

HENTHORN

Environmental Services

www.henvtl.com • P.O. Box 599 • 266 Mollygrove Road • St. Albans, WV 25177 • (304) 727-1445

July 25, 2017

William F. Durham, Director
Division of Air Quality
WV Department of Environmental Protection
601 57th Street
Charleston, West Virginia 25304

Re: Power Mountain Contura, LLC
Permit G10-B005D
Plant ID No. 067-11119
Drennen, WV


Dear Mr. Durham:

Enclosed is the original and two electronic copies of the application of Power Mountain Contura, LLC for a Class I Administrative Update of Permit G10-B005D. The application reflects a substantial decrease in emissions for the facility. Thank you for your assistance in this matter. Should you have any questions, please call me.

Sincerely,



Jennie L. Henthorn



Specializing in Strategic Environmental Planning and Permitting

Power Mountain Contura, LLC

Drennen, West Virginia

Plant ID No. 067-11119

Application for Class I Administrative Update

July 2017

Prepared by:



Post Office Box 599
St. Albans, WV 25177



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

**PERMIT DETERMINATION FORM
(PDF)**

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

1. NAME OF APPLICANT (AS REGISTERED WITH THE WV SECRETARY OF STATE'S OFFICE): Power Mountain Contura, LLC		
2. NAME OF FACILITY (IF DIFFERENT FROM ABOVE): Power Mountain Preparation Plant		3. NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (NAICS) CODE: 212111
4A. MAILING ADDRESS: Post Office Box 707 Summersville, WV 26651		4B. PHYSICAL ADDRESS: No. 2 Jerry Fork Road Drennen, WV 26667
5A. DIRECTIONS TO FACILITY (PLEASE PROVIDE MAP AS ATTACHMENT A): Plant is located approximately one (1) mile from Route 39 on County Route 19/21 (Jerry Fork Road)		
5B. NEAREST ROAD: Jerry Fork Road	5C. NEAREST CITY OR TOWN: Drennen	5D. COUNTY: Nicholas
5E. UTM NORTHING (KM): 4239.2	5F. UTM EASTING (KM): 500.0	5G. UTM ZONE: 17
6A. INDIVIDUAL TO CONTACT IF MORE INFORMATION IS REQUIRED: Joshua A. Cameron		6B. TITLE: Environmental Compliance Coordinator
6C. TELEPHONE: (304) 872-8115	6D. FAX: (304) 872-7435	6E. E-MAIL: Josh.Cameron@conturaenergy.com
7A. DAQ PLANT I.D. NO. (FOR AN EXISTING FACILITY ONLY): 067 - 11119	7B. PLEASE LIST ALL CURRENT 45CSR13, 45CSR14, 45CSR19 AND/OR TITLE V (45CSR30) PERMIT NUMBERS ASSOCIATED WITH THIS PROCESS (FOR AN EXISTING FACILITY ONLY): G10-B005D	
7C. IS THIS PDF BEING SUBMITTED AS THE RESULT OF AN ENFORCEMENT ACTION? IF YES, PLEASE LIST: No		
8A. TYPE OF EMISSION SOURCE (CHECK ONE): <input type="checkbox"/> NEW SOURCE <input checked="" type="checkbox"/> ADMINISTRATIVE UPDATE <input type="checkbox"/> MODIFICATION <input type="checkbox"/> OTHER (PLEASE EXPLAIN IN 11B)		8B. IF ADMINISTRATIVE UPDATE, DOES DAQ HAVE THE APPLICANT'S CONSENT TO UPDATE THE EXISTING PERMIT WITH THE INFORMATION CONTAINED HEREIN? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
9. IS DEMOLITION OR PHYSICAL RENOVATION AT AN EXISTING FACILITY INVOLVED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
10A. DATE OF ANTICIPATED INSTALLATION OR CHANGE: 08/01/2017		10B. DATE OF ANTICIPATED START-UP: ASAP
11A. PLEASE PROVIDE A DETAILED PROCESS FLOW DIAGRAM SHOWING EACH PROPOSED OR MODIFIED PROCESS EMISSION POINT AS ATTACHMENT B.		
11B. PLEASE PROVIDE A DETAILED PROCESS DESCRIPTION AS ATTACHMENT C.		
12. PLEASE PROVIDE MATERIAL SAFETY DATA SHEETS (MSDS) FOR ALL MATERIALS PROCESSED, USED OR PRODUCED AS ATTACHMENT D. FOR CHEMICAL PROCESSES, PLEASE PROVIDE A MSDS FOR EACH COMPOUND EMITTED TO AIR.		

