROAD;

⇨ FOR **CONSTRUCTION OR RELOCATION PERMITS,** PLEASE PROVIDE DIRECTIONS TO *THE PROPOSED NEW SITE LOCATION* FROM THE NEAREST STATE ROAD.

_____

_____

_____

INCLUDE A **MAP** AS **ATTACHMENT F.**

15B. NEAREST CITY OR TOWN:	16B. COUNTY:	
17B. UTM NORTHING (KM):	18B. UTM EASTING (KM):	19B. UTM ZONE:

2ND *ALTERNATE OPERATING SITE INFORMATION*

11C. NAME OF PRIMARY OPERATING SITE:	12C. MAILING ADDRESS OF PRIMARY OPERATING SITE:

13C. DOES THE APPLICANT OWN, LEASE, HAVE AN OPTION TO BUY, OR OTHERWISE HAVE CONTROL OF THE *PROPOSED SITE*?

☐ **YES** ☐ **NO**

➪ IF **YES**, PLEASE EXPLAIN: _____

➪ IF **NO**, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.

14C. ➪ FOR **MODIFICATIONS or ADMINISTRATIVE UPDATES,** AT AN EXISTING FACILITY, PLEASE PROVIDE DIRECTIONS TO THE *PRESENT LOCATION* OF THE FACILITY FROM THE NEAREST STATE ROAD;

➪ FOR **CONSTRUCTION OR RELOCATION PERMITS**, PLEASE PROVIDE DIRECTIONS TO *THE PROPOSED NEW SITE LOCATION* FROM THE NEAREST STATE ROAD.

_____

INCLUDE A **MAP** AS **ATTACHMENT F.**

15C. NEAREST CITY OR TOWN:	16C. COUNTY:	
17C. UTM NORTHING (KM):	18C. UTM EASTING (KM):	19C. UTM ZONE:

20. PROVIDE THE DATE OF ANTICIPATED INSTALLATION OR CHANGE: **June 15, 2015** ➪ IF THIS IS AN **AFTER-THE-FACT** PERMIT APPLICATION, PROVIDE THE DATE UPON WHICH THE PROPOSED CHANGE DID HAPPEN: ____/____/____	21. DATE OF ANTICIPATED START- UP IF REGISTRATION IS GRANTED: **June 15, 2015**

22. PROVIDE MAXIMUM PROJECTED **OPERATING SCHEDULE** OF ACTIVITY/ ACTIVITIES OUTLINED IN THIS APPLICATION:

HOURS PER DAY **24** DAYS PER WEEK **7** WEEKS PER YEAR **52** PERCENTAGE OF OPERATION **100**

WEST VIRGINIA
STATE TAX DEPARTMENT
BUSINESS REGISTRATION CERTIFICATE

ISSUED TO:
MINGO LOGAN COAL COMPANY
RR 17
SHARPLES, WV 25183-0000

BUSINESS REGISTRATION ACCOUNT NUMBER: **2218-7914**

This certificate is issued on: 07/11/2011

This certificate is issued by
the West Virginia State Tax Commissioner
in accordance with Chapter 11, Article 12, of the West Virginia Code

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 maintained 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.

atl.006 v.4
L0512033408

ATTACHMENT B

PROCESS DESCRIPTION

Raw coal will be delivered to the raw coal processing portion of the facility by a 7000tph underground mine slope belt conveyor BC-01(FE) and by truck to the raw coal truck dump bin BS-01(PW). Belt conveyor BC-01 transfers at TP-02(TC-FE) to belt conveyor BC-02(PE), which transfers to open stockpile OS-01(SW-ST) @ TP-03(TC-FE) or onto belt conveyor BC-03(PE) @ TP-04(TC-FE). Belt conveyor BC-03 can discharge to open stockpile OS-02(SW-ST) @ TP-05(TC-FE) or transfer to belt conveyor BC-04(PE) @ TP-06(TC-FE) for transfer to open stockpile OS-03(SW-ST) @ TP-07(TC-FE). Belt conveyor BC-04 transfers to belt conveyor BC-05(PE) @ TP-08(TC-FE) for delivery to open stockpile OS-04(SW-ST) @ TP-09(TC-FE).

Raw coal will be delivered by truck to BS-01(PW) @ TP-10(UD-PW); transfer to breaker CR-01(FW) @ TP-11(TC-FW); to belt BC-06(PE) @ TP-12(TC-FW) and to stacking tube OS-04(SW-WS) @ TP-13(TC-FE). Transfer points TP-14 through TP-19 were previously deleted.

Raw coal stockpiles OS-01, OS-02, OS-03 and OS-04 discharge to under-pile belt conveyor BC-10(FE) @ transfer points TP-20(LO-UC), TP-21(LO-UC), TP-22(LO-UC) and TP-23(LO-UC), respectively. Belt conveyor BC-10 discharges to belt conveyor BC-11(PE) @ TP-24(TC-FE), which transfers to a 2300tph sizer CR-02(FW) @ TP-25(TC-FE), which separates materials for transfer to either belt conveyor BC-13(PE) @ TP-27(TC-FE). Belt conveyor BC-13 transfers the material to the preparation plant for processing @ TP-29(TC-WW).

Clean coal from the preparation plant transfers to belt conveyor BC-15(PE) @ TP-30(TC-WW) for delivery to the clean coal stockpiles OS-08(SW-ST), OS-09(SW-ST), OS-10(SW-ST) and OS-11(SW-ST) via a series of clean coal transfer belts BC-16(PE), BC-17(PE), and BC-18(PE) @ transfer points TP-31(TC-FE) through TP-37(TC-FE), respectively. *Before exiting the plant, the separate clean coal circuits can send the oversize coal to separate primary crushers for sizing before it exits onto belt conveyor BC-15. These individual circuit crushers are identified as CR-07(FW), CR-08(FW), CR-09(FW) and addressed in the calculations section at TP-93(TC-FW), TP-94(TC-FW) and TP-95(TC-FW).*

Direct ship or pit-cleaned coal is unloaded from truck to bin BS-02(FE) @ TP-38(UL-PE); bin BS-02 discharges to a 1000tph sizer CR-03(FE) @ TP-39(LO-UC) and onto belt conveyor BC-14(PE) @ TP-40(TC-FE). Belt conveyor BC-14 transfers to either clean coal stockpile OS-11 or onto belt conveyor BC-25(PE) for delivery to the remaining stockpile @ TP-41(TC-FE).

Middling from the plant is transferred out to the rewash plant on BC-19(PE) @ TP-42(TC-WW) and TP-43(TC-WW) and transfers to the middling stockpile OS-12(SW-ST) via a series of partially-enclosed belt conveyors BC-21(PE) thru BC-25(PE) @ TP-46(TC-WW) thru TP-51(TC-FE). Middling refuse is sent back to the refuse system via BC-20(PE) @ TP-44(TC-WW) and TP-45(TC-WW). Stockpile OS-12 discharges underpile to BC-26(PE) @ TP-52(LO-UC). Before the middlings coal exits the rewash plant, oversize can be sized through crusher CR-10(FW) and is addressed in the calculations section at TP-96(TC-FW).

Clean coal stockpiles OS-08(SW-ST), OS-09(SW-ST), OS-10(SW-ST) and OS-11(SW-ST) transfer to the underpile loadout belt system BC-27(FE) @ TP-53(LO-UC) through TP-56(LO-UC). Belt Conveyor BC-26 also transfers a

new belt BC-41(PE) @ TP-90(TC-FE) which feeds belt BC-27 @ TP-57(LO-UC). Belt conveyor BC-27 transfers to belt conveyor BC-28(PE) @ TP-58(TC-FE), which discharges to the rail surge bin BS-03(FE) @ TP-59(TC-FE) and on to the loadout weigh bin BS-04(FE) @ TP-60(LO-UC). Bin BS-04 discharges to railcar @ TP-61(LO-TC).

Refuse transfers from the plant to belt conveyor BC-29(PE) @ TP-62(TC-WW) and onto belt conveyors BC-30(PE) @ TP-64(TC-FE) and belt conveyor BC-31(PE) @ TP-68(TC-FE). Belt conveyor BC-30 discharges to open stockpile OS-13(SW-WS) @ TP-65(TC-PE) and to truck @ TP-66(LO-NC) for delivery to the refuse disposal area @ TP-67(UL-NC). Belt conveyor BC-31 transfers refuse to the disposal area via refuse conveyors BC-32(PE) thru BC-36(PE) @ TP-69(TC-FE) thru TP-76(TC-MDH). Refuse belt BC-35 will transfer to belt conveyor BC-44 @ TP-97(TC-FE) and to ground @ TP-98(TC-MDH).

MODIFICATION – JUNE, 2007

Temporary equipment is being proposed to allow for the receipt and processing of raw and clean coal delivered by truck to the facility prior to the permanent construction of the raw coal and direct ship truck dump systems.

Raw coal delivered by truck, as previously permitted, will be dumped and dozer pushed into a 1500TPH Stamler feeder-breaker CR-04(FE) @ TP-77(UL-MDH) and transferred to the existing raw coal stockpile area by belt conveyor BC-37(NC) @ TP-78(TC-FE) and TP-79(TC-MDH).

MODIFICATION – JANUARY, 2009

Clean coal will be delivered by truck on paved haulroad to bin BS-07(PW), transfer to partially-enclosed belt conveyor BC-39(PE), transfer to a fully-

enclosed w/water double roll crusher CR-06(FW), transfer to partially-enclosed belt conveyor BC-40(PE) and then to existing stockpile OS-11 @ TP-85(UD-PW) thru TP-89(TC-FE).

Class II Administrative Update – November, 2009

Clean direct ship coal will be delivered by truck, as previously permitted, to OS-14(SW-WS) @ TP-80(UL-MDH) and transferred by front-end loader to a small top-fed bin BS-06(PW) @ TP-81(UD-PW). Two new belts have been added to the system and bin BS-06 will transfer to belt BC-42(NC) @ TP-82(TC-FE), then to a fully-enclosed with water crusher CR-05(FW) @ TP-91(TC-FE). Crusher CR-05 will transfer to belt conveyor BC-43(NC) @ TP-83(TC-PW) and onto belt conveyor BC-38(NC) @ TP-92(TC-PE) for delivery to the existing clean coal stockpile area @ TP-84(TC-MDH).

MODIFICATION OF MARCH 2011:

The following sections are included above and represent the changes that will take place at the Cardinal Facility:

The following sources have been deleted: belt BC-07, belt BC-08, belt BC-09, stockpile OS-05, stockpile OS-06, and stockpile OS-07.

Raw Coal:

Raw coal will be delivered by truck to BS-01(PW) @ TP-10(UD-PW); transfer to breaker CR-01(FW) @ TP-11(TC-FW); to belt BC-06(PE) @ TP-12(TC-FW) and to stacking tube OS-04(SW-WS) @ TP-13(TC-FE). Transfer points TP-14 through TP-19 have been deleted.

A new raw coal truck dump is proposed. Trucks will dump to bin BS-08(PW) @ TP-99(UD-PW), transfer to crusher CR-11(FW) @ TP-100(TC-FW); discharge to belt conveyor BC-45(PE) @ TP-101(TC-FE); and to the raw coal belt system @ TP-102(TC-FE). Even though the equipment is rated for 1,000 TPH, Mingo Logan proposes a thruput limit of 3,500,000 tons per truck dump facility.

Stockpile OS-15(SW-WS) is also proposed adjacent to the truck dump area. Coal will be received by truck @TP-103(UL-MDH) and transferred by front-end loader to BS-01(PW) @ TP-104(UD-PW).

Clean Coal:

Before exiting the plant, the separate clean coal circuits can send the oversize coal to separate primary crushers for sizing before it exits onto belt conveyor BC-15. These individual circuit crushers are identified as CR-07(FW), CR-08(FW), CR-09(FW) and addressed in the calculations section at TP-93(TC-FW), TP-94(TC-FW) and TP-95(TC-FW).

Before the middlings coal exists the rewash plant, oversize can be sized through crusher CR-10(FW) and is addressed in the calculations section at TP-96(TC-FW).

Refuse:

Refuse belt BC-35 will transfer to belt conveyor BC-44 @ TP-97(TC-FE) and to ground @ TP-98(TC-MDH).

MODIFICATION APRIL 2013:

Mingo Logan proposes to expand the raw coal and clean coal stockpiles areas to accommodate more material storage. The facility has plenty of room for storage and controls are in place to control fugitive emissions in the expanded areas.

Mingo Logan also proposes to install a double chute with flop gates atop the stacking tube that controls load-in to OS-01 to divert raw coal into two additional stockpiles (OS-16 & OS-17) that will join stockpileOS-01. Water is available for dust control while this system is being used. *Dozers work atop the existing stockpiles and creating a base for the new stockpile areas; therefore, since there will be an existing stockpile as a base to the new stockpiles, the drop height will be minimal.* Material from belt BC-02 could transfer to stockpile OS-16 @ TP-105(TC-WS) and be reclaimed underpile to belt BC-10 @ TP-106(LO-UC) or material from belt BC-02 could transfer to stockpile OS-17 @ TP-107(TC-WS) and be reclaimed underpile to belt BC-10 @ TP-108(LO-UC).

Modification March 2015:

Raw coal belt BC-12 was never constructed and is deleted with this modification; changes throughput and rate for met or middlings plant from 100TPH to 400TPH or 3,500,000 tons; adds breaker CR-12 to clean coal direct ship system as modified in Administrative Update in 2009 which makes CR-05 a secondary crusher.

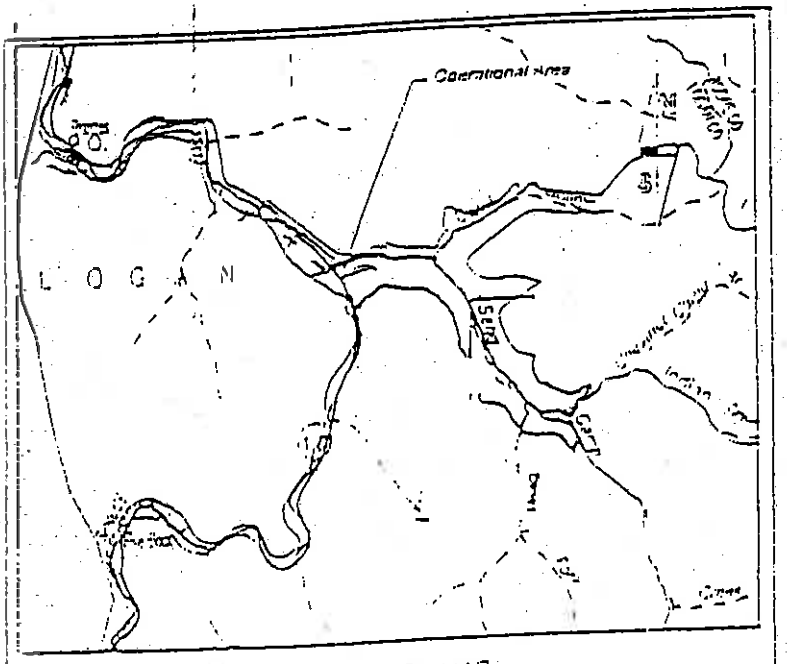
ATTACHMENT C

FUGITIVE EMISSIONS/DUST CONTROL MEASURES

Potential sources of fugitive particulate emissions for this facility include emissions, which are not captured by pollution control equipment and emissions from open stockpiles and vehicular traffic on paved haulroads and unpaved work areas. Water sprays will control stockpile emissions. Fugitive coal dust emissions are addressed in the approved control plan.

