



**Environmental Health Department  
Air Quality Division  
Interoffice Memorandum**



Richard J. Berry, Mayor

Mary Lou Leonard, Director

To: Permit File

From: Regan Eyerman, Environmental Health Scientist

Date: August 12, 2016

Subject: Permit #1529-M3 and Certificate of Registration, **Airs #NM/001/00042, Facility ID: FA0004746; Record ID: PR0007438**

Location: Albuquerque Metals Recycling, Inc., 3339 Second Street SW, Albuquerque, NM 87105  
UTMN: 3878090 UTME: 348685

Proposal: Albuquerque Metals Recycling, Inc. has submitted a construction air quality permit application, to modify Authority-to-Construct #1529-M2, to the Air Quality Program (Program) of the City of Albuquerque Environmental Health Department. Albuquerque Metals Recycling is requesting to update their permit to account for all of the conveyor drop points, screens and storage piles, as well as an aboveground gasoline storage tank, at their facility. The application also intends to provide advance notification of equipment upgrades planned for the near future. The process flow including equipment is illustrated in the attached chart entitled "Albuquerque Metals: Process Equipment and Flow Diagram."

The proposed facility will consist of one (1) hammermill shredder, twenty-seven (27) conveyor drop points, one (1) cyclone for dust suppression, seven (7) screens, one (1) aboveground gasoline storage tank, storage piles and plant haul roads. The facility is located at 3339 Second Street SW in Albuquerque, New Mexico. This application file has been assigned Permit #1529-M3.

Additionally, a control efficiency of 90% on emissions from metal recycling will be achieved through a water injection system. A control efficiency of 90% on emissions from haul roads will be achieved through application of water. Material storage pile emissions are to be regulated under Fugitive Dust Control 20.11.20.12A. NMAC General Provisions.