13A. REGULATED AIR POLLUTANT EMISSIONS:

⇒ FOR A NEW FACILITY, PLEASE PROVIDE PLANT WIDE EMISSIONS BASED ON THE POTENTIAL TO EMIT (PTE) FOR THE FOLLOWING AIR POLLUTANTS INCLUDING ALL PROCESSES.

⇒ FOR AN EXISTING FACILITY, PLEASE PROVIDE THE PROPOSED CHANGE IN EMISSIONS BASED ON THE PTE OF ALL PROCESS CHANGES FOR THE FOLLOWING AIR POLLUTANTS.

PTE FOR A GIVEN POLLUTANT IS TYPICALLY BEFORE AIR POLLUTION CONTROL DEVICES AND IS COLLECTED BASED ON THE MAXIMUM DESIGN CAPACITY OF PROCESS EQUIPMENT.

POLLUTANT	HOURLY PTE (LB/HR)	YEARLY PTE (TON/YR) (HOURLY PTE MULTIPLIED BY 8760 HR/YR) DIVIDED BY 2000 LB/TON
PM	- 5.57 (point)	- 41.39 (point)
PM ₁₀		
VOCs		
CO		
NO _x		
SO ₂		
Pb		
HAPs (AGGREGATE AMOUNT)		
TAPs (INDIVIDUALLY)*		
OTHER (INDIVIDUALLY)*		

* ATTACH ADDITIONAL PAGES AS NEEDED

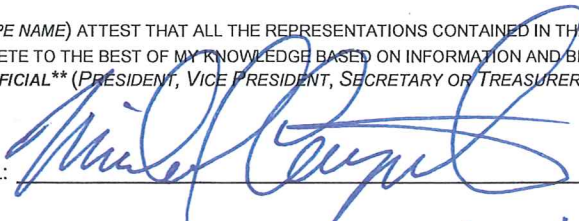
13B. PLEASE PROVIDE ALL SUPPORTING CALCULATIONS AS ATTACHMENT E.

CALCULATE AN HOURLY AND YEARLY PTE OF EACH PROCESS EMISSION POINT (SHOWN IN YOUR DETAILED PROCESS FLOW DIAGRAM) FOR ALL AIR POLLUTANTS LISTED ABOVE INCLUDING INDIVIDUAL HAP'S (LISTED IN SECTION 112[b] OF THE 1990 CAAA), TAP'S (LISTED IN 45CSR27), AND OTHER AIR POLLUTANTS (E.G. POLLUTANTS LISTED IN TABLE 45-13A OF 45CSR13, MINERAL ACIDS PER 45CSR7, ETC.).

14. CERTIFICATION OF DATA

I, MICHAEL CARPENTER (TYPE NAME) ATTEST THAT ALL THE REPRESENTATIONS CONTAINED IN THIS APPLICATION, OR APPENDED HERETO, ARE TRUE, ACCURATE, AND COMPLETE TO THE BEST OF MY KNOWLEDGE BASED ON INFORMATION AND BELIEF AFTER REASONABLE INQUIRY, AND THAT I AM A RESPONSIBLE OFFICIAL** (PRESIDENT, VICE PRESIDENT, SECRETARY OR TREASURER, GENERAL PARTNER OR SOLE PROPRIETOR) OF THE APPLICANT.

SIGNATURE OF RESPONSIBLE OFFICIAL: _____



TITLE: RESPONSIBLE OFFICIAL

DATE: 6 / 16 / 17

** THE DEFINITION OF THE PHRASE 'RESPONSIBLE OFFICIAL' CAN BE FOUND AT 45CSR13, SECTION 2.23.

NOTE: PLEASE CHECK ENCLOSED ATTACHMENTS:

ATTACHMENT A ATTACHMENT B ATTACHMENT C ATTACHMENT D ATTACHMENT E

RECORDS ON ALL CHANGES ARE REQUIRED TO BE KEPT AND MAINTAINED ON-SITE FOR TWO (2) YEARS.

THE PERMIT DETERMINATION FORM WITH THE INSTRUCTIONS CAN BE FOUND ON DAQ'S PERMITTING SECTION WEB SITE:

www.dep.wv.gov/daq

AUTHORITY OF LIMITED LIABILITY COMPANY (LLC)

TO: The West Virginia Department of Environmental Protection, Division of Air Quality

DATE: June 14, 2017

ATTN: Director

LLC's Federal Employer I.D. Number 81-2963897

The undersigned hereby files with the West Virginia Department of Environmental Protection, Division of Air Quality, a permit application and hereby certifies that the said name is a trade name which we are using in the conduct of an unincorporated business.