All conveyor belts associated with the plant will be at least partially enclosed and the transfer points are fully enclosed.

An additive to prevent freezing will be utilized in the winter months when freezing conditions are present.



LOCATION MAP
SCALE: 1" = 1 MILE

CLOTHIER QUAD

LOGAN COUNTY
EAST DISTRICT

SHARPLES WA NEAREST P.O.

CRUSHING AND SCREENING AFFECTED SOURCE SHEET

		Hyd. Breaker	Sizer	Sizer	Stamler	
Source Identification Number[1]		CR-01	CR-02	CR-03	CR-04	CR-05
Type of Crusher or Screen[2]		RB	OTH	OTH	Breaker	DR
Date of Manufacture[3]		2005	2005	2005	2007	2007
Maximum Throughput[4]	tons/hour	1000	2300	1000	1500	400
	tons/year	3,500,000	16,393,143	3,500,000	3,500,000	3,500,000
Material sized from/to:[5]		8x0	8x0	8x0	12x0	2x0
Average Moisture Content (%)[6]		6	6	5	5	5
Control Device ID Number[7]		CS-FW	CS-FW	CS-FE	CS-FE	CS-FW
Baghouse Stack Parameters[8]	height (ft)					
	diameter (ft)					
	volume (ACFM)					
	exit temp (°F)					
	UTM Coordinates					
Maximum Operating Schedule[9]	hours/day	24	24	24	24	24
	days/year	365	365	365	365	365
	hours/year	8760	8760	8760	8760	8760
Percentage of Operation[10]	January-March	25	25	25	25	25
	April-June	25	25	25	25	25
	July-September	25	25	25	25	25
	Oct-December	25	25	25	25	25

1. Enter the appropriate Source Identification Number for each crusher and screen. For example, in the case of an operation which incorporates multiple crushers, the crushers should be designated CR-1, CR-2, CR-3 etc. beginning with the breaker or primary crusher. Multiple screens should be designated S-1, S-2, S-3 etc.
2. Describe types of crushers and screens using the following codes:

HM	Hammermill	SS	Stationary Screen
DR	Double Roll Crusher	SD	Single Deck Screen
BM	Ball Mill	DD	Double-Deck Screen
RB	Rotary Breaker	TD	Triple Deck Screen
JC	Jaw Crusher	OT	Other
GC	Gyratory Crusher		
OT	Other - ***Sizer***		

3. Enter the date that each crusher and screen was manufactured.
4. Enter the maximum throughput for each crusher and screen in tons per hour and tons per year.
5. Describe the nominal material size reduction (e.g. +2"/ -_").
6. Enter the average percent moisture content of the material processed.
7. Enter the appropriate Control Device Identification Number for each crusher and screen. Refer to Table A - *Control Device Listing* and *Control Device Identification Number Instructions* in the *Reference Document* for Control Device ID prefixes and numbering.
8. Enter the appropriate stack parameters if a baghouse control device is used.
9. Enter the maximum operating schedule for each crusher and screen in hours per day, days per year and hours per year.
10. Enter the estimated percentage of operation throughout the year for each crusher and screen.

CRUSHING AND SCREENING AFFECTED SOURCE SHEET

Source Identification Number[1]		CR-06	Plant CR-07	Plant CR-08	Plant CR-09	Met Plant CR-10
Type of Crusher or Screen[2]		DR	DR	DR	DR	DR
Date of Manufacture[3]		2009	2005/2011	2005/2011	2005/2011	2007/2011
Maximum Throughput[4]	tons/hour	1000	250	250	250	400
	tons/year	8,760,000	2,190,000	2,190,000	2,190,000	3,500,000
Material sized from/to:[5]		6x0	+2x0	+2x0	+2x0	+2x0
Average Moisture Content (%)[6]		5				
Control Device ID Number[7]		FW	FW	FW	FW	FW
Baghouse Stack Parameters[8]	height (ft)					
	diameter (ft)					
	volume (ACFM)					
	exit temp (°F)					
	UTM Coordinates					
Maximum Operating Schedule[9]	hours/day	24	24	24	24	24
	days/year	365	365	365	365	365
	hours/year	8760	8760	8760	8760	8760
Percentage of Operation[10]	January-March	25	25	25	25	25
	April-June	25	25	25	25	25
	July-September	25	25	25	25	25
	Oct-December	25	25	25	25	25

1. Enter the appropriate Source Identification Number for each crusher and screen. For example, in the case of an operation which incorporates multiple crushers, the crushers should be designated CR-1, CR-2, CR-3 etc. beginning with the breaker or primary crusher. Multiple screens should be designated S-1, S-2, S-3 etc.
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BM	Ball Mill	DD	Double-Deck Screen
RB	Rotary Breaker	TD	Triple Deck Screen
JC	Jaw Crusher	OT	Other
GC	Gyratory Crusher		
OT	Other - ***Sizer***		

3. Enter the date that each crusher and screen was manufactured.
4. Enter the maximum throughput for each crusher and screen in tons per hour and tons per year.
5. Describe the nominal material size reduction (e.g. +2"/ -_").
6. Enter the average percent moisture content of the material processed.
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8. Enter the appropriate stack parameters if a baghouse control device is used.
9. Enter the maximum operating schedule for each crusher and screen in hours per day, days per year and hours per year.
10. Enter the estimated percentage of operation throughout the year for each crusher and screen.

CRUSHING AND SCREENING AFFECTED SOURCE SHEET

Source Identification Number[1]		CR-11	CR-12			
Type of Crusher or Screen[2]		Breaker	Breaker			
Date of Manufacture[3]		2011	2015			
Maximum Throughput[4]	tons/hour	1000	400			
	tons/year	3,500,000	3,500,000			
Material sized from/to:[5]		6x0	6x0			
Average Moisture Content (%)[6]		5	5			
Control Device ID Number[7]		FW	FW			
Baghouse Stack Parameters[8]	height (ft)					
	diameter (ft)					
	volume (ACFM)					
	exit temp (°F)					
	UTM Coordinates					
Maximum Operating Schedule[9]	hours/day	24	24			
	days/year	365	365			
	hours/year	8760	8760			
Percentage of Operation[10]	January-March	25	25			
	April-June	25	25			
	July-September	25	25			
	Oct-December	25	25			

1. Enter the appropriate Source Identification Number for each crusher and screen. For example, in the case of an operation which incorporates multiple crushers, the crushers should be designated CR-1, CR-2, CR-3 etc. beginning with the breaker or primary crusher. Multiple screens should be designated S-1, S-2, S-3 etc.
2. Describe types of crushers and screens using the following codes:

HM	Hammermill	SS	Stationary Screen
DR	Double Roll Crusher	SD	Single Deck Screen
BM	Ball Mill	DD	Double-Deck Screen
RB	Rotary Breaker	TD	Triple Deck Screen
JC	Jaw Crusher	OT	Other
GC	Gyratory Crusher		
OT	Other - ***Sizer***		

3. Enter the date that each crusher and screen was manufactured.
4. Enter the maximum throughput for each crusher and screen in tons per hour and tons per year.
5. Describe the nominal material size reduction (e.g. +2"/ -_").
6. Enter the average percent moisture content of the material processed.
7. Enter the appropriate Control Device Identification Number for each crusher and screen. Refer to Table A - *Control Device Listing* and *Control Device Identification Number Instructions* in the *Reference Document* for Control Device ID prefixes and numbering.
8. Enter the appropriate stack parameters if a baghouse control device is used.
9. Enter the maximum operating schedule for each crusher and screen in hours per day, days per year and hours per year.
10. Enter the estimated percentage of operation throughout the year for each crusher and screen.

CONVEYING AFFECTED SOURCE SHEET

Source Identification Number[1]	Date of Manufacture[2]	Type of Material Handled[3]	Size of Material Handled[4]	Maximum Material Transfer Rate[5]		Average Moisture Content (%)[6]	Control Device[7]
				tons/hour	tons/year		
BC-01	2005	RC	4x0	7000	12,893,143	6	FE
BC-02	2005	RC	4x0	7000	12,893,143	6	PE
BC-03	2005	RC	4x0	7000	12,893,143	6	PE
BC-04	2005	RC	4x0	7000	12,893,143	6	PE
BC-05	2005	RC	4x0	7000	12,893,143	6	PE
BC-06	2005	RC	4x0	1000	3,500,000	6	PE
BC-07	delete						
BC-08	delete						
BC-09	delete						
BC-10	2005	RC	2x0	2300	16,393,413	6	FE
BC-11	2005	RC	2x0	2300	16,393,413	6	PE
BC-12	delete						
BC-13	2005	RC	2x0	2300	16,393,413	6	PE
BC-14	2005	CC	2x0	1000	3,500,000	5	PE
BC-15	2005	CC	2x0	1500	9,016,229	7	PE
BC-16	2005	CC	2x0	1500	9,016,229	7	PE
BC-17	2005	CC	2x0	1500	9,016,229	7	PE
BC-18	2005	CC	2x0	1500	9,016,229	7	PE
BC-19	2005	CC	2x0	400	3,500,000	7	PE
BC-20	2005	CC	2x0	400	3,500,000	7	PE

Belts are listed at maximum rated tons per hour

CONVEYING AFFECTED SOURCE SHEET

Source Identification Number[1]	Date of Manufacture[2]	Type of Material Handled[3]	Size of Material Handled[4]	Maximum Material Transfer Rate[5]		Average Moisture Content (%)[6]	Control Device[7]
				tons/hour	tons/year		
BC-21	2005	CC	2x0	400	3,500,000	7	PE
BC-22	2005	CC	2x0	400	3,500,000	7	PE
BC-23	2005	CC	2x0	400	3,500,000	7	PE
BC-24	2005	CC	2x0	400	3,500,000	7	PE
BC-25	2005	CC	2x0	400	3,500,000	7	PE
BC-26	2005	CC	2x0	1500	3,500,000	7	PE
BC-27	2005	CC	2x0	5,000	12,516,229	7	FE
BC-28	2005	CC	2x0	6,000	12,516,229	7	FE
BC-29	2005	Refuse	-2	1500	7,376,914	10	PE
BC-30	2005	Refuse	-2	1500	1,000,000	10	PE
BC-31	2005	Refuse	-2	1500	7,376,914	10	PE
BC-32	2005	Refuse	-2	1500	7,376,914	10	PE
BC-33	2005	Refuse	-2	1500	7,376,914	10	PE
BC-34	2005	Refuse	-2	1500	7,376,914	10	PE
BC-35	2005	Refuse	-2	1500	7,376,914	10	PE
BC-36	2005	Refuse	-2	1500	7,376,914	10	PE
BC-37	2007	RC	12x0	1500	3,500,000	5	NC
BC-38	2007	CC	2x0	400	3,500,000	5	NC
BC-39	2009	CC	2x0	1000	8,760,000	5	PE
BC-40	2009	CC	2x0	1000	8,760,000	5	PE

Belts are listed at maximum rated tons per hour

CONVEYING AFFECTED SOURCE SHEET

Source Identification Number[1]	Date of Manufacture[2]	Type of Material Handled[3]	Size of Material Handled[4]	Maximum Material Transfer Rate[5]		Average Moisture Content (%)[6]	Control Device[7]
				tons/hour	tons/year		
BC-41	**2009**	**CC**	**2x0**	**1500**	**876,000**	**7**	**PE**
BC-42	**2009**	**CC**	**2x0**	**400**	**3,500,000**	**5**	**NC**
BC-43	**2009**	**CC**	**2x0**	**400**	**3,500,000**	**5**	**NC**
BC-44	**2011**	**Refuse**	**-1 3/8**	**1500**	**7,376,914**	**10**	**PE**
BC-45	**2011**	**RC**	**2x0**	**1000**	**3,500,000**	**5**	**PE**

Belts are listed at maximum rated tons per hour

STORAGE ACTIVITY AFFECTED SOURCE SHEET

Source Identification Number[1]	OS-01	OS-02	OS-03	OS-04	OS-05	OS-06
Type of Material Stored[2]	RC	RC	RC	RC	deleted	deleted
Average Moisture Content (%)[3]	6	6	6	6		
Maximum Yearly Storage Throughput (tons)[4]	12,893,143	12,893,143	12,893,143	12,893,143		
Maximum Storage Capacity (tons)[5]	150,000	150,000	150,000	150,000		
Maximum Base Area (ft^2)[6]	288,869	288,869	288,869	288,869		
Maximum Pile Height (ft)[7]	80'	80'	80'	80'		
Method of Material Load-in[8]	SS	SS	SS	SS		
Load-in Control Device Identification Number[9]	TC-FE	TC-FE	TC-FE	TC-FE		
Storage Control Device Identification Number[9]	SW-WS	SW-WS	SW-WS	SW-WS		
Method of Material Load-out[8]	UC	UC	UC	UC		
Load-out Control Device Identification Number[9]	LO-UC	LO-UC	LO-UC	LO-UC		

1. Enter the appropriate Source Identification Number for each storage activity using the following codes. For example, if the facility utilizes three storage bins, four open stockpiles and one storage building (full enclosure), the Source Identification Numbers should be BS-1, BS-2, and BS-3; OS-1, OS-2, OS-3, and OS-4; and SB-1, respectively.
   - BS Bin or Storage Silo (full enclosure)
   - OS Open Stockpile
   - SF Stockpiles with wind fences
   - E3 Enclosure (three sided enclosure)
   - SB Storage Building (full enclosure)
   - OT Other

2. Describe the type of material stored or stockpiled (e.g. clean coal, raw coal, refuse, etc).

3. Enter the average percent moisture content of the stored material.

4. Enter the maximum yearly storage throughput for each storage activity.

5. Enter the maximum storage capacity for each storage activity in tons (e.g. silo capacity, maximum stockpile size, etc.)

6. For stockpiles, enter the maximum stockpile base area.

7. For stockpiles, enter the maximum stockpile height.

8. Enter the method of load-in or load-out to/from stockpiles or bins using the following codes:
   - CS Clamshell
   - FC Fixed Height Chute from Bins
   - FE Front-end Loader
   - MC Mobile Conveyor/Stacker
   - UC Under-pile or Under-Bin Reclaim Conveyor
   - RC Bucket Wheel Reclaimer
   - SS Stationary Conveyor/Stacker
   - ST Stacking Tube
   - TC Telescoping Chute from Bins
   - TD Truck Dump
   - PC Pneumatic Conveyor/Stacker
   - OT Other

STORAGE ACTIVITY AFFECTED SOURCE SHEET

Source Identification Number[1]	OS-07	OS-08	OS-09	OS-10	OS-11	OS-12
Type of Material Stored[2]	deleted	CC	CC	CC	CC	CC
Average Moisture Content (%)[3]		7	7	7	7	7
Maximum Yearly Storage Throughput (tons)[4]		12,516,229	12,516,229	12,516,229	12,516,229	3,500,000
Maximum Storage Capacity (tons)[5]		100,000	100,000	100,000	100,000	100,000
Maximum Base Area (ft^2)[6]		188,869	188,869	188,869	188,869	188,869
Maximum Pile Height (ft)[7]		80'	80'	80'	80'	80'
Method of Material Load-in[8]		SS	SS	SS	SS	SS
Load-in Control Device Identification Number[9]		TC-FE	TC-FE	TC-FE	TC-FE	TC-FE
Storage Control Device Identification Number[9]		SW-WS	SW-WS	SW-WS	SW-WS	SW-WS
Method of Material Load-out[8]		UC	UC	UC	UC	UC
Load-out Control Device Identification Number[9]		LO-UC	LO-UC	LO-UC	LO-UC	LO-UC

1. Enter the appropriate Source Identification Number for each storage activity using the following codes. For example, if the facility utilizes three storage bins, four open stockpiles and one storage building (full enclosure), the Source Identification Numbers should be BS-1, BS-2, and BS-3; OS-1, OS-2, OS-3, and OS-4; and SB-1, respectively.
   - BS Bin or Storage Silo (full enclosure)
   - OS Open Stockpile
   - SF Stockpiles with wind fences
   - E3 Enclosure (three sided enclosure)
   - SB Storage Building (full enclosure)
   - OT Other
2. Describe the type of material stored or stockpiled (e.g. clean coal, raw coal, refuse, etc).
3. Enter the average percent moisture content of the stored material.
4. Enter the maximum yearly storage throughput for each storage activity.
5. Enter the maximum storage capacity for each storage activity in tons (e.g. silo capacity, maximum stockpile size, etc.)
6. For stockpiles, enter the maximum stockpile base area.
7. For stockpiles, enter the maximum stockpile height.
8. Enter the method of load-in or load-out to/from stockpiles or bins using the following codes:
   - CS Clamshell
   - FC Fixed Height Chute from Bins
   - FE Front-end Loader
   - MC Mobile Conveyor/Stacker
   - UC Under-pile or Under-Bin Reclaim Conveyor
   - RC Bucket Wheel Reclaimer
   - SS Stationary Conveyor/Stacker
   - ST Stacking Tube
   - TC Telescoping Chute from Bins
   - TD Truck Dump
   - PC Pneumatic Conveyor/Stacker
   - OT Other

STORAGE ACTIVITY AFFECTED SOURCE SHEET

Source Identification Number[1]	OS-13	OS-14	OS-15	OS-16	OS-17
Type of Material Stored[2]	Refuse	CC	RC	RC	RC
Average Moisture Content (%)[3]	10	5	6	6	6
Maximum Yearly Storage Throughput (tons)[4]	1,000,000	3,500,000	3,500,000	3,500,000	3,500,000
Maximum Storage Capacity (tons)[5]	3,000	5,000	10,000	50,000	50,000
Maximum Base Area (ft^2)[6]	4,869	8,869	18,869	88,869	88,869
Maximum Pile Height (ft)[7]	30'	35'	45'	80'	80'
Method of Material Load-in[8]	SS	SS	TD	SS	SS
Load-in Control Device Identification Number[9]	TC-MDH	TC-MDH	UL-MDH	TC-WS	TC-WS
Storage Control Device Identification Number[9]	SW-WS	SW-WS	SW-WS	SW-WS	SW-WS
Method of Material Load-out[8]	Loader	Loader	Loader	UC	UC
Load-out Control Device Identification Number[9]	LO-MDH	UD-MDH	UD-PW	LO-UC	LO-UC

1. Enter the appropriate Source Identification Number for each storage activity using the following codes. For example, if the facility utilizes three storage bins, four open stockpiles and one storage building (full enclosure), the Source Identification Numbers should be BS-1, BS-2, and BS-3; OS-1, OS-2, OS-3, and OS-4; and SB-1, respectively.
   - BS Bin or Storage Silo (full enclosure)
   - OS Open Stockpile
   - SF Stockpiles with wind fences
   - E3 Enclosure (three sided enclosure)
   - SB Storage Building (full enclosure)
   - OT Other
2. Describe the type of material stored or stockpiled (e.g. clean coal, raw coal, refuse, etc).
3. Enter the average percent moisture content of the stored material.
4. Enter the maximum yearly storage throughput for each storage activity.
5. Enter the maximum storage capacity for each storage activity in tons (e.g. silo capacity, maximum stockpile size, etc.)
6. For stockpiles, enter the maximum stockpile base area.
7. For stockpiles, enter the maximum stockpile height.
8. Enter the method of load-in or load-out to/from stockpiles or bins using the following codes:
   - CS Clamshell
   - FC Fixed Height Chute from Bins
   - FE Front-end Loader
   - MC Mobile Conveyor/Stacker
   - UC Under-pile or Under-Bin Reclaim Conveyor
   - RC Bucket Wheel Reclaimer
   - SS Stationary Conveyor/Stacker
   - ST Stacking Tube
   - TC Telescoping Chute from Bins
   - TD Truck Dump
   - PC Pneumatic Conveyor/Stacker
   - OT Other

STORAGE ACTIVITY AFFECTED SOURCE SHEET

Source Identification Number[1]	BS-01	BS-02	BS-03	BS-04	BS-05	BS-06
Type of Material Stored[2]	Raw Coal	Clean Coal	Clean Coal Rail Surge	Clean Coal Weigh Bin	Lime	CC
Average Moisture Content (%)[3]	6	6	7	7	4	5
Maximum Yearly Storage Throughput (tons)[4]	3,500,000	3,500,000	12,516,229	12,516,229	20,000	3,500,000
Maximum Storage Capacity (tons)[5]	150	150	300	125	100	30
Maximum Base Area (ft^2)[6]	N/A					
Maximum Pile Height (ft)[7]						
Method of Material Load-in[8]	TD	TD	SS	SS	OTH	FE
Load-in Control Device Identification Number[9]	UD-PW	UD-PW	TC-FE	TC-FE	TC-FE	UD-PW
Storage Control Device Identification Number[9]	SW-PW	SW-PW	SW-FE	SW-FE	SW-FE	SW-PW
Method of Material Load-out[8]	UC	UC	UC	TC	FC	UC
Load-out Control Device Identification Number[9]	LO-UC	LO-UC	LO-UC	LR-TC	LO-FC	TC-PW

1. Enter the appropriate Source Identification Number for each storage activity using the following codes. For example, if the facility utilizes three storage bins, four open stockpiles and one storage building (full enclosure), the Source Identification Numbers should be BS-1, BS-2, and BS-3; OS-1, OS-2, OS-3, and OS-4; and SB-1, respectively.
   - BS Bin or Storage Silo (full enclosure)
   - OS Open Stockpile
   - SF Stockpiles with wind fences
   - E3 Enclosure (three sided enclosure)
   - SB Storage Building (full enclosure)
   - OT Other
2. Describe the type of material stored or stockpiled (e.g. clean coal, raw coal, refuse, etc).
3. Enter the average percent moisture content of the stored material.
4. Enter the maximum yearly storage throughput for each storage activity.
5. Enter the maximum storage capacity for each storage activity in tons (e.g. silo capacity, maximum stockpile size, etc.)
6. For stockpiles, enter the maximum stockpile base area.
7. For stockpiles, enter the maximum stockpile height.
8. Enter the method of load-in or load-out to/from stockpiles or bins using the following codes:
   - CS Clamshell
   - FC Fixed Height Chute from Bins
   - FE Front Endloader
   - MC Mobile Conveyor/Stacker
   - UC Under-pile or Under-Bin Reclaim Conveyor
   - RC Rake or Bucket Reclaim Conveyor
   - SS Stationary Conveyor/Stacker
   - ST Stacking Tube
   - TC Telescoping Chute from Bins
   - TD Truck Dump
   - PC Pneumatic Conveyor/Stacker

OT Other – HYDRAULIC OFFLOAD FROM TRUCK

STORAGE ACTIVITY AFFECTED SOURCE SHEET

Source Identification Number[1]	**BS-07**	**BS-08**				
Type of Material Stored[2]	**Clean Coal**	**RC**				
Average Moisture Content (%)[3]	**5**	**5**				
Maximum Yearly Storage Throughput (tons)[4]	**8,760,000**	**3,500,000**				
Maximum Storage Capacity (tons)[5]	**200**	**150**				
Maximum Base Area (ft^2)[6]	**N/A**					
Maximum Pile Height (ft)[7]						
Method of Material Load-in[8]	**TD**	**TD**				
Load-in Control Device Identification Number[9]	**UD-PW**	**UD-PW**				
Storage Control Device Identification Number[9]	**SW-PW**	**SW-PW**				
Method of Material Load-out[8]	**UC**	**UC**				
Load-out Control Device Identification Number[9]	**TC-FE**	**TC-FW**				

1. Enter the appropriate Source Identification Number for each storage activity using the following codes. For example, if the facility utilizes three storage bins, four open stockpiles and one storage building (full enclosure), the Source Identification Numbers should be BS-1, BS-2, and BS-3; OS-1, OS-2, OS-3, and OS-4; and SB-1, respectively.
   - BS Bin or Storage Silo (full enclosure)
   - OS Open Stockpile
   - SF Stockpiles with wind fences
   - E3 Enclosure (three sided enclosure)
   - SB Storage Building (full enclosure)
   - OT Other
2. Describe the type of material stored or stockpiled (e.g. clean coal, raw coal, refuse, etc).
3. Enter the average percent moisture content of the stored material.
4. Enter the maximum yearly storage throughput for each storage activity.
5. Enter the maximum storage capacity for each storage activity in tons (e.g. silo capacity, maximum stockpile size, etc.)
6. For stockpiles, enter the maximum stockpile base area.
7. For stockpiles, enter the maximum stockpile height.
8. Enter the method of load-in or load-out to/from stockpiles or bins using the following codes:
   - CS Clamshell
   - FC Fixed Height Chute from Bins
   - FE Front Endloader
   - MC Mobile Conveyor/Stacker
   - UC Under-pile or Under-Bin Reclaim Conveyor
   - RC Rake or Bucket Reclaim Conveyor
   - SS Stationary Conveyor/Stacker
   - ST Stacking Tube
   - TC Telescoping Chute from Bins
   - TD Truck Dump
   - PC Pneumatic Conveyor/Stacker
   - **OT Other – HYDRAULIC OFFLOAD FROM TRUCK**

BAGHOUSE AIR POLLUTION CONTROL DEVICE SHEET

Not applicable for this facility

Complete a Baghouse Air Pollution Control Device Sheet for each baghouse control device.

1. Baghouse Control Device Identification Number:
2. Manufacturer's name and model identification:
3. Number of compartments in baghouse:
4. Number of compartments online during normal operation and conditions:
5. Gas flow rate into baghouse: _____ ACFM @ _____ °F and _____ PSIA
6. Total cloth area: _____ ft^2
7. Operating air to cloth ratio: _____ ft/min
8. Filter media type: _____
9. Stabilized static pressure drop across baghouse: _____ inches H_2O
10. Baghouse operation is:

    ☐ Continuous ☐ Automatic ☐ Intermittent
11. Method used to clean bags:

    ☐ Shaker ☐ Pulse jet ☐ Reverse jet ☐ Other
12. Emission rate of particulate matter entering and exiting baghouse at maximum design operating conditions:

    Entering baghouse:_____ lb/hr and _____ grains/ACF

    Exiting baghouse: _____ lb/hr and _____ grains/ACF
13. Guaranteed minimum baghouse collection efficiency: _____ %
14. Provide a written description of the capture system (e.g. hooding and ductwork arrangement), size of ductwork and hoods and air volume, capacity and operating horsepower of fan:
15. Describe the method of disposal for the collected material:

    _____

INPUTS

Include all information for each emission source and transfer point as listed in the permit application.

Name of applicant: Mingo Logan Coal Co.
Name of plant: Cardinal Prep Plant
Mar-15

1. CRUSHING AND SCREENING (including all primary and secondary crushers and screens)

1a. PRIMARY CRUSHING

Primary Crusher ID Number	Description	Maximum Material Processing Capacity TPH	Maximum Material Processing Capacity TPY	Control Device ID Number	Control Efficiency %	
CR-01	Breaker	1,000	3,500,000	FW	90	
CR-02	Sizer	2,300	16,393,413	FW	90	
CR-03	Sizer	1,000	3,500,000	FE	80	
CR-04	Breaker	1,500	3,500,000	FE	80	
CR-06	DR	1,000	8,760,000	FW	90	
CR-07	Plant McClanahan	250	2,190,000	FW	90	
CR-08	Plant McClanahan	250	2,190,000	FW	90	
CR-09	Plant McClanahan	250	2,190,000	FW	90	
CR-10	Met Plant Gunlach	400	3,500,000	FW	90	Change
CR-11	Breaker	1,000	3,500,000	FW	90	
CR-12	Breaker	400	3,500,000	FW	90	Add

1b. SECONDARY AND TERTIARY CRUSHING

Secondary & Tertiary Crusher ID	Description	Maximum Material Processing Capacity TPH	Maximum Material Processing Capacity TPY	Control Device ID Number	Control Efficiency %
CR-05	DR	400	3,500,000	FW	90

1c. SCREENING

Secondary & Tertiary Crusher ID	Description	Maximum Material Processing Capacity TPH	Maximum Material Processing Capacity TPY	Control Device ID Number	Control Efficiency %

2. TRANSFER POINTS (including all conveyor transfer points, equipment transfer points etc.)

		PM	PM-10
k =	Particle Size Multiplier (dimensionless)	0.74	0.35
U =	Mean Wind Speed (mph)	7	