Further, we have agreed or certified as follows:

- (1) The undersigned is a member and in that capacity may represent the interests of the LLC and may obligate and legally bind all current or future members and the LLC.
- (2) The LLC is authorized to do business in the State of West Virginia.
- (3) The name and business address of each member:

Member: Christopher Ray
Address: #4 Jerry Fork Road, Drennen, WV 26667

Telephone No.: (304) 872-8123

Member: Mark M. Manno
Address: #4 Jerry Fork Road, Drennen, WV 26667

Telephone No.: _____

Member: C. Andrew Eidson
Address: #4 Jerry Fork Road, Drennen, WV 26667

Telephone No.: _____

- (4) If any other persons become members of the undersigned or our relations as such be altered in any way or if the business should become incorporated, the undersigned will notify you promptly.



MEMBER OF LLC (Signature)

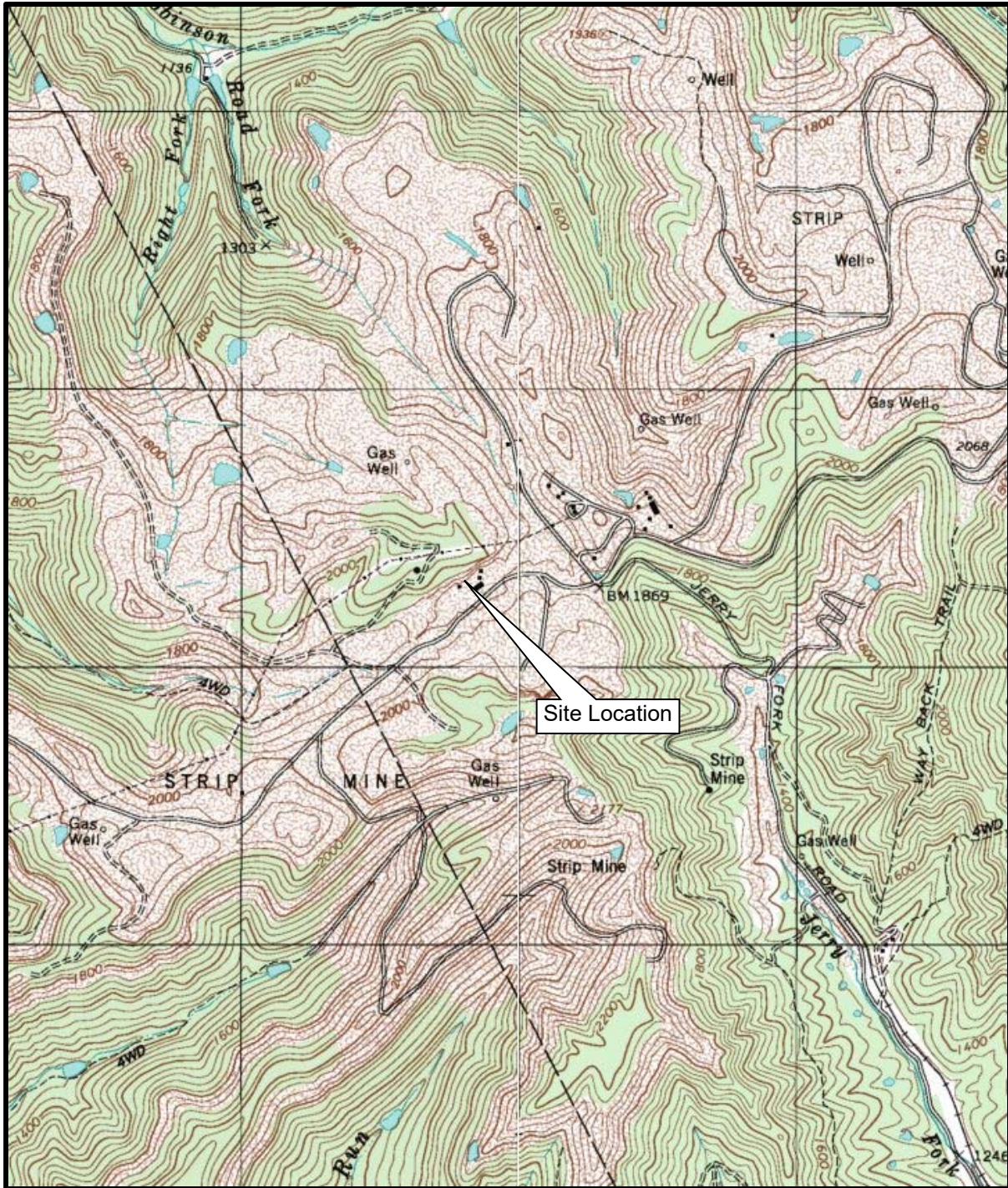
Address: #3 Jerry Fork Road, Drennen, WV 26667