Transfer Point ID No.	Transfer Point Description Include ID Numbers of all conveyors, crushers, screens, stockpiles, etc. involved	Material Moisture Content %	Maximum Transfer Rate TPH	Maximum Transfer Rate TPY	Control Device ID Number	Control Efficiency %	
TP-01	ROM to Belt BC-01	6	7,000	12,893,143	TC-FE	80	
TP-02	Belt BC-01 to Belt BC-02	6	7,000	12,893,143	TC-FE	80	
TP-03	Belt BC-02 to Stockpile OS-01	6	7,000	12,893,143	TC-FE	80	
TP-04	Belt BC-02 to Belt BC-03	6	7,000	12,893,143	TC-FE	80	
TP-05	Belt BC-03 to Stockpile OS-02	6	7,000	12,893,143	TC-FE	80	
TP-06	Belt BC-03 to Belt BC-04	6	7,000	12,893,143	TC-FE	80	
TP-07	Belt BC-04 to Stockpile OS-03	6	7,000	12,893,143	TC-FE	80	
TP-08	Belt BC-04 to Belt BC-05	6	7,000	12,893,143	TC-FE	80	
TP-09	Belt BC-05 to Stockpile OS-04	6	7,000	12,893,143	TC-FE	80	
TP-10	Truck to Bin BS-01	6	1,000	3,500,000	UD-PW	85	
TP-11	Bin BS-01 to Breaker CR-01	6	1,000	3,500,000	TC-PW	85	
TP-12	Breaker to Belt BC-06	6	1,000	3,500,000	TC-FE	80	
TP-13	Belt BC-06 to OS-04	6	1,000	3,500,000	TC-FE	80	
TP-14	delete						
TP-15	delete						
TP-16	delete						
TP-17	delete						
TP-18	delete						
TP19	delete						
TP20	Stockpile OS-01 to Belt BC-10	6	2,300	16,393,143	LO-UC	80	
TP21	Stockpile OS-02 to Belt BC-10	6	2,300	16,393,143	LO-UC	80	
TP22	Stockpile OS-03 to Belt BC-10	6	2,300	16,393,143	LO-UC	80	
TP23	Stockpile OS-04 to Belt BC-10	6	2,300	16,393,143	LO-UC	80	
TP24	Belt BC-10 to Belt BC-11	6	2,300	16,393,143	TC-FE	80	
TP25	Belt BC-11 to Sizer CR-02	6	2,300	16,393,143	TC-FE	80	
TP26	Delete						
TP27	Sizer CR-02 to Belt BC-13	6	2,300	16,393,143	TC-FE	80	
TP28	Delete						
TP29	Belt BC-13 to Plant	6	2,300	16,393,143	TC-WW	100	
TP30	Plant to BC-15	7	1,500	9,016,229	TC-WW	100	
TP31	Belt BC-15 to OS-08	7	1,500	9,016,229	TC-FE	80	
TP32	Belt BC-15 to Belt BC-16	7	1,500	9,016,229	TC-FE	80	
TP33	Belt BC-16 to OS-09	7	1,500	9,016,229	TC-FE	80	
TP34	Belt BC-16 to Belt BC-17	7	1,500	9,016,229	TC-FE	80	
TP35	Belt BC-17 to OS-10	7	1,500	9,016,229	TC-FE	80	
TP36	Belt BC-17 to Belt BC-18	7	1,500	9,016,229	TC-FE	80	
TP37	Belt BC-18 to OS-11	7	1,500	9,016,229	TC-FE	80	
TP38	Truck to BS-02	5	1,000	3,500,000	UD-PE	50	
TP39	Bin BS-02 to Sizer CR-03	5	1,000	3,500,000	TC-FE	80	
TP40	Sizer CR-03 to Belt BC-14	5	1,000	3,500,000	TC-FE	80	
TP41	Belt BC-14 to OS-11 or BC-25	5	1,000	3,500,000	TC-FE	80	
TP42	Plant to BC-19	7	400	3,500,000	TC-WW	100	CHANGE
TP43	Belt BC-19 to Rewash Plant	7	400	3,500,000	TC-WW	100	CHANGE
TP44	Rewash Plant to Belt BC-20	7	400	3,500,000	TC-WW	100	CHANGE
TP45	Belt BC-20 to Prep Plant	7	400	3,500,000	TC-WW	100	CHANGE
TP46	Rewash Plant to Belt BC-21	7	400	3,500,000	TC-WW	100	CHANGE
TP47	Belt BC-21 to Belt BC-22	7	400	3,500,000	TC-FE	80	CHANGE
TP48	Belt BC-22 to Belt BC-23	7	400	3,500,000	TC-FE	80	CHANGE
TP49	Belt BC-23 to Belt BC-24	7	400	3,500,000	TC-FE	80	CHANGE
TP50	Belt BC-24 to Belt BC-25	7	400	3,500,000	TC-FE	80	CHANGE
TP51	Belt BC-25 to OS-12	7	400	3,500,000	TC-PE	50	CHANGE
TP52	OS-12 to Belt BC-26	7	1,500	3,500,000	LO-UC	80	CHANGE
TP53	OS-08 to Belt BC-27	7	1,500	12,516,229	LO-UC	80	
TP54	OS-09 to Belt BC-27	7	1,500	12,516,229	LO-UC	80	
TP55	OS-10 to Belt BC-27	7	1,500	12,516,229	LO-UC	80	
TP56	OS-11 to Belt BC-27	7	1,500	12,516,229	LO-UC	80	
TP57	Belt BC-26 to Belt BC-41	7	1,500	876,000	TC-FE	80	
TP58	Belt BC-27 to Belt BC-28	7	5,000	12,516,229	TC-FE	80	
TP59	Belt BC-28 to Surge Bin BS-03	7	6,000	12,516,229	TC-FE	80	

TP-60	Surge Bin BS-03 to Bin BS-04	7	6,000	12,516,229	TC-FE	80	
TP-61	BS-04 to Railcar	7	6,000	12,516,229	LR-TC	75	
TP-62	Plant to BC-29	10	1,500	7,376,914	TC-WW	100	
TP-63	Lime Bin to Belt BC-29	4	6	50,000	TC-PE	50	
TP-64	Belt BC-29 to Belt BC-30	10	1,500	1,000,000	TC-FE	80	
TP-65	Belt BC-30 to OS-13	10	1,500	1,000,000	TC-MDH	0	
TP-66	OS-13 to Truck	10	114	1,000,000	LO-MDH	0	
TP-67	Truck to Disposal Area	10	114	1,000,000	UL-NC	0	
TP-68	Belt BC-29 to Belt BC-31	10	1,500	7,376,914	TC-FE	80	
TP-69	Belt BC-31 to Belt BC-32	10	1,500	7,376,914	TC-FE	80	
TP-70	Belt BC-32 to Ground	10	1,500	7,376,914	TC-MDH	0	
TP-71	Belt BC-31 to Belt BC-33	10	1,500	7,376,914	TC-FE	80	
TP-72	Belt BC-33 to Belt BC-34	10	1,500	7,376,914	TC-FE	80	
TP-73	Belt BC-34 to Ground	10	1,500	7,376,914	TC-MDH	0	
TP-74	Belt BC-33 to Belt BC-35	10	1,500	7,376,914	TC-FE	80	
TP-75	Belt BC-35 to Belt BC-36	10	1,500	7,376,914	TC-FE	80	
TP-76	Belt BC-36 to Ground	10	1,500	7,376,914	TC-MDH	0	
TP-77	Truck to Feeder/Breaker CR-04	5	1,500	3,500,000	UL-MDH	0	
TP-78	CR-04 to BC-37	5	1,500	3,500,000	TC-FE	80	
TP-79	BC-37 to Existing RC Stockpile Area	5	1,500	3,500,000	TC-MDH	0	
TP-80	Truck to OS-14	5	400	3,500,000	UL-MDH	0	
TP-81	OS-14 to BS-06	5	400	3,500,000	UD-PW	85	
TP-82	BS-06 to BC-42	5	400	3,500,000	TC-FE	80	
TP-83	CR-05 to BC-43	5	400	3,500,000	TC-PW	85	
TP-84	BC-38 to Existing CC Stockpile Area	5	400	3,500,000	TC-MDH	0	
TP-85	Truck to BS-07	5	1,000	8,760,000	UD-PW	85	
TP-86	BS-07 to BC-39	5	1,000	8,760,000	TC-FE	80	
TP-87	BC-39 to CR-06	5	1,000	8,760,000	TC-FE	80	
TP-88	CR-06 to BC-40	5	1,000	8,760,000	TC-FE	80	
TP-89	BC-40 to OS-11	5	1,000	8,760,000	TC-FE	80	
TP-90	Belt BC-41 to BC-27	7	1,500	876,000	TC-FE	80	
TP-91	BC-42 to CR-05	5	400	3,500,000	TC-FE	80	
TP-92	BC-43 to BC-38	5	400	3,500,000	TC-PE	50	
	March 2011 Modification						
TP-93	Plant Crusher CR-07 to BC-15	7	250	2,190,000	TC-FW	90	
TP94	Plant Crusher CR-08 to BC-15	7	250	2,190,000	TC-FW	90	
TP95	Plant Crusher CR-09 to BC-15	7	250	2,190,000	TC-FW	90	
TP96	Met Plant CR-10 to BC-21	7	400	3,500,000	TC-FW	90	Change
TP97	BC-35 to BC-44	10	1,500	7,376,914	TC-FE	80	
TP98	BC-44 to Ground	10	1,500	7,376,914	TC-MDH	0	
TP99	Truck to BS-08	6	1,000	3,500,000	TC-PW	85	
TP100	BS-08 to CR-11	6	1,000	3,500,000	TC-FW	90	
TP101	CR-11 to BC-45	6	1,000	3,500,000	TC-FE	80	
TP102	BC-45 to BC-05	6	1,000	3,500,000	TC-FE	80	
TP103	Truck to OS-15	6	400	3,500,000	UL-MDH	0	
TP104	OS-15 to BS-01	6	400	3,500,000	UD-PW	85	
	Modification 10-13						
TP105	BC-02 to OS-16	6	7,000	12,893,143	TC-WS	50	
TP106	OS-16 to BC-10	6	7,000	12,893,143	LO-UC	80	
TP107	BC-02 to OS-17	6	7,000	12,893,143	TC-WS	50	
TP108	OS-17 to BC-10	6	7,000	12,893,143	LO-UC	80	
	Modification 03-15						
TP-109	BS-06 TO CR-12	5	400	3,500,000	TC-FE	80	Add
TP-110	CR-12 TO BC-42	5	400	3,500,000	TC-FW	90	Add

3. WIND EROSION OF STOCKPILES (including all stockpiles of raw coal, clean coal, coal refuse, etc.)

p =	number of days per year with precipitation >0.01 inch	157
f =	percentage of time that the unobstructed wind speed exceeds 12 mph at the mean pile height	20

Source ID No.	Stockpile Description	Silt Content of Material %	Stockpile base area Max. sqft	Control Device ID Number	Control Efficiency %
OS-01	Raw Coal	5	288,869	SW-ST	75
OS-02	Raw Coal	5	288,869	SW-ST	75
OS-03	Raw Coal	5	288,869	SW-ST	75
OS-04	Raw Coal	5	288,869	SW-ST	75
OS-08	Clean Coal	3.5	188,869	SW-ST	75
OS-09	Clean Coal	3.5	188,869	SW-ST	75
OS-10	Clean Coal	3.5	188,869	SW-ST	75
OS-11	Clean Coal	3.5	188,869	SW-ST	75
OS-12	Clean Coal	3.5	188,869	SW-ST	75
OS-13	Refuse	1.5	4,869	SW-WS	75
OS-14	Clean Coal	3.5	8,869	SW-WS	75
OS-15	Raw Coal	5	18,869	SW-WS	75
OS-16	Raw Coal	5	88,869	SW-WS	75
OS-17	Raw Coal	5	88,869	SW-WS	75

4. UNPAVED HAULROADS (including all equipment traffic involved in process, haul trucks, endloaders, etc.)

s =	silt content of road surface material (%)	9
p =	number of days per year with precipitation >0.01 inch	157
M_{dry} =	surface material moisture content (%) - dry conditions	0.2

Item Number	Description	Number of wheels	Mean Vehicle Weight(tons)	Mean Vehicle Speed (mph)	Miles per Trip	Maximum Trips Per Hour	Maximum Trips Per Year	Control Device ID Number	Control Efficiency %
1	RC BS-01 3,500,000	18	50	15	0.25	7.99	70,000	HR-WS	70
2	RC BS08 3,500,000	18	50	15	0.25	7.99	70,000	HR-WS	70
3	Refuse 1,000,000	14	40	10	1	2.85	25,000	HR-WS	70
4	Dozers (pushing 8,760,000)	2	20	5	0.01	50	438,000	HR-WS	70
5									
6									
7									
8									

5. INDUSTRIAL PAVED HAULROADS (including all equipment traffic involved in process, haul trucks, endloaders, etc.)

sL =	road surface silt loading, (g/ft^2)	1
P =	number of days per year with precipitation >0.01 inch	157

Item Number	Description	Mean Vehicle Weight (tons)	Miles per Trip	Maximum Trips Per Hour	Maximum Trips Per Year	Control Device ID Number	Control Efficiency %
1	Raw Coal In	50	1.5	7.99	70,000	HR-WS	70
2	Direct Ship Clean Coal In	50	0.75	7.99	70,000	HR-WS	70
3	CC BS-07	50	0.75	20	175,200	HR-WS	70
4	CC BS-02	50	0.75	20	175,200	HR-WS	70
5							
6							
7							
8							

EMISSIONS SUMMARY

Name of applicant: Mingo Logan Coal Co.
Name of plant: Cardinal Prep Plant
Calcs 3-15

Particulate Matter or PM (for 45CSR14 Major Source Determination)

	Uncontrolled PM		Controlled PM	
	lb/hr	TPY	lb/hr	TPY
FUGITIVE EMISSIONS				
Stockpile Emissions	11.79	51.64	2.95	12.91
Unpaved Haulroad Emissions	98.10	429.91	29.43	128.97
Paved Haulroad Emissions	152.05	665.98	45.61	199.80
Fugitive Emissions Total	**261.93**	**1,147.53**	**77.99**	**341.68**
POINT SOURCE EMISSIONS				
Equipment Emissions	211.00	632.23	26.10	70.22
Transfer Point Emissions	150.02	267.14	38.44	65.50
Point Source Emissions Total*	**361.02**	**899.38**	**64.54**	**135.72**
*Note: Point Source Total Controlled PM TPY emissions is used for 45CSR14 Major Source determination (see below)				
Facility Emissions Total	**622.96**	**2,046.91**	**142.53**	**477.40**

***Facility Potential to Emit (PTE) (Baseline Emissions) = 135.72**

(Based on Point Source Total controlled PM TPY emissions from above) ENTER ON LINE 26 OF APPLICATION

Particulate Matter under 10 microns, or PM-10 (for 45CSR30 Major Source Determination)

	Uncontrolled PM-10		Controlled PM-10	
	lb/hr	TPY	lb/hr	TPY
FUGITIVE EMISSIONS				
Stockpile Emissions	5.54	24.27	1.39	6.07
Unpaved Haulroad Emissions	28.35	124.25	8.51	37.27
Paved Haulroad Emissions	29.51	129.24	8.85	38.77
Fugitive Emissions Total	**63.40**	**277.76**	**18.74**	**82.11**
POINT SOURCE EMISSIONS				
Equipment Emissions	99.17	297.15	12.27	33.01
Transfer Point Emissions	70.96	126.35	18.18	30.98
Point Source Emissions Total*	**170.13**	**423.50**	**30.45**	**63.98**
*Note: Point Source Total Controlled PM-10 TPY emissions is used for 45CSR30 Major Source determination				
Facility Emissions Total	**233.52**	**701.26**	**49.19**	**146.10**