Telephone No.: 304-872-8123

Christopher Ray

MEMBER OF LLC (Typed)

Attachment A



Attachment A

Area Map

USGS 7.5 Minute Series Topographic Map
Lockwood, W.Va. Quadrangle

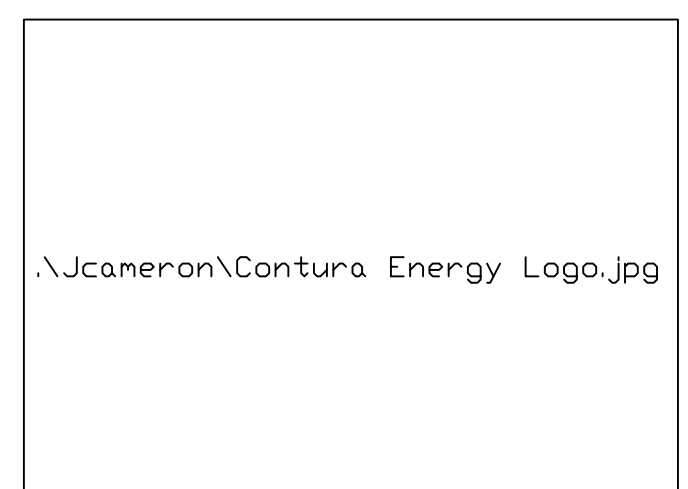
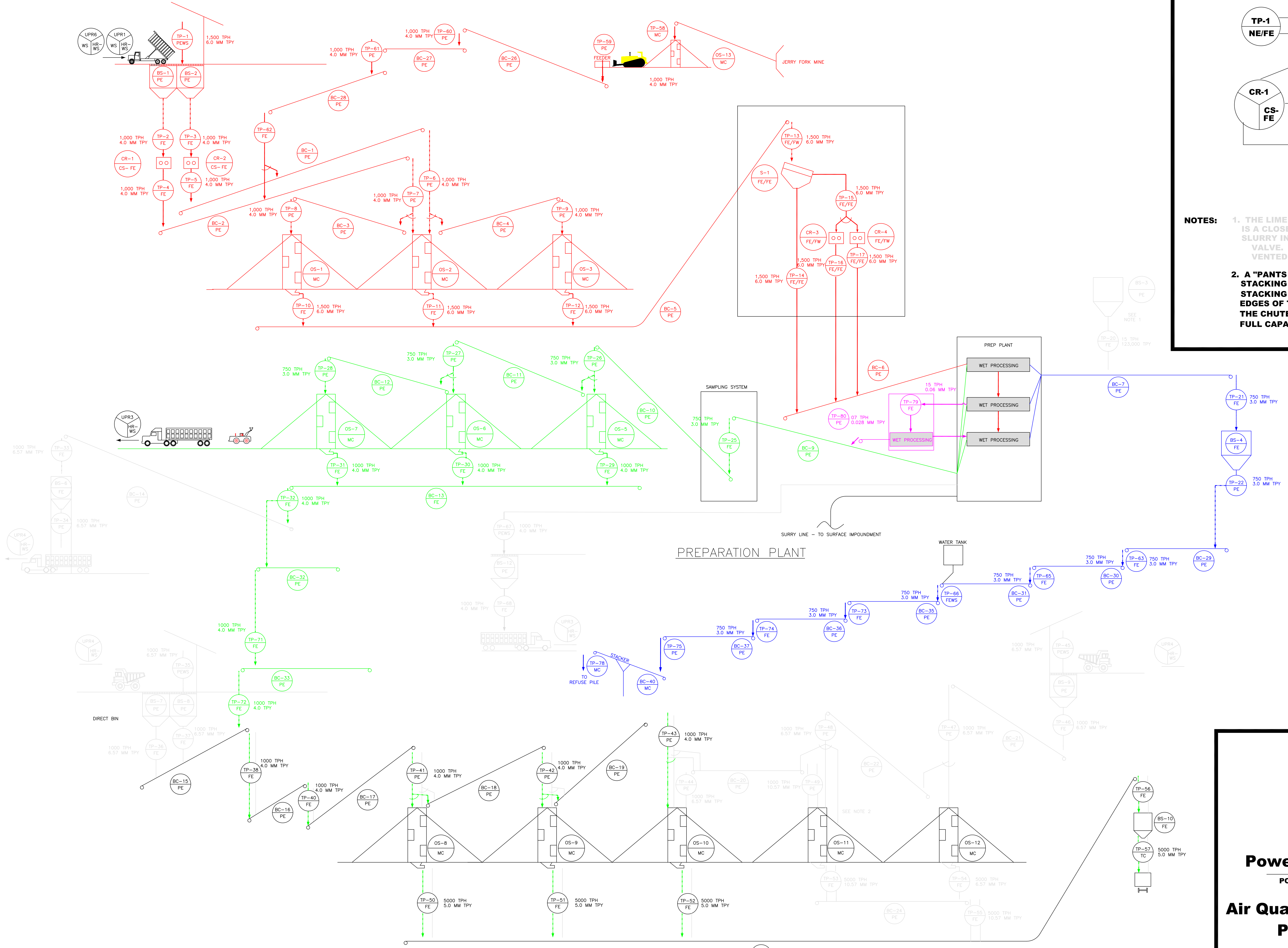
Henthorn Environmental Services LLC

Attachment B

LEGEND

- IDLE IN PLACE OR REMOVED
- RAW COAL
- CLEAN COAL
- REFUSE
- NEW
- TP-1**
NE/FE — TRANSFER POINT/CONVEYOR CONTROL DEVICE
- CR-1**
CS-FE — CONTROL DEVICE
- OS-1** — EQUIPMENT ID
- BC-1** — CONTROL DEVICE
- BS-1** — CONTROL DEVICE

- NOTES:**
1. THE LIME BIN WHICH ADDS LIME TO THE SLURRY IS A CLOSED SYSTEM. LIME IS ADDED TO THE SLURRY IN A MIXING BOX USING A ROTARY GATE VALVE. DURING FILLING THE DISPLACED AIR IS VENTED TO THE MIXING BOX.
 2. A "PANTS LEG CHUTE" IS IN PLACE AT THE TOP OF STACKING TUBE WHICH ALLOWS COAL TO BYPASS THE STACKING TUBE. COAL IS PLACED IN THE OUTER EDGES OF THE STOCKPILE IN ORDER TO INCREASE ITS CAPACITY. THE CHUTE IS ONLY USED WHEN STOCKPILE IS AT FULL CAPACITY IN ORDER TO MINIMIZE DROP HEIGHT.



Power Mountain Contura, LLC
 PO Box 707 Summersville, West Virginia 26651
 1-304-872-8115
Air Quality Permit 03-54-06700019
Process Flow Diagram
Scale: N.T.S.

Attachment C

Attachment C

Process Description

Power Mountain Contura, LLC (Power Mountain) proposes to update General Permit Registration G10-B005D for the coal preparation plant located near Drennen in Nicholas County, West Virginia.

Proposed Modification

Power Mountain is adding coal fines processing equipment to improve recovery at the preparation plant. The only emissions associated with the coal fines recovery system consists of two transfer points. Due to the very low potential throughput rate for the equipment, and due to the high inherent moisture content of the materials, the uncontrolled potential to emit of the equipment is several orders of magnitude below the permitting threshold. The equipment could likely be considered part of the wet processing circuit, but since it is being added in a separate structure outside the preparation plant, it is being included herein for clarity.

Power Mountain also proposes to take a voluntary limit on the total throughput of the facility, as the permitted throughput is no longer realistic for the facility. In addition, Power Mountain has either recently removed or is currently in the process of eliminating certain equipment at the facility, resulting in a reduction in emissions. Haulroad traffic and routes have also been eliminated or curtailed, reducing emissions from the facility. The revisions set forth herein results in a drastic reduction in permitted emissions for the facility. The revisions are identified in the affected source sheets on the following pages and in the emissions calculations in Attachment E.