1. Emissions From CRUSHING AND SCREENING

1a. Primary Crushing

Primary Crusher ID Number	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
CR-01	20.000	35.000	2.000	3.500	9.400	16.450	0.940	1.645
CR-02	46.000	163.934	4.600	16.393	21.620	77.049	2.162	7.705
CR-03	20.000	35.000	4.000	7.000	9.400	16.450	1.880	3.290
CR-04	30.000	35.000	6.000	7.000	14.100	16.450	2.820	3.290
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CR-06	20.000	87.600	2.000	8.760	9.400	41.172	0.940	4.117
CR-07	5.000	21.900	0.500	2.190	2.350	10.293	0.235	1.029
CR-08	5.000	21.900	0.500	2.190	2.350	10.293	0.235	1.029
CR-09	5.000	21.900	0.500	2.190	2.350	10.293	0.235	1.029
CR-10	8.000	35.000	0.800	3.500	3.760	16.450	0.376	1.645
CR-11	20.000	35.000	2.000	3.500	9.400	16.450	0.940	1.645
CR-12	8.000	35.000	0.800	3.500	3.760	16.450	0.376	1.645
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	187.000	527.234	23.700	59.723	87.890	247.800	11.139	28.070

1b. Secondary and Tertiary Crushing

Secondary & Tertiary Crusher ID	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CR-05	24.000	105.000	2.400	10.500	11.280	49.350	1.128	4.935
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	24.000	105.000	2.400	10.500	11.280	49.350	1.128	4.935

1c. Screening

Screen ID Number	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Crushing	PM	PM-10

and Screening	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
TOTAL	211.000	632.234	26.100	70.223	99.170	297.150	12.267	33.005

1. Emissions From CRUSHING AND SCREENING (Continued)

EMISSION FACTORS

source: Air Pollution Engineering Manual and References
(lb/ton of material throughput)

PM	
Primary Crushing	0.02
Tertiary Crushing	0.06
Screening	0.1

PM-10	
Primary Crushing	0.0094
Tertiary Crushing	0.0282
Screening	0.047

2. *Emissions From TRANSFER POINTS*

Transfer Point ID No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
TP-01	5.514	5.078	1.103	1.016	2.608	2.402	0.522	0.480
TP-02	5.514	5.078	1.103	1.016	2.608	2.402	0.522	0.480
TP-03	5.514	5.078	1.103	1.016	2.608	2.402	0.522	0.480
TP-04	5.514	5.078	1.103	1.016	2.608	2.402	0.522	0.480
TP-05	5.514	5.078	1.103	1.016	2.608	2.402	0.522	0.480
TP-06	5.514	5.078	1.103	1.016	2.608	2.402	0.522	0.480
TP-07	5.514	5.078	1.103	1.016	2.608	2.402	0 522	0.480
TP-08	5.514	5.078	1.103	1.016	2.608	2.402	0.522	0.480
TP-09	5.514	5.078	1.103	1.016	2.608	2.402	0.522	0.480
TP-10	0.788	1.379	0.118	0.207	0.373	0.652	0.056	0.098
TP-11	0.788	1.379	0.118	0.207	0.373	0.652	0.056	0.098
TP-12	0.788	1.379	0.158	0.276	0.373	0.652	0.075	0.130
TP-13	0.788	1.379	0.158	0.276	0.373	0.652	0.075	0.130
TP-14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TP-15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TP-16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TP-17	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TP-18	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TP19	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TP20	1.812	6.457	0.362	1.291	0.857	3.054	0.171	0.611
TP21	1.812	6.457	0.362	1.291	0.857	3.054	0.171	0.611
TP22	1.812	6.457	0.362	1.291	0.857	3.054	0.171	0.611
TP23	1.812	6.457	0.362	1.291	0.857	3.054	0.171	0.611
TP24	1.812	6.457	0.362	1.291	0.857	3.054	0.171	0.611
TP25	1.812	6.457	0.362	1.291	0.857	3.054	0.171	0.611
TP26	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TP27	1.812	6.457	0.362	1.291	0.857	3.054	0.171	0.611
TP28	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TP29	1.812	6.457	0.000	0.000	0.857	3.054	0.000	0.000
TP30	0.952	2.862	0.000	0.000	0.450	1.354	0.000	0.000
TP31	0.952	2.862	0.190	0.572	0.450	1.354	0.090	0.271
TP32	0.952	2.862	0.190	0.572	0.450	1.354	0.090	0.271
TP33	0.952	2.862	0.190	0.572	0.450	1.354	0.090	0.271
TP34	0.952	2.862	0.190	0.572	0.450	1.354	0.090	0.271
TP35	0.952	2.862	0.190	0.572	0.450	1.354	0.090	0.271
TP36	0.952	2.862	0.190	0.572	0.450	1.354	0.090	0.271
TP37	0.952	2.862	0.190	0.572	0.450	1.354	0.090	0.271
TP38	1.017	1.779	0.508	0.890	0.481	0.842	0.240	0.421
TP39	1.017	1.779	0.203	0.356	0.481	0.842	0.096	0.168
TP40	1.017	1.779	0.203	0.356	0.481	0.842	0.096	0.168
TP41	1.017	1.779	0.203	0.356	0.481	0.842	0.096	0.168
TP42	0.254	1.111	0.000	0.000	0.120	0.525	0.000	0.000
TP43	0.254	1.111	0.000	0.000	0.120	0.525	0.000	0.000
TP44	0.254	1.111	0.000	0.000	0.120	0.525	0.000	0.000
TP45	0.254	1.111	0.000	0.000	0.120	0.525	0.000	0.000
TP46	0.254	1.111	0.000	0.000	0.120	0.525	0.000	0.000
TP47	0.254	1.111	0.051	0.222	0.120	0.525	0.024	0.105
TP48	0.254	1.111	0.051	0.222	0.120	0.525	0.024	0.105
TP49	0.254	1.111	0.051	0.222	0.120	0.525	0.024	0.105
TP50	0.254	1.111	0.051	0.222	0.120	0.525	0.024	0.105
TP51	0.254	1.111	0.127	0.555	0.120	0.525	0.060	0.263
TP52	0.952	1.111	0.190	0.222	0.450	0.525	0.090	0.105

2. *Emissions From TRANSFER POINTS (continued)*

Transfer Point ID No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
TP53	0.952	3.973	0.190	0.795	0.450	1.879	0.090	0.376
TP54	0.952	3.973	0.190	0.795	0.450	1.879	0.090	0.376
TP55	0.952	3.973	0.190	0.795	0.450	1.879	0.090	0.376
TP56	0.952	3.973	0.190	0.795	0.450	1.879	0.090	0.376
TP57	0.952	0.278	0.190	0.056	0.450	0.132	0.090	0.026
TP58	3.174	3.973	0.635	0.795	1.501	1.879	0.300	0.376
TP59	3.809	3.973	0.762	0.795	1.802	1.879	0.360	0.376
TP-60	3.809	3.973	0.762	0.795	1.802	1.879	0.360	0.376
TP-61	3.809	3.973	0.952	0.993	1.802	1.879	0.450	0.470
TP-62	0.578	1.421	0.000	0.000	0.273	0.672	0.000	0.000
TP-63	0.008	0.035	0.004	0.017	0.004	0.016	0.002	0.008
TP-64	0.578	0.193	0.116	0.039	0.273	0.091	0.055	0.018
TP-65	0.578	0.193	0.578	0.193	0.273	0.091	0.273	0.091
TP-66	0.044	0.193	0.044	0.193	0.021	0.091	0.021	0.091
TP-67	0.044	0.193	0.044	0.193	0.021	0.091	0.021	0.091
TP-68	0.578	1.421	0.116	0.284	0.273	0.672	0.055	0.134
TP-69	0.578	1.421	0.116	0.284	0.273	0.672	0.055	0.134
TP-70	0.578	1.421	0.578	1.421	0.273	0.672	0.273	0.672
TP-71	0.578	1.421	0.116	0.284	0.273	0.672	0.055	0.134
TP-72	0.578	1.421	0.116	0.284	0.273	0.672	0.055	0.134
TP-73	0.578	1.421	0.578	1.421	0.273	0.672	0.273	0.672
TP-74	0.578	1.421	0.116	0.284	0.273	0.672	0.055	0.134
TP-75	0.578	1.421	0.116	0.284	0.273	0.672	0.055	0.134
TP-76	0.578	1.421	0.578	1.421	0.273	0.672	0.273	0.672
TP-77	1.525	1.779	1.525	1.779	0.721	0.842	0.721	0.842
TP-78	1.525	1.779	0.305	0.356	0.721	0.842	0.144	0.168
TP-79	1.525	1.779	1.525	1.779	0.721	0.842	0.721	0.842
TP-80	0.407	1.779	0.407	1.779	0.192	0.842	0.192	0.842
TP-81	0.407	1.779	0.061	0.267	0.192	0.842	0.029	0.126
TP-82	0.407	1.779	0.081	0.356	0.192	0.842	0.038	0.168
TP-83	0.407	1.779	0.061	0.267	0.192	0.842	0.029	0.126
TP-84	0.407	1.779	0.407	1.779	0.192	0.842	0.192	0.842
TP-85	1.017	4.454	0.153	0.668	0.481	2.106	0.072	0.316
TP-86	1.017	4.454	0.203	0.891	0.481	2.106	0.096	0.421
TP-87	1.017	4.454	0.203	0.891	0.481	2.106	0.096	0.421
TP-88	1.017	4.454	0.203	0.891	0.481	2.106	0.096	0.421
TP-89	1.017	4.454	0.203	0.891	0.481	2.106	0.096	0.421
TP-90	0.952	0.278	0.190	0.056	0.450	0.132	0.090	0.026
TP-91	0.407	1.779	0.081	0.356	0.192	0.842	0.038	0.168
TP-92	0.407	1.779	0.203	0.890	0.192	0.842	0.096	0.421
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TP-93	0.159	0.695	0.016	0.070	0.075	0.329	0.008	0.033
TP94	0.159	0.695	0.016	0.070	0.075	0.329	0.008	0.033
TP95	0.159	0.695	0.016	0.070	0.075	0.329	0.008	0.033
TP96	0.254	1.111	0.025	0.111	0.120	0.525	0.012	0.053
TP97	0.578	1.421	0.116	0.284	0.273	0.672	0.055	0.134
TP98	0.578	1.421	0.578	1.421	0.273	0.672	0.273	0.672
TP99	0.788	1.379	0.118	0.207	0.373	0.652	0.056	0.098
TP100	0.788	1.379	0.079	0.138	0.373	0.652	0.037	0.065
TP101	0.788	1.379	0.158	0.276	0.373	0.652	0.075	0.130
TP102	0.788	1.379	0.158	0.276	0.373	0.652	0.075	0.130
TP103	0.315	1.379	0.315	1.379	0.149	0.652	0.149	0.652
TP104	0.315	1.379	0.047	0.207	0.149	0.652	0.022	0.098

TP105	5.514	5.078	2.757	2.539	2.608	2.402	1.304	1.201
TP106	5.514	5.078	1.103	1.016	2.608	2.402	0.522	0.480
TP107	5.514	5.078	2.757	2.539	2.608	2.402	1.304	1.201
TP108	5.514	5.078	1.103	1.016	2.608	2.402	0.522	0.480
TOTALS	150.025	267.143	38.435	65.500	70.958	126.352	18.179	30.980

Source:
AP42, Fifth Edition, Revised 11/2006
13.2.4 Aggregate Handling and Storage Piles

Emissions From Batch Drop

E = k*(0.0032) * [(U/5)^1.3]/[(M/2)^1.4] = pounds/ton

Where:		PM	PM-10
k =	Particle Size Multiplier (dimensionless)	0.74	0.35
U =	Mean Wind Speed (mph)		
M =	Material Moisture Content (%)		

Assumptions:

k - Particle size multiplier
For PM (< or equal to 30um) k = 0.74
For PM-10 (< or equal to 10um) k = 0.35

Emission Factor
For PM E= $I$88*(0.0032)*((((Inputs!$I$72)/5)^1.3)/(((Inputs!G78+0.000000001)/2)^1.4)
=lb/ton

For PM-10 E= $J$88*(0.0032)*((((Inputs!$I$72)/5)^1.3)/(((Inputs!G78+0.000000001)/2)^1.4
=lb/ton

For lb/hr [lb/ton]*[ton/hr] = [lb/hr]

For Tons/year [lb/ton]*[ton/yr]*[ton/2000lb] = [ton/yr]

3. *Emissions From WIND EROSION OF STOCKPILES*

Stockpile ID No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
OS-01	1.848	8.094	0.462	2.023	0.868	3.804	0.217	0.951
OS-02	1.848	8.094	0.462	2.023	0.868	3.804	0.217	0.951
OS-03	1.848	8.094	0.462	2.023	0.868	3.804	0.217	0.951
OS-04	1.848	8.094	0.462	2.023	0.868	3.804	0.217	0.951
OS-08	0.846	3.704	0.211	0.926	0.397	1.741	0.099	0.435
OS-09	0.846	3.704	0.211	0.926	0.397	1.741	0.099	0.435
OS-10	0.846	3.704	0.211	0.926	0.397	1.741	0.099	0.435
OS-11	0.846	3.704	0.211	0.926	0.397	1.741	0.099	0.435
OS-12	0.846	3.704	0.211	0.926	0.397	1.741	0.099	0.435
OS-13	0.009	0.041	0.002	0.010	0.004	0.019	0.001	0.005
OS-14	0.040	0.174	0.010	0.043	0.019	0.082	0.005	0.020
OS-15	0.121	0.529	0.030	0.132	0.057	0.248	0.014	0.062
OS-16	0.568	2.490	0.142	0.622	0.267	1.170	0.067	0.293
OS-17	0.568	2.490	0.142	0.622	0.267	1.170	0.067	0.293
TOTALS	11.790	51.639	2.947	12.910	5.541	24.270	1.385	6.068

Source:
Air Pollution Engineering Manual

Storage Pile Wind Erosion (Active Storage)

E = 1.7*[s/1.5]*[(365-p)/235]*[f/15] = (lb/day/acre)

Where:

s =	silt content of material
p =	number of days with >0.01 inch of precipitation per year
f =	percentage of time that the unobstructed wind speed
	exceeds 12 mph at the mean pile height

Emission Factors

For PM E=(1.7)*((Inputs!F147)/1.5)*((365-Inputs!I139)/235)*((Inputs!I140)/15)

For PM-10 E=0.47*(1.7)*((Inputs!F147)/1.5)*((365-Inputs!I139)/235)*((Inputs!I140)/15)

For lb/hr [lb/day/acre]*[day/24hr]*[base area of pile (acres)] = lb/hr

For Ton/yr [lb/day/acre]*[365day/yr]*[Ton/2000lb]*[base area of pile (acres)] = Ton/yr

4. Emissions From UNPAVED HAULROADS

Item No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
1	28.38	124.33	8.51	37.30	8.20	35.93	2.46	10.78
2	28.38	124.33	8.51	37.30	8.20	35.93	2.46	10.78
3	36.63	160.65	10.99	48.19	10.59	46.43	3.18	13.93
4	4.70	20.60	1.41	6.18	1.36	5.95	0.41	1.79
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	98.10	429.91	29.43	128.97	28.35	124.25	8.51	37.27

Source:
AP42, Fifth Edition, Revised 11/2006
13.2.2 Unpaved Roads

Emission Estimate For Unpaved Haulroads at Industrial Sites (equation 1)

E= k*((s/12)^a)*((W/3)^b) =lb/vmt

Where:

		PM	PM-10
k =	particle size multiplier	4.90	1.50
a =	empirical constant	0.7	0.9
b =	empirical constant	0.45	0.45

Emission Factors

For PM E= (($I$35)*(((Inputs!$I$163)/12)^($I$36))*(((Inputs!H171)/3)^$I$37))

For PM-10 E= (($J$35)*(((Inputs!$I$163)/12)^($J$36))*(((Inputs!H171)/3)^$J$37))

For lb/hr (lb/vmt)*(miles per trip)*(Max trips per hour)

For Ton/yr (lb/vmt)*(miles per trip)*(Max trips per year)*(1/2000)

5. *Emissions From INDUSTRIAL PAVED HAULROADS*

Item No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
1	37.98	166.38	11.39	49.91	7.37	32.29	2.21	9.69
2	18.99	83.19	5.70	24.96	3.69	16.14	1.11	4.84
3	47.54	208.21	14.26	62.46	9.22	40.40	2.77	12.12
4	47.54	208.21	14.26	62.46	9.22	40.40	2.77	12.12
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	152.05	665.98	45.61	199.80	29.51	129.24	8.85	38.77

Source:
AP42, Fifth Edition, Revised 11/2006
13.2.1 PAVED ROADS

Emission Estimate For Paved Haulroads

E = [k * (sL/2)^0.65 * (W/3)^1.5 - C] * (1 - (P/4*N) = lb / Vehicle Mile Traveled (VMT)

Where:

		PM	PM-10
k =	particle size multiplier	0.082	0.016
sL =	road surface silt loading, (g/ft^2)	1	
P =	number of days per year with precipitation >0.01 inch	157	
N =	number of days in averaging period	365	
C=	factor for exhaust, brake wear and tire wear	0.0047	0.0047

Emission Factors

For PM E= ($I$34*((($I$35)/2)^0.65)*(((Inputs!G190)/3)^1.5)-($I$38))*(1-((Inputs!I

For PM-10 E= ($J$34)*((($I$35)/2)^0.65)*(((Inputs!G190)/3)^1.5))-($I$38))*(1-((Inputs!$

For lb/hr (lb/vmt)*(miles per trip)*(Max trips per hour)

For Ton/yr (lb/vmt)*(miles per trip)*(Max trips per year)*(1/2000)

Legal Advertisement

AIR QUALITY PERMIT NOTICE
Notice of Application

Notice is given that Mingo Logan Coal Company has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a General Permit Modification Application for a coal preparation plant facility located on State Route 17 near Sharples, Logan County, West Virginia. Coordinates for the facility are as follows: latitude 37.909167 and longitude –81.798611.

The applicant estimates the increase in the potential to discharge the following Regulated Air Pollutants will be: controlled particulate matter emissions of 14 tons per year, controlled particulate matter less than 10 microns of 6 tons per year, and a facility potential to emit increase of 14 tons per year.

Startup of operation is planned to begin upon permit approval. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1227, during normal business hours.

Dated this the 25th day of March 2015

By: Mingo Logan Coal Company
Brad Ball
Director of Engineering
PO Box E
Sharples, WV 25183

ATTACHMENT K

ELECTRONIC SUBMITTAL INCLUDED
IN THE ORIGINAL COPY ONLY

SECTION IV. CERTIFICATION OF INFORMATION

This General Permit Registration Application shall be signed below by a Responsible Official. A Responsible Official is a President, Vice President, Secretary, Treasurer, General Partner, General Manager, a member of a Board of Directors, or Owner, depending on business structure. A business may certify an Authorized Representative who shall have authority to bind the Corporation, Partnership, Limited Liability Company, Association, Joint Venture or Sole Proprietorship. Required records of daily throughput, hours of operation and maintenance, general correspondence, Emission Inventory, Certified Emission Statement, compliance certifications and all required notifications must be signed by a Responsible Official or an Authorized Representative. If a business wishes to certify an Authorized Representative, the official agreement below shall be checked off and the appropriate names and signatures entered. Any administratively incomplete or improperly signed or unsigned Registration Application will be returned to the applicant.

FOR A CORPORATION (domestic or foreign)

☐ **I certify that I am a President, Vice President, Secretary, Treasurer or in charge of a principal business function of the corporation**

FOR A PARTNERSHIP

☐ **I certify that I am a General Partner**

FOR A LIMITED LIABILITY COMPANY

☐ **I certify that I am a General Partner or General Manager**

FOR AN ASSOCIATION

☐ **I certify that I am the President or a member of the Board of Directors**

FOR A JOINT VENTURE

☐ **I certify that I am the President, General Partner or General Manager**

FOR A SOLE PROPRIETORSHIP

☐ **I certify that I am the Owner and Proprietor**

☐

is an Authorized Representative and in that capacity shall represent the interest of the business (e.g., Corporation, Partnership, Limited Liability Company, Association Joint Venture or Sole Proprietorship) and may obligate and legally bind the business. If the business changes its Authorized Representative, a Responsible Official shall notify the Chief of the Office of Air Quality immediately, and/or,

I hereby certify that all information contained in this General Permit Registration Application and any supporting documents appended hereto is, to the best of my knowledge, true, accurate and complete, and that all reasonable efforts have been made to provide the most comprehensive information possible

Signature _____

(please use blue ink) Responsible Official Date

Name & Title: BRADLEY BALL, AUTHORIZED AGENT

(please print or type)

Signature _____

(please use blue ink) Authorized Representative (if applicable) Date

Applicant's Name: MINGO LOGAN COAL COMPANY

Phone 304-369-7514 (Terry Ball, contact person)

Email : tball@archcoal.com

POWER OF ATTORNEY

Bradley D. Ball
Mingo Logan Coal Company

Dated: January 1, 2015

Expires: December 31, 2015

KNOW ALL MEN BY THESE PRESENTS: That Mingo Logan Coal Company, a corporation organized and existing under the laws of the State of Delaware (the "Corporation"), acting by and through James E. Florczak its duly authorized Vice President and Treasurer, has and does hereby appoint Bradley D. Ball its true and lawful Attorney-in-Fact with power and authority, for and on behalf, and in the name of the Corporation, during the period specified above, and subject to the restrictions and limitations set forth in this Power of Attorney to execute and deliver in the ordinary and regular course of the Corporation's business, applications for any and all permits, bond releases, amendments, supplements or modifications pertaining to surface disturbance of mining permits; water related permits or other such amendments, supplements or modifications, quarterly discharge monitoring reports or water monitoring reports pertaining to surface coal mining operations; any and all licenses and plan submittals and other like documents pertaining to underground mining issues; air related permits or other such amendments, supplements or modifications, and monitoring reports arising from emissions affecting air quality pertaining to surface coal mining operations; and waste related permits or other such amendments, supplements or modifications, and monitoring reports related to generation, transportation or disposal of wastes of any nature or type pertaining to the Corporation's coal mining operations in West Virginia.

The Attorney herein appointed shall be authorized to act hereunder from the date hereof only so long as such Attorney shall remain an employee of Arch Coal, Inc. or any subsidiary thereof, or until December 31, 2015, or until such earlier time as this instrument has been revoked, annulled, rescinded or set aside by an instrument of revocation filed with the Assistant Secretary of the Corporation, whichever first occurs.

IN WITNESS WHEREOF, the Corporation has caused this Power of Attorney to be executed on its behalf, and its seal to be hereunto affixed and attested as of the day and year first above written, by the undersigned, James E. Florczak, duly authorized Vice President and Treasurer of the Corporation, and Jolene J. Mermis, duly elected Assistant Secretary of the Corporation.

Attest:

Jolene J. Mermis
Assistant Secretary of the Corporation

Mingo Logan Coal Company

James E. Florczak
Vice President and Treasurer

SECTION III. ATTACHMENTS AND SUPPORTING DOCUMENTS

PLEASE CHECK ALL ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:
Please See the appropriate reference document for an explanation of the attachments listed below.

- ■ **ATTACHMENT A : CURRENT BUSINESS CERTIFICATE**
- ■ **ATTACHMENT B: PROCESS DESCRIPTION**
- ■ **ATTACHMENT C: DESCRIPTION OF FUGITIVE EMISSIONS**
- ■ **ATTACHMENT D: PROCESS FLOW DIAGRAM**
- ■ **ATTACHMENT E: PLOT PLAN**
- ■ **ATTACHMENT F: AREA MAP**
- ■ **ATTACHMENT G: AFFECTED SOURCE SHEETS**
- ■ **ATTACHMENT H: BAGHOUSE AIR POLLUTION CONTROL DEVICE SHEET**
- ■ **ATTACHMENT I: EMISSIONS CALCULATIONS**
- ■ **ATTACHMENT J: CLASS I LEGAL ADVERTISEMENT**
- ■ **ATTACHMENT K: ELECTRONIC SUBMITTAL DISKETTE**
- ■ **CERTIFICATION OF INFORMATION**
- ■ **APPLICATION FEE**

PLEASE MAIL AN ORIGINAL AND TWO COPIES OF THE COMPLETE GENERAL PERMIT REGISTRATION APPLICATION WITH THE SIGNATURE(S) TO THE DAQ PERMITTING SECTION AT THE ADDRESS SHOWN ON THE FRONT PAGE. PLEASE DO NOT FAX PERMIT APPLICATIONS. FOR QUESTIONS REGARDING APPLICATIONS OR WEST VIRGINIA AIR POLLUTION RULES AND REGULATIONS PLEASE CALL (304) 926-3727.

INPUTS

Include all information for each emission source and transfer point as listed in the permit application.

Name of applicant: Mingo Logan Coal Co.
Name of plant: Cardinal Prep Plant
Corrections 7-14

1. CRUSHING AND SCREENING (including all primary and secondary crushers and screens)

1a. PRIMARY CRUSHING

Primary Crusher ID Number	Description	Maximum Material Processing Capacity TPH	Maximum Material Processing Capacity TPY	Control Device ID Number	Control Efficiency %
CR-01	Breaker	1,000	3,500,000	FW	90
CR-02	Sizer	2,300	16,393,413	FW	90
CR-03	Sizer	1,000	3,500,000	FE	80
CR-04	Breaker	1,500	3,500,000	FE	80
CR-05	DR	400	3,500,000	FW	90
CR-06	DR	1,000	8,760,000	FW	90
CR-07	Plant McClanahan	250	2,190,000	FW	90
CR-08	Plant McClanahan	250	2,190,000	FW	90
CR-09	Plant McClanahan	250	2,190,000	FW	90
CR-10	Met Plant Gunlach	400	876,000	FW	90
CR-11	Breaker	1,000	3,500,000	FW	90

1b. SECONDARY AND TERTIARY CRUSHING

Secondary & Tertiary Crusher ID	Description	Maximum Material Processing Capacity TPH	Maximum Material Processing Capacity TPY	Control Device ID Number	Control Efficiency %

1c. SCREENING

Secondary & Tertiary Crusher ID	Description	Maximum Material Processing Capacity TPH	Maximum Material Processing Capacity TPY	Control Device ID Number	Control Efficiency %

2. *TRANSFER POINTS (Including all conveyor transfer points, equipment transfer points etc.)*

		PM	PM-10
k =	Particle Size Multiplier (dimensionless)	0.74	0.35
U =	Mean Wind Speed (mph)	7	

Transfer Point ID No.	Transfer Point Description Include ID Numbers of all conveyors, crushers, screens, stockpiles, etc. involved	Material Moisture Content %	Maximum Transfer Rate TPH	Maximum Transfer Rate TPY	Control Device ID Number	Control Efficiency %	
TP-01	ROM to Belt BC-01	6	7,000	12,893,143	TC-FE	80	
TP-02	Belt BC-01 to Belt BC-02	6	7,000	12,893,143	TC-FE	80	
TP-03	Belt BC-02 to Stockpile OS-01	6	7,000	12,893,143	TC-FE	80	
TP-04	Belt BC-02 to Belt BC-03	6	7,000	12,893,143	TC-FE	80	
TP-05	Belt BC-03 to Stockpile OS-02	6	7,000	12,893,143	TC-FE	80	
TP-06	Belt BC-03 to Belt BC-04	6	7,000	12,893,143	TC-FE	80	
TP-07	Belt BC-04 to Stockpile OS-03	6	7,000	12,893,143	TC-FE	80	
TP-08	Belt BC-04 to Belt BC-05	6	7,000	12,893,143	TC-FE	80	
TP-09	Belt BC-05 to Stockpile OS-04	6	7,000	12,893,143	TC-FE	80	
TP-10	Truck to Bin BS-01	6	1,000	3,500,000	UD-PW	85	
TP-11	Bin BS-01 to Breaker CR-01	6	1,000	3,500,000	TC-PW	85	
TP-12	Breaker to Belt BC-06	6	1,000	3,500,000	TC-FE	80	
TP-13	Belt BC-05 to OS-04	6	1,000	3,500,000	TC-FE	80	
TP-14	delete						
TP-15	delete						
TP-16	delete						
TP-17	delete						
TP-18	delete						
TP19	delete						
TP20	Stockpile OS-01 to Belt BC-10	6	2,300	16,393,143	LO-UC	80	
TP21	Stockpile OS-02 to Belt BC-10	6	2,300	16,393,143	LO-UC	80	
TP22	Stockpile OS-03 to Belt BC-10	6	2,300	16,393,143	LO-UC	80	
TP23	Stockpile OS-04 to Belt BC-10	6	2,300	16,393,143	LO-UC	80	
TP24	Belt BC-10 to Belt BC-11	6	2,300	16,393,143	TC-FE	80	
TP25	Belt BC-11 to Sizer CR-02	6	2,300	16,393,143	TC-FE	80	
TP26	Sizer CR-02 to Belt BC-12	6	500	4,380,000	TC-FE	80	
TP27	Sizer CR-02 to Belt BC-13	6	2,300	16,393,143	TC-FE	80	
TP28	Belt BC-12 to Belt BC-13	6	500	4,380,000	TC-FE	80	
TP29	Belt BC-13 to Plant	6	2,300	16,393,143	TC-WW	100	
TP30	Plant to BC-15	7	1,500	9,016,229	TC-WW	100	
TP31	Belt BC-15 to OS-08	7	1,500	9,016,229	TC-FE	80	
TP32	Belt BC-15 to Belt BC-16	7	1,500	9,016,229	TC-FE	80	
TP33	Belt BC-16 to OS-09	7	1,500	9,016,229	TC-FE	80	
TP34	Belt BC-16 to Belt BC-17	7	1,500	9,016,229	TC-FE	80	
TP35	Belt BC-17 to OS-10	7	1,500	9,016,229	TC-FE	80	
TP36	Belt BC-17 to Belt BC-18	7	1,500	9,016,229	TC-FE	80	
TP37	Belt BC-18 to OS-11	7	1,500	9,016,229	TC-FE	80	
TP38	Truck to BS-02	5	1,000	3,500,000	UD-PE	50	
TP39	Bin BS-02 to Sizer CR-03	5	1,000	3,500,000	TC-FE	80	
TP40	Sizer CR-03 to Belt BC-14	5	1,000	3,500,000	TC-FE	80	
TP41	Belt BC-14 to OS-11 or BC-25	5	1,000	3,500,000	TC-FE	80	change
TP42	Plant to BC-19	7	100	876,000	TC-WW	100	
TP43	Belt BC-19 to Rewash Plant	7	100	876,000	TC-WW	100	
TP44	Rewash Plant to Belt BC-20	7	100	876,000	TC-WW	100	
TP45	Belt BC-20 to Prep Plant	7	100	876,000	TC-WW	100	
TP46	Rewash Plant to Belt BC-21	7	100	876,000	TC-WW	100	
TP47	Belt BC-21 to Belt BC-22	7	100	876,000	TC-FE	80	
TP48	Belt BC-22 to Belt BC-23	7	100	876,000	TC-FE	80	
TP49	Belt BC-23 to Belt BC-24	7	100	876,000	TC-FE	80	
TP50	Belt BC-24 to Belt BC-25	7	100	876,000	TC-FE	80	
TP51	Belt BC-25 to OS-12	7	100	876,000	TC-PE	50	
TP52	OS-12 to Belt BC-26	7	1,500	876,000	LO-UC	80	
TP53	OS-08 to Belt BC-27	7	1,500	12,516,229	LO-UC	80	
TP54	OS-09 to Belt BC-27	7	1,500	12,516,229	LO-UC	80	
TP55	OS-10 to Belt BC-27	7	1,500	12,516,229	LO-UC	80	
TP56	OS-11 to Belt BC-27	7	1,500	12,516,229	LO-UC	80	
TP57	Belt BC-26 to Belt BC-41	7	1,500	876,000	TC-FE	80	
TP58	Belt BC-27 to Belt BC-28	7	5,000	12,516,229	TC-FE	80	
TP59	Belt BC-28 to Surge Bin BS-03	7	6,000	12,516,229	TC-FE	80	