Attachment D

(Intentionally Blank)

Attachment E

Power Mountain Contura, LLC
Change in Emissions from Facility Revisions

	Current Permit				Permit Determination				Difference			
	Uncontrolled		Controlled		Uncontrolled		Controlled		Uncontrolled		Controlled	
	(lb/hr)	(TPY)	(lb/hr)	(TPY)	(lb/hr)	(TPY)	(lb/hr)	(TPY)	(lb/hr)	(TPY)	(lb/hr)	(TPY)
Stockpiles	1.84	8.05	1.84	8.05	2.79	12.20	2.79	12.20	0.95	4.15	0.95	4.15
Haulroads	17,116.64	26,509.09	5,134.99	7,952.73	6,443.99	16,539.08	1,933.20	4,961.72	-10,672.65	-9,970.01	-3,201.79	-2,991.01
Crush & Screen ¹	110.00	778.00	11.20	37.52	240.00	620.00	10.20	26.80	130.00	-158.00	-1.00	-10.72
Materials Handling	50.95	140.07	14.31	44.65	39.53	53.06	9.74	13.98	-11.42	-87.01	-4.57	-30.67
Point Source Total	160.95	918.07	25.51	82.17	279.53	673.06	19.94	40.78	118.58	-245.01	-5.57	-41.39
Facility Total	17,279.43	27,435.21	5,162.34	8,042.95	6,726.30	17,224.34	1,955.92	5,014.70	-10,553.13	-10,210.87	-3,206.42	-3,028.25

¹ The calculated increase in emissions for crushing and screening appears to be associated with an error in the emissions calculation spreadsheet utilized in the previous permit application. The crushing and screening throughput has decreased substantially in this permit application.

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

k =	Particle Size Multiplier (dimensionless)	PM	PM-10
U =	Mean Wind Speed (mph)	0.74	0.35
		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		Control Device ID Number	Control Efficiency %
			TPH	TPY		
TP-1	Trucks to BS-1 and BS-2	4	1500	6,000,000	PEWS	80
TP-2	BS-1 to CR-1	4	1000	4,000,000	FE	80
TP-3	BS-2 to CR-2	4	1000	4,000,000	FE	80
TP-4	CR-1 to BC-2	4	1000	4,000,000	FE	80
TP-5	CR-2 to BC-1	4	1000	4,000,000	FE	80
TP-6	BC-1 to Stockpile	4	1000	4,000,000	PE	50
TP-7	BC-2 to Stockpile	4	1000	4,000,000	PE	50
TP-8	BC-3 to OS-1	4	1000	4,000,000	PE	50
TP-9	BC-4 to OS-3	4	1000	4,000,000	PE	50
TP-10	or TP-11 & 12 (Stockpiles to BC-5)	4	1500	6,000,000	FE	80
TP-13	BC-5 to S-1	4	1500	6,000,000	FW	90
TP-14	S-1 to BC-5 (Alternative)	4				
TP-15	S-1 to CR-3, CR-4, or OS-4	4	1000	4,000,000	FE	80
TP-16	CR-3 to BC-6	4	1000	4,000,000	FE	80
TP-17	CR-4 to BC-6	4	1000	4,000,000	FE	80
TP-18	Reserved					
TP-19	Reserved					
TP-20	BC-3 to BC-7					
TP-21	BC-7 to BS-4	20	750	3,000,000	FE	80
TP-22	BS-4 to truck or BC-29	20	750	3,000,000	PE	50
TP-23	BC-8 to BS-5					
TP-24	BS-5 to Truck					
TP-25	BC-9 to BC-10	6	750	3,000,000	FE	80
TP-26	BC-10 to OS-5 or BC-11	6	750	3,000,000	PE	50
TP-27	BC-11 to OS-6 or BC-12	6	750	3,000,000	PE	50
TP-28	BC-12 to OS-7	6	750	3,000,000	PE	80
TP-29	or TP-30 & 31 (OS-5, 6, 7 to BC-13)	6	1000	4,000,000	FE	80
TP-32	BC-13 to BC-14 or B-32	6	1000	4,000,000	FE	80
TP-33	Retired in Place					
TP-34	Retired in Place					
TP-35	Truck to BS-7 or BS-8	6				
TP-36	or TP37 BS-7 to BS-15	6				
TP-38	BC-15 to BC-16	6	1000	4,000,000	FE	80
TP-39	Reserved					
TP-40	BC-16 to BC-17	6	1000	4,000,000	FE	80
TP-41	BC-17 to OS-8 or BC-18	6	1000	4,000,000	PE	50
TP-42	BC-18 to OS-9 or BC-19	6	1000	4,000,000	PE	50
TP-43	BC-19 to OS-10 or BC-20	6	1000	4,000,000	PE	50
TP-44	BC-20 to OS-10					
TP-45	Trucks to BS-9					
TP-46	BS-9 to BC-21					
TP-47	BC-21 to BC-22 or OS-12					
TP-48	BC-22 to BC-20 or OS-11					
TP-49	BC-20 to OS-11					
TP-50	(or TP-51, 52) to BC-23	6	5000	5,000,000	FE	80
TP-55	BC-24 to BC-23					
TP-56	BC-23 to BS-10	6	5000	5,000,000	FE	80
TP-57	BS-10 to Railcar	6	5000	5,000,000	TC	75
TP-58	Jerry Fork to OS-13 (Alternative)	4				
TP-59	OS-13 to BC-26 (Alternative)	4				
TP-60	BC-26 to BC-27 (Alternative)	4				
TP-61	BC-27 to BC-28 (Alternative)	4				
TP-62	BC-28 to BC-1 or 2 (Alternative)	4				
TP-63	BC-29 to BC-30	10	750	3,000,000	FE	80
TP-64	Reserved					
TP-65	BC-30 to BC-31	10	750	3,000,000	FE	80
TP-66	BC-31 to BC-35	10	750	3,000,000	FW	90
TP-67	Direct Ship Truck to BS-12					
TP-68	BS-12 to BC-34					
TP-69	BC-34 to CR-5					
TP-70	CR-5 to BC-33					

EMISSIONS SUMMARY

Name of applicant: Power Mountain Contura
 Name of plant: Power Mountain Plant

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

Uncontrolled PM		Controlled PM	
lb/hr	TPY	lb/hr	TPY

FUGITIVE EMISSIONS				
<i>Stockpile Emissions</i>	2.79	12.20	2.79	12.20
<i>Unpaved Haulroad Emissions</i>	6,443.99	16,539.08	1,933.20	4,961.72
<i>Paved Haulroad Emissions</i>	0.00	0.00	0.00	0.00
Fugitive Emissions Total	6,446.77	16,551.28	1,935.98	4,973.92

POINT SOURCE EMISSIONS				
<i>Equipment Emissions</i>	240.00	620.00	10.20	26.80
<i>Transfer Point Emissions</i>	39.53	53.06	9.74	13.98
Point Source Emissions Total*	279.53	673.06	19.94	40.78

*Note: Point Source Total Controlled PM TPY emissions is used for 45CSR14 Major Source determination (see below)

Facility Emissions Total	6,726.30	17,224.34	1,955.92	5,014.70
---------------------------------	-----------------	------------------	-----------------	-----------------

***Facility Potential to Emit (PTE) (Baseline Emissions) = 40.78**
 (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				
<i>Stockpile Emissions</i>	1.31	5.73	1.31	5.73
<i>Unpaved Haulroad Emissions</i>	1,902.01	4,881.69	570.60	1,464.51
<i>Paved Haulroad Emissions</i>	0.00	0.00	0.00	0.00
Fugitive Emissions Total	1,903.32	4,887.42	571.91	1,470.24

POINT SOURCE EMISSIONS				
<i>Equipment Emissions</i>	112.80	291.40	4.79	12.60
<i>Transfer Point Emissions</i>	18.70	25.10	4.60	6.61
Point Source Emissions Total*	131.50	316.50	9.40	19.21

*Note: Point Source Total Controlled PM-10 TPY emissions is used for 45CSR30 Major Source determination

Facility Emissions Total	2,034.82	5,203.92	581.31	1,489.45
---------------------------------	-----------------	-----------------	---------------	-----------------

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-1	15.000	40.000	3.000	8.000	7.050	18.800	1.410	3.760
CR-2	15.000	40.000	3.000	8.000	7.050	18.800	1.410	3.760
CR-5	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	30.000	80.000	6.000	16.000	14.100	37.600	2.820	7.520

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
CR-3	30.000	120.000	0.600	2.400	14.100	56.400	0.282	1.128
CR-4	30.000	120.000	0.600	2.400	14.100	56.400	0.282	1.128
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	60.000	240.000	1.200	4.800	28.200	112.800	0.564	2.256

1c. Screening

Screen ID Number	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
S-1	150.000	300.000	3.000	6.000	70.500	141.000	1.410	2.820
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	150.000	300.000	3.000	6.000	70.500	141.000	1.410	2.820

Crushing and Screening	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
TOTAL	240.000	620.000	10.200	26.800	112.800	291.400	4.794	12.596

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 (continued)