TP-60	Surge Bin BS-03 to Bin BS-04	7	6,000	12,516,229	TC-FE	80
TP-61	BS-04 to Railcar	7	6,000	12,516,229	LR-TC	75
TP-62	Plant to BC-29	10	1,500	7,376,914	TC-WW	100
TP-63	Lime Bin to Belt BC-29	4	6	50,000	TC-PE	50
TP-64	Belt BC-29 to Belt BC-30	10	1,500	1,000,000	TC-FE	80
TP-65	Belt BC-30 to OS-13	10	1,500	1,000,000	TC-MDH	0
TP-66	OS-13 to Truck	10	114	1,000,000	LO-MDH	0
TP-67	Truck to Disposal Area	10	114	1,000,000	UL-NC	0
TP-68	Belt BC-29 to Belt BC-31	10	1,500	7,376,914	TC-FE	80
TP-69	Belt BC-31 to Belt BC-32	10	1,500	7,376,914	TC-FE	80
TP-70	Belt BC-32 to Ground	10	1,500	7,376,914	TC-MDH	0
TP-71	Belt BC-31 to Belt BC-33	10	1,500	7,376,914	TC-FE	80
TP-72	Belt BC-33 to Belt BC-34	10	1,500	7,376,914	TC-FE	80
TP-73	Belt BC-34 to Ground	10	1,500	7,376,914	TC-MDH	0
TP-74	Belt BC-33 to Belt BC-35	10	1,500	7,376,914	TC-FE	80
TP-75	Belt BC-35 to Belt BC-36	10	1,500	7,376,914	TC-FE	80
TP-76	Belt BC-36 to Ground	10	1,500	7,376,914	TC-MDH	0
TP-77	Truck to Feeder/Breaker CR-04	5	1,500	3,500,000	UL-MDH	0
TP-78	CR-04 to BC-37	5	1,500	3,500,000	TC-FE	80
TP-79	BC-37 to Existing RC Stockpile Area	5	1,500	3,500,000	TC-MDH	0
TP-80	Truck to OS-14	5	400	3,500,000	UL-MDH	0
TP-81	OS-14 to BS-06	5	400	3,500,000	UD-PW	85
TP-82	BS-06 to BC-42	5	400	3,500,000	TC-FE	80
TP-83	CR-05 to BC-43	5	400	3,500,000	TC-PW	85
TP-84	BC-38 to Existing CC Stockpile Area	5	400	3,500,000	TC-MDH	0
TP-85	Truck to BS-07	5	1,000	8,760,000	UD-PW	85
TP-86	BS-07 to BC-39	5	1,000	8,760,000	TC-FE	80
TP-87	BC-39 to CR-06	5	1,000	8,760,000	TC-FE	80
TP-88	CR-06 to BC-40	5	1,000	8,760,000	TC-FE	80
TP-89	BC-40 to OS-11	5	1,000	8,760,000	TC-FE	80
TP-90	Belt BC-41 to BC-27	7	1,500	876,000	TC-FE	80
TP-91	BC-42 to CR-05	5	400	3,500,000	TC-FE	80
TP-92	BC-43 to BC-38	5	400	3,500,000	TC-PE	50
	March 2011 Modification					
TP-93	Plant Crusher CR-07 to BC-15	7	250	2,190,000	TC-FW	90
TP94	Plant Crusher CR-08 to BC-15	7	250	2,190,000	TC-FW	90
TP95	Plant Crusher CR-09 to BC-15	7	250	2,190,000	TC-FW	90
TP96	Met Plant Crusher to BC-21	7	400	876,000	TC-FW	90
TP97	BC-35 to BC-44	10	1,500	7,376,914	TC-FE	80
TP98	BC-44 to Ground	10	1,500	7,376,914	TC-MDH	0
TP99	Truck to BS-08	6	1,000	3,500,000	TC-PW	85
TP100	BS-08 to CR-11	6	1,000	3,500,000	TC-FW	90
TP101	CR-11 to BC-45	6	1,000	3,500,000	TC-FE	80
TP102	BC-45 to BC-05	6	1,000	3,500,000	TC-FE	80
TP103	Truck to OS-15	6	400	3,500,000	UL-MDH	0
TP104	OS-15 to BS-01	6	400	3,500,000	UD-PW	85
	Modification 10-13					
TP105	BC-02 to OS-16	6	7,000	12,893,143	TC-WS	50
TP106	OS-16 to BC-10	6	7,000	12,893,143	LO-UC	80
TP107	BC-02 to OS-17	6	7,000	12,893,143	TC-WS	50
TP108	OS-17 to BC-10	6	7,000	12,893,143	LO-UC	80

3. WIND EROSION OF STOCKPILES (including all stockpiles of raw coal, clean coal, coal refuse, etc.)

p =	number of days per year with precipitation >0.01 inch	157
f =	percentage of time that the unobstructed wind speed exceeds 12 mph at the mean pile height	20

Source ID No.	Stockpile Description	Silt Content of Material %	Stockpile base area Max. sqft	Control Device ID Number	Control Efficiency %
OS-01	Raw Coal	5	288,869	SW-ST	75
OS-02	Raw Coal	5	288,869	SW-ST	75
OS-03	Raw Coal	5	288,869	SW-ST	75
OS-04	Raw Coal	5	288,869	SW-ST	75
OS-08	Clean Coal	3.5	188,869	SW-ST	75
OS-09	Clean Coal	3.5	188,869	SW-ST	75
OS-10	Clean Coal	3.5	188,869	SW-ST	75
OS-11	Clean Coal	3.5	188,869	SW-ST	75
OS-12	Clean Coal	3.5	188,869	SW-ST	75
OS-13	Refuse	1.5	4,869	SW-WS	75
OS-14	Clean Coal	3.5	8,869	SW-WS	75
OS-15	Raw Coal	5	18,869	SW-WS	75
OS-16	Raw Coal	5	88,869	SW-WS	75
OS-17	Raw Coal	5	88,869	SW-WS	75

4. UNPAVED HAULROADS (including all equipment traffic involved in process, haul trucks, endloaders, etc.)

s =	silt content of road surface material (%)	9
p =	number of days per year with precipitation >0.01 inch	157
M_{dry} =	surface material moisture content (%) - dry conditions	0.2

Item Number	Description	Number of wheels	Mean Vehicle Weight(tons)	Mean Vehicle Speed (mph)	Miles per Trip	Maximum Trips Per Hour	Maximum Trips Per Year	Control Device ID Number	Control Efficiency %
1	RC BS-01 3,500,000	18	50	15	0.25	7.99	70,000	HR-WS	70
2	RC BS08 3,500,000	18	50	15	0.25	7.99	70,000	HR-WS	70
3	Refuse 1,000,000	14	40	10	1	2.85	25,000	HR-WS	70
4	Dozers (pushing 8,760,000)	2	20	5	0.01	50	438,000	HR-WS	70
5									
6									
7									
8									

5. INDUSTRIAL PAVED HAULROADS (including all equipment traffic involved in process, haul trucks, endloaders, etc.)

sL =	road surface silt loading, (g/ft^2)	1
P =	number of days per year with precipitation >0.01 inch	157

Item Number	Description	Mean Vehicle Weight (tons)	Miles per Trip	Maximum Trips Per Hour	Maximum Trips Per Year	Control Device ID Number	Control Efficiency %
1	Raw Coal In	50	1.5	7.99	70,000	HR-WS	70
2	Direct Ship Clean Coal In	50	0.75	7.99	70,000	HR-WS	70
3	CC BS-07	50	0.75	20	175,200	HR-WS	70
4	CC BS-02	50	0.75	20	175,200	HR-WS	70
5							
6							
7							
8							

EMISSIONS SUMMARY

Name of applicant: Mingo Logan Coal Co.
Name of plant: Cardinal Prep Plant
Calcs 7-14

Particulate Matter or PM (for 45CSR14 Major Source Determination)

	Uncontrolled PM		Controlled PM	
	lb/hr	TPY	lb/hr	TPY
FUGITIVE EMISSIONS				
Stockpile Emissions	11.79	51.64	2.95	12.91
Unpaved Haulroad Emissions	98.10	429.91	29.43	128.97
Paved Haulroad Emissions	152.05	665.98	45.61	199.80
Fugitive Emissions Total	**261.93**	**1,147.53**	**77.99**	**341.68**
POINT SOURCE EMISSIONS				
Equipment Emissions	187.00	500.99	23.70	57.10
Transfer Point Emissions	148.91	260.60	38.35	64.86
Point Source Emissions Total*	**335.91**	**761.59**	**62.05**	**121.96**
*Note: Point Source Total Controlled PM TPY emissions is used for 45CSR14 Major Source determination (see below)				
Facility Emissions Total	**597.84**	**1,909.13**	**140.04**	**463.64**

***Facility Potential to Emit (PTE) (Baseline Emissions) = 121.96**

(Based on Point Source Total controlled PM TPY emissions from above) ENTER ON LINE 26 OF APPLICATION

Particulate Matter under 10 microns, or PM-10 (for 45CSR30 Major Source Determination)

	Uncontrolled PM-10		Controlled PM-10	
	lb/hr	TPY	lb/hr	TPY
FUGITIVE EMISSIONS				
Stockpile Emissions	5.54	24.27	1.39	6.07
Unpaved Haulroad Emissions	28.35	124.25	8.51	37.27
Paved Haulroad Emissions	29.51	129.24	8.85	38.77
Fugitive Emissions Total	**63.40**	**277.76**	**18.74**	**82.11**
POINT SOURCE EMISSIONS				
Equipment Emissions	87.89	235.47	11.14	26.84
Transfer Point Emissions	70.43	123.26	18.14	30.68
Point Source Emissions Total*	**158.32**	**358.72**	**29.28**	**57.51**
*Note: Point Source Total Controlled PM-10 TPY emissions is used for 45CSR30 Major Source determination				
Facility Emissions Total	**221.72**	**636.48**	**48.02**	**139.63**

1. Emissions From CRUSHING AND SCREENING

1a. Primary Crushing

Primary Crusher ID Number	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
CR-01	20.000	35.000	2.000	3.500	9.400	16.450	0.940	1.645
CR-02	46.000	163.934	4.600	16.393	21.620	77.049	2.162	7.705
CR-03	20.000	35.000	4.000	7.000	9.400	16.450	1.880	3.290
CR-04	30.000	35.000	6.000	7.000	14.100	16.450	2.820	3.290
CR-05	8.000	35.000	0.800	3.500	3.760	16.450	0.376	1.645
CR-06	20.000	87.600	2.000	8.760	9.400	41.172	0.940	4.117
CR-07	5.000	21.900	0.500	2.190	2.350	10.293	0.235	1.029
CR-08	5.000	21.900	0.500	2.190	2.350	10.293	0.235	1.029
CR-09	5.000	21.900	0.500	2.190	2.350	10.293	0.235	1.029
CR-10	8.000	8.760	0.800	0.876	3.760	4.117	0.376	0.412
CR-11	20.000	35.000	2.000	3.500	9.400	16.450	0.940	1.645
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	187.000	500.994	23.700	57.099	87.890	235.467	11.139	26.837

1b. Secondary and Tertiary Crushing

Secondary & Tertiary Crusher ID	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

1c. Screening

Screen ID Number	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Crushing	PM	PM-10

and Screening	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
TOTAL	187.000	500.994	23.700	57.099	87.890	235.467	11.139	26.837

1. Emissions From CRUSHING AND SCREENING (Continued)

EMISSION FACTORS

source: Air Pollution Engineering Manual and References

(lb/ton of material throughput)