Transfer Point ID No.	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
TOTALS	39.528	53.058	9.735	13.975	18.696	25.095	4.605	6.610

Source:

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

Emissions From Batch Drop

$$E = k \cdot (0.0032) \cdot [(U/5)^{1.3}] / [(M/2)^{1.4}] = \text{pounds/ton}$$

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= $\$88 \cdot (0.0032) \cdot (((\text{Inputs!}\$72)/5)^{1.3}) / (((\text{Inputs!}G78 + 0.00000001)/2)^{1.4})$
 =lb/ton

For PM-10 E= $\$J88 \cdot (0.0032) \cdot (((\text{Inputs!}\$72)/5)^{1.3}) / (((\text{Inputs!}G78 + 0.00000001)/2)^{1.4})$
 =lb/ton

For lb/hr $[\text{lb/ton}] \cdot [\text{ton/hr}] = [\text{lb/hr}]$

For Tons/year $[\text{lb/ton}] \cdot [\text{ton/yr}] \cdot [\text{ton}/2000\text{lb}] = [\text{ton/yr}]$

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-1-3	0.589	2.578	0.589	2.578	0.277	1.211	0.277	1.211
OS-4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OS-5-7	0.737	3.228	0.737	3.228	0.346	1.517	0.346	1.517
OS-8-12	1.163	5.094	1.163	5.094	0.547	2.394	0.547	2.394
OS-13	0.297	1.300	0.297	1.300	0.140	0.611	0.140	0.611
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
TOTALS	2.785	12.199	2.785	12.199	1.309	5.734	1.309	5.734

Source:

Air Pollution Engineering Manual

Storage Pile Wind Erosion (Active Storage)

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

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

$$E = (1.7) * ((\text{Inputs!F147})/1.5) * ((365 - \text{Inputs!I139})/235) * ((\text{Inputs!I140})/15)$$

For PM-10

$$E = 0.47 * (1.7) * ((\text{Inputs!F147})/1.5) * ((365 - \text{Inputs!I139})/235) * ((\text{Inputs!I140})/15)$$

For lb/hr

$$[\text{lb/day/acre}] * [\text{day/24hr}] * [\text{base area of pile (acres)}] = \text{lb/hr}$$

For Ton/yr

$$[\text{lb/day/acre}] * [365 \text{ day/yr}] * [\text{Ton}/2000 \text{ lb}] * [\text{base area of pile (acres)}] = \text{Ton/yr}$$

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	1664.49	8028.70	499.35	2408.61	491.29	2369.76	147.39	710.93
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	2484.67	7978.63	745.40	2393.59	733.38	2354.98	220.01	706.49
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	25.08	109.84	7.52	32.95	7.40	32.42	2.22	9.73
6	2269.75	421.91	680.93	126.57	669.94	124.53	200.98	37.36
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	6443.99	16539.08	1933.20	4961.72	1902.01	4881.69	570.60	1464.51

Source:

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

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

$$E = k \cdot (s/12)^a \cdot (W/3)^b = \text{lb/vmt}$$

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
P =	number of days per year with precipitation >0.01 inch	157	

Emission Factors

For PM $E = ((\$35) \cdot (((\text{Inputs!}\$163)/12)^{\$36}) \cdot (((\text{Inputs!}H171)/3)^{\$37})) \cdot ((365 - \$163) \cdot P)$

For PM-10 $E = ((\$J35) \cdot (((\text{Inputs!}\$163)/12)^{\$J36}) \cdot (((\text{Inputs!}H171)/3)^{\$J37})) \cdot ((365 - \$163) \cdot P)$

For lb/hr $(\text{lb/vmt}) \cdot (\text{miles per trip}) \cdot (\text{Max trips per hour})$

For Ton/yr $(\text{lb/vmt}) \cdot (\text{miles per trip}) \cdot (\text{Max trips per year}) \cdot (1/2000)$

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Source:

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

Emission Estimate For Paved Haulroads

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

Where:

		PM	PM-10
k =	particle size multiplier	0.082	0.016
sL =	road surface silt loading, (g/ft ²)	70	
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 $E = (\$34 * (((\$35)/2)^{0.65} * (((\text{Inputs!G190})/3)^{1.5}) - (\$38)) * (1 - ((\text{Inputs!G184})/4))$

For PM-10 $E = (\$34 * (((\$35)/2)^{0.65} * (((\text{Inputs!G190})/3)^{1.5}) - (\$38)) * (1 - ((\text{Inputs!G184})/4))$

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)