PM	
Primary Crushing	0.02
Tertiary Crushing	0.06
Screening	0.1

PM-10	
Primary Crushing	0.0094
Tertiary Crushing	0.0282
Screening	0.047

2. *Emissions From TRANSFER POINTS*

Transfer Point ID No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
TP-01	5.514	5.078	1.103	1.016	2.608	2.402	0.522	0.480
TP-02	5.514	5.078	1.103	1.016	2.608	2.402	0.522	0.480
TP-03	5.514	5.078	1.103	1.016	2.608	2.402	0.522	0.480
TP-04	5.514	5.078	1.103	1.016	2.608	2.402	0.522	0.480
TP-05	5.514	5.078	1.103	1.016	2.608	2.402	0.522	0.480
TP-06	5.514	5.078	1.103	1.016	2.608	2.402	0.522	0.480
TP-07	5.514	5.078	1.103	1.016	2.608	2.402	0.522	0.480
TP-08	5.514	5.078	1.103	1.016	2.608	2.402	0.522	0.480
TP-09	5.514	5.078	1.103	1.016	2.608	2.402	0.522	0.480
TP-10	0.788	1.379	0.118	0.207	0.373	0.652	0.056	0.098
TP-11	0.788	1.379	0.118	0.207	0.373	0.652	0.056	0.098
TP-12	0.788	1.379	0.158	0.276	0.373	0.652	0.075	0.130
TP-13	0.788	1.379	0.158	0.276	0.373	0.652	0.075	0.130
TP-14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TP-15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TP-16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TP-17	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TP-18	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TP19	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TP20	1.812	6.457	0.362	1.291	0.857	3.054	0.171	0.611
TP21	1.812	6.457	0.362	1.291	0.857	3.054	0.171	0.611
TP22	1.812	6.457	0.362	1.291	0.857	3.054	0.171	0.611
TP23	1.812	6.457	0.362	1.291	0.857	3.054	0.171	0.611
TP24	1.812	6.457	0.362	1.291	0.857	3.054	0.171	0.611
TP25	1.812	6.457	0.362	1.291	0.857	3.054	0.171	0.611
TP26	0.394	1.725	0.079	0.345	0.186	0.816	0.037	0.163
TP27	1.812	6.457	0.362	1.291	0.857	3.054	0.171	0.611
TP28	0.394	1.725	0.079	0.345	0.186	0.816	0.037	0.163
TP29	1.812	6.457	0.000	0.000	0.857	3.054	0.000	0.000
TP30	0.952	2.862	0.000	0.000	0.450	1.354	0.000	0.000
TP31	0.952	2.862	0.190	0.572	0.450	1.354	0.090	0.271
TP32	0.952	2.862	0.190	0.572	0.450	1.354	0.090	0.271
TP33	0.952	2.862	0.190	0.572	0.450	1.354	0.090	0.271
TP34	0.952	2.862	0.190	0.572	0.450	1.354	0.090	0.271
TP35	0.952	2.862	0.190	0.572	0.450	1.354	0.090	0.271
TP36	0.952	2.862	0.190	0.572	0.450	1.354	0.090	0.271
TP37	0.952	2.862	0.190	0.572	0.450	1.354	0.090	0.271
TP38	1.017	1.779	0.508	0.890	0.481	0.842	0.240	0.421
TP39	1.017	1.779	0.203	0.356	0.481	0.842	0.096	0.168
TP40	1.017	1.779	0.203	0.356	0.481	0.842	0.096	0.168
TP41	1.017	1.779	0.203	0.356	0.481	0.842	0.096	0.168
TP42	0.063	0.278	0.000	0.000	0.030	0.132	0.000	0.000
TP43	0.063	0.278	0.000	0.000	0.030	0.132	0.000	0.000
TP44	0.063	0.278	0.000	0.000	0.030	0.132	0.000	0.000
TP45	0.063	0.278	0.000	0.000	0.030	0.132	0.000	0.000
TP46	0.063	0.278	0.000	0.000	0.030	0.132	0.000	0.000
TP47	0.063	0.278	0.013	0.056	0.030	0.132	0.006	0.026
TP48	0.063	0.278	0.013	0.056	0.030	0.132	0.006	0.026
TP49	0.063	0.278	0.013	0.056	0.030	0.132	0.006	0.026
TP50	0.063	0.278	0.013	0.056	0.030	0.132	0.006	0.026
TP51	0.063	0.278	0.032	0.139	0.030	0.132	0.015	0.066
TP52	0.952	0.278	0.190	0.056	0.450	0.132	0.090	0.026

2. *Emissions From TRANSFER POINTS (continued)*

Transfer Point ID No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
TP53	0.952	3.973	0.190	0.795	0.450	1.879	0.090	0.376
TP54	0.952	3.973	0.190	0.795	0.450	1.879	0.090	0.376
TP55	0.952	3.973	0.190	0.795	0.450	1.879	0.090	0.376
TP56	0.952	3.973	0.190	0.795	0.450	1.879	0.090	0.376
TP57	0.952	0.278	0.190	0.056	0.450	0.132	0.090	0.026
TP58	3.174	3.973	0.635	0.795	1.501	1.879	0.300	0.376
TP59	3.809	3.973	0.762	0.795	1.802	1.879	0.360	0.376
TP-60	3.809	3.973	0.762	0.795	1.802	1.879	0.360	0.376
TP-61	3.809	3.973	0.952	0.993	1.802	1.879	0.450	0.470
TP-62	0.578	1.421	0.000	0.000	0.273	0.672	0.000	0.000
TP-63	0.008	0.035	0.004	0.017	0.004	0.016	0.002	0.008
TP-64	0.578	0.193	0.116	0.039	0.273	0.091	0.055	0.018
TP-65	0.578	0.193	0.578	0.193	0.273	0.091	0.273	0.091
TP-66	0.044	0.193	0.044	0.193	0.021	0.091	0.021	0.091
TP-67	0.044	0.193	0.044	0.193	0.021	0.091	0.021	0.091
TP-68	0.578	1.421	0.116	0.284	0.273	0.672	0.055	0.134
TP-69	0.578	1.421	0.116	0.284	0.273	0.672	0.055	0.134
TP-70	0.578	1.421	0.578	1.421	0.273	0.672	0.273	0.672
TP-71	0.578	1.421	0.116	0.284	0.273	0.672	0.055	0.134
TP-72	0.578	1.421	0.116	0.284	0.273	0.672	0.055	0.134
TP-73	0.578	1.421	0.578	1.421	0.273	0.672	0.273	0.672
TP-74	0.578	1.421	0.116	0.284	0.273	0.672	0.055	0.134
TP-75	0.578	1.421	0.116	0.284	0.273	0.672	0.055	0.134
TP-76	0.578	1.421	0.578	1.421	0.273	0.672	0.273	0.672
TP-77	1.525	1.779	1.525	1.779	0.721	0.842	0.721	0.842
TP-78	1.525	1.779	0.305	0.356	0.721	0.842	0.144	0.168
TP-79	1.525	1.779	1.525	1.779	0.721	0.842	0.721	0.842
TP-80	0.407	1.779	0.407	1.779	0.192	0.842	0.192	0.842
TP-81	0.407	1.779	0.061	0.267	0.192	0.842	0.029	0.126
TP-82	0.407	1.779	0.081	0.356	0.192	0.842	0.038	0.168
TP-83	0.407	1.779	0.061	0.267	0.192	0.842	0.029	0.126
TP-84	0.407	1.779	0.407	1.779	0.192	0.842	0.192	0.842
TP-85	1.017	4.454	0.153	0.668	0.481	2.106	0.072	0.316
TP-86	1.017	4.454	0.203	0.891	0.481	2.106	0.096	0.421
TP-87	1.017	4.454	0.203	0.891	0.481	2.106	0.096	0.421
TP-88	1.017	4.454	0.203	0.891	0.481	2.106	0.096	0.421
TP-89	1.017	4.454	0.203	0.891	0.481	2.106	0.096	0.421
TP-90	0.952	0.278	0.190	0.056	0.450	0.132	0.090	0.026
TP-91	0.407	1.779	0.081	0.356	0.192	0.842	0.038	0.168
TP-92	0.407	1.779	0.203	0.890	0.192	0.842	0.096	0.421
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TP-93	0.159	0.695	0.016	0.070	0.075	0.329	0.008	0.033
TP94	0.159	0.695	0.016	0.070	0.075	0.329	0.008	0.033
TP95	0.159	0.695	0.016	0.070	0.075	0.329	0.008	0.033
TP96	0.254	0.278	0.025	0.028	0.120	0.132	0.012	0.013
TP97	0.578	1.421	0.116	0.284	0.273	0.672	0.055	0.134
TP98	0.578	1.421	0.578	1.421	0.273	0.672	0.273	0.672
TP99	0.788	1.379	0.118	0.207	0.373	0.652	0.056	0.098
TP100	0.788	1.379	0.079	0.138	0.373	0.652	0.037	0.065
TP101	0.788	1.379	0.158	0.276	0.373	0.652	0.075	0.130
TP102	0.788	1.379	0.158	0.276	0.373	0.652	0.075	0.130
TP103	0.315	1.379	0.315	1.379	0.149	0.652	0.149	0.652
TP104	0.315	1.379	0.047	0.207	0.149	0.652	0.022	0.098

TP105	5.514	5.078	2.757	2.539	2.608	2.402	1.304	1.201
TP106	5.514	5.078	1.103	1.016	2.608	2.402	0.522	0.480
TP107	5.514	5.078	2.757	2.539	2.608	2.402	1.304	1.201
TP108	5.514	5.078	1.103	1.016	2.608	2.402	0.522	0.480
TOTALS	148.908	260.599	38.345	64.857	70.429	123.256	18.136	30.676

Source:
AP42, Fifth Edition, Revised 11/2006
13.2.4 Aggregate Handling and Storage Piles

Emissions From Batch Drop

E = k*(0.0032) * [(U/5)^1.3]/[(M/2)^1.4] = pounds/ton

Where:

		PM	PM-10
k =	Particle Size Multiplier (dimensionless)	0.74	0.35
U =	Mean Wind Speed (mph)		
M =	Material Moisture Content (%)		

Assumptions:

k - Particle size multiplier
For PM (< or equal to 30um) k = 0.74
For PM-10 (< or equal to 10um) k = 0.35

Emission Factor
For PM E= $I$88*(0.0032)*((((Inputs!$I$72)/5)^1.3)/((((Inputs!G78+0.000000001)/2)^1.4)
=lb/ton

For PM-10 E= $J$88*(0.0032)*((((Inputs!$I$72)/5)^1.3)/((((Inputs!G78+0.000000001)/2)^1.4
=lb/ton

For lb/hr [lb/ton]*[ton/hr] = [lb/hr]

For Tons/year [lb/ton]*[ton/yr]*[ton/2000lb] = [ton/yr]

3. *Emissions From WIND EROSION OF STOCKPILES*

Stockpile ID No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
OS-01	1.848	8.094	0.462	2.023	0.868	3.804	0.217	0.951
OS-02	1.848	8.094	0.462	2.023	0.868	3.804	0.217	0.951
OS-03	1.848	8.094	0.462	2.023	0.868	3.804	0.217	0.951
OS-04	1.848	8.094	0.462	2.023	0.868	3.804	0.217	0.951
OS-08	0.846	3.704	0.211	0.926	0.397	1.741	0.099	0.435
OS-09	0.846	3.704	0.211	0.926	0.397	1.741	0.099	0.435
OS-10	0.846	3.704	0.211	0.926	0.397	1.741	0.099	0.435
OS-11	0.846	3.704	0.211	0.926	0.397	1.741	0.099	0.435
OS-12	0.846	3.704	0.211	0.926	0.397	1.741	0.099	0.435
OS-13	0.009	0.041	0.002	0.010	0.004	0.019	0.001	0.005
OS-14	0.040	0.174	0.010	0.043	0.019	0.082	0.005	0.020
OS-15	0.121	0.529	0.030	0.132	0.057	0.248	0.014	0.062
OS-16	0.568	2.490	0.142	0.622	0.267	1.170	0.067	0.293
OS-17	0.568	2.490	0.142	0.622	0.267	1.170	0.067	0.293
TOTALS	11.790	51.639	2.947	12.910	5.541	24.270	1.385	6.068

Source:
Air Pollution Engineering Manual

Storage Pile Wind Erosion (Active Storage)

E = 1.7*[s/1.5]*[(365-p)/235]*[f/15] = (lb/day/acre)

Where:

s =	silt content of material
p =	number of days with >0.01 inch of precipitation per year
f =	percentage of time that the unobstructed wind speed
	exceeds 12 mph at the mean pile height

Emission Factors

For PM E=(1.7)*((Inputs!F147)/1.5)*((365-Inputs!I139)/235)*((Inputs!I140)/15)

For PM-10 E=0.47*(1.7)*((Inputs!F147)/1.5)*((365-Inputs!I139)/235)*((Inputs!I140)/15)

For lb/hr [lb/day/acre]*[day/24hr]*[base area of pile (acres)] = lb/hr

For Ton/yr [lb/day/acre]*[365day/yr]*[Ton/2000lb]*[base area of pile (acres)] = Ton/yr

4. Emissions From UNPAVED HAULROADS

Item No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
1	28.38	124.33	8.51	37.30	8.20	35.93	2.46	10.78
2	28.38	124.33	8.51	37.30	8.20	35.93	2.46	10.78
3	36.63	160.65	10.99	48.19	10.59	46.43	3.18	13.93
4	4.70	20.60	1.41	6.18	1.36	5.95	0.41	1.79
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	98.10	429.91	29.43	128.97	28.35	124.25	8.51	37.27

Source:
AP42, Fifth Edition, Revised 11/2006
13.2.2 Unpaved Roads

Emission Estimate For Unpaved Haulroads at Industrial Sites (equation 1)

E= k*((s/12)^a)*((W/3)^b) =lb/vmt

Where:

		PM	PM-10
k =	particle size multiplier	4.90	1.50
a =	empirical constant	0.7	0.9
b =	empirical constant	0.45	0.45

Emission Factors

For PM E= (($I$35)*(((Inputs!$I$163)/12)^($I$36))*(((Inputs!H171)/3)^$I$37))

For PM-10 E= (($J$35)*(((Inputs!$I$163)/12)^($J$36))*(((Inputs!H171)/3)^$J$37))

For lb/hr (lb/vmt)*(miles per trip)*(Max trips per hour)

For Ton/yr (lb/vmt)*(miles per trip)*(Max trips per year)*(1/2000)

5. *Emissions From INDUSTRIAL PAVED HAULROADS*

Item No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
1	37.98	166.38	11.39	49.91	7.37	32.29	2.21	9.69
2	18.99	83.19	5.70	24.96	3.69	16.14	1.11	4.84
3	47.54	208.21	14.26	62.46	9.22	40.40	2.77	12.12
4	47.54	208.21	14.26	62.46	9.22	40.40	2.77	12.12
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	152.05	665.98	45.61	199.80	29.51	129.24	8.85	38.77

Source:
AP42, Fifth Edition, Revised 11/2006
13.2.1 PAVED ROADS

Emission Estimate For Paved Haulroads

E = [k * (sL/2)^0.65 * (W/3)^1.5 - C] * (1 - (P/4*N) = lb / Vehicle Mile Traveled (VMT)

Where:

		PM	PM-10
k =	particle size multiplier	0.082	0.016
sL =	road surface silt loading, (g/ft^2)	1	
P =	number of days per year with precipitation >0.01 inch	157	
N =	number of days in averaging period	365	
C=	factor for exhaust, brake wear and tire wear	0.0047	0.0047

Emission Factors

For PM E= ($I$34*((($I$35)/2)^0.65)*(((Inputs!G190)/3)^1.5)-($I$38))*(1-((Inputs!I

For PM-10 E= ($J$34)*((($I$35)/2)^0.65)*(((Inputs!G190)/3)^1.5))-($I$38))*(1-((Inputs!$

For lb/hr (lb/vmt)*(miles per trip)*(Max trips per hour)

For Ton/yr (lb/vmt)*(miles per trip)*(Max trips per year)*(1/2000)