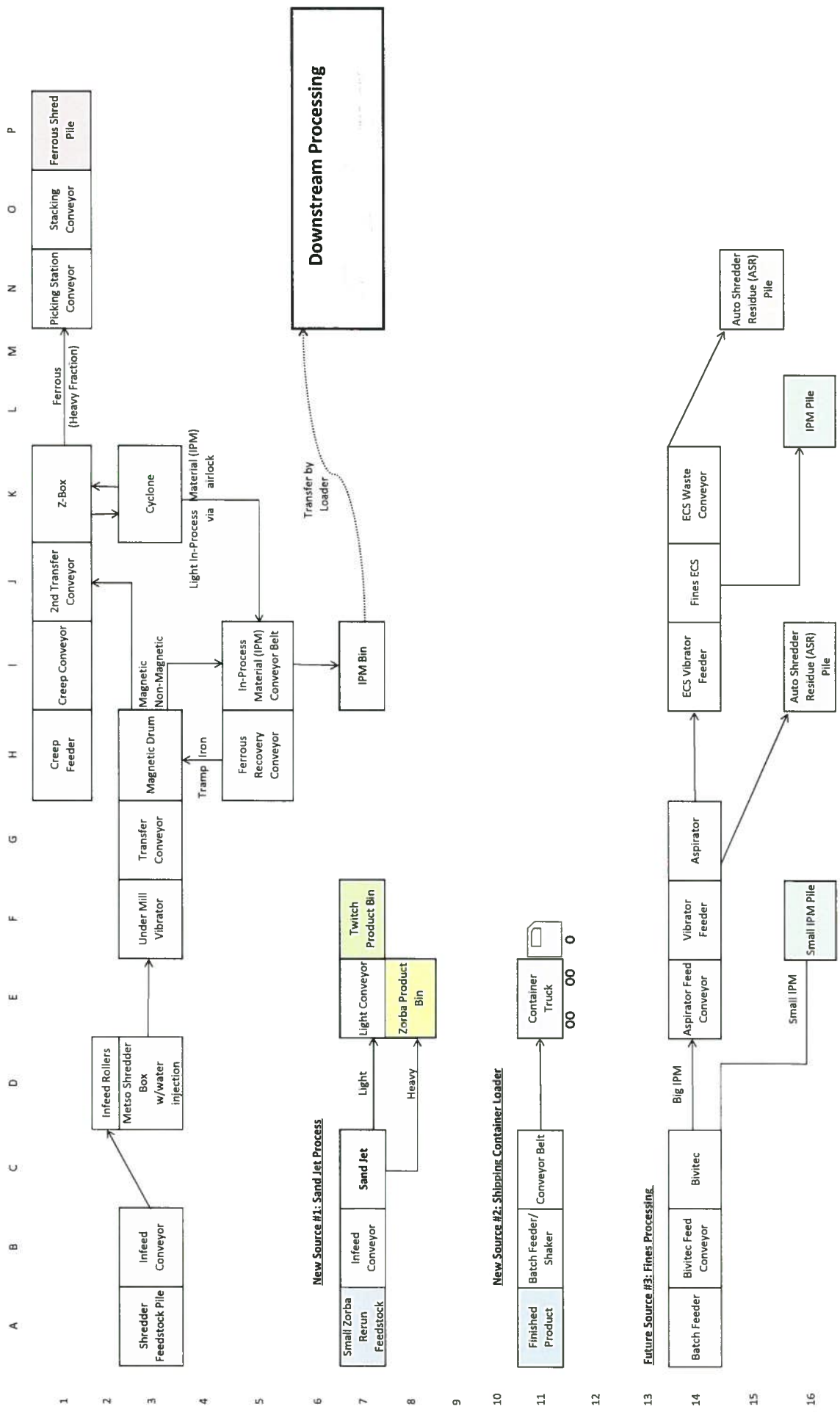
The methodology used for setting process rates are based upon a combination of industry knowledge, manufacturer's specifications, and conservative estimation. Process rates for the shredder system are based on the maximum capacity specifications from the manufacturer. The process rates account for an accepted industry standard of up to 25% of the shredder infeed material to be a combination of non-metallic auto shredder residue (ASR) and non-ferrous metallic material. This 25% fraction is used as the maximum input for the downstream processing system. Per the manufacture's specifications, this downstream system is not equipped to handle the entire 25% fraction (50 tons per hour) in a one-to-one process rate with the shredder. However, for the purposes of this permit application, emissions rates and process rates for the downstream system were demonstrated at 25% of shredder input rate to provide a conservative estimate of emissions. Rating the downstream system for this full rate (50 tons per hour) is estimated to be 25% higher than what the downstream system is designed for (40 tons per hour), this provides a sufficiently conservative estimate of system emissions.

The non-ferrous (NF) downstream system begins with a trommel screening process to sort the material based on size. The screening process sorts the material into four groups which are then carried by a *combination* of conveyors to units designed to further separate metallic materials from non-metallic materials. This process is a deductive process where material is being sorted out and removed from the process into commodity storage locations (light-fraction ferrous, zorba, ASR, et cetera) at various stages. Even though the process removes material at various stages the calculations in this application were on the basis of the entirety of the input remaining in process until the end of the sorting process. This assumption provides a conservative estimate of maximum possible emissions. As the downstream process has four separate paths based on size, the calculations were completed assuming an even distribution of the maximum infeed across the four paths ( $50/4 = 12.5$  tons each). Based on this assumption, the entirety of the infeed is spread evenly in the process and all material infeed is accounted for at any given time. Accepted industry standards for material sorting shows the material would be expected to be within the +/- 10% of the average in tons per hour. The accepted industry standard for downstream sorting is illustrated in the attached chart entitled "Downstream Processing".

The fines-processing system, which is planned for installation within the next 12 months, is also included in this submission. While the shredder and downstream process rates are based upon a percentage of the shredded input feed rate using the methodology described above, the fines-processing system unit rates are based on the manufacture's specified maximum input rate of 20 tons per hour.

**Albuquerque Metals: Process Equipment and Flow Diagram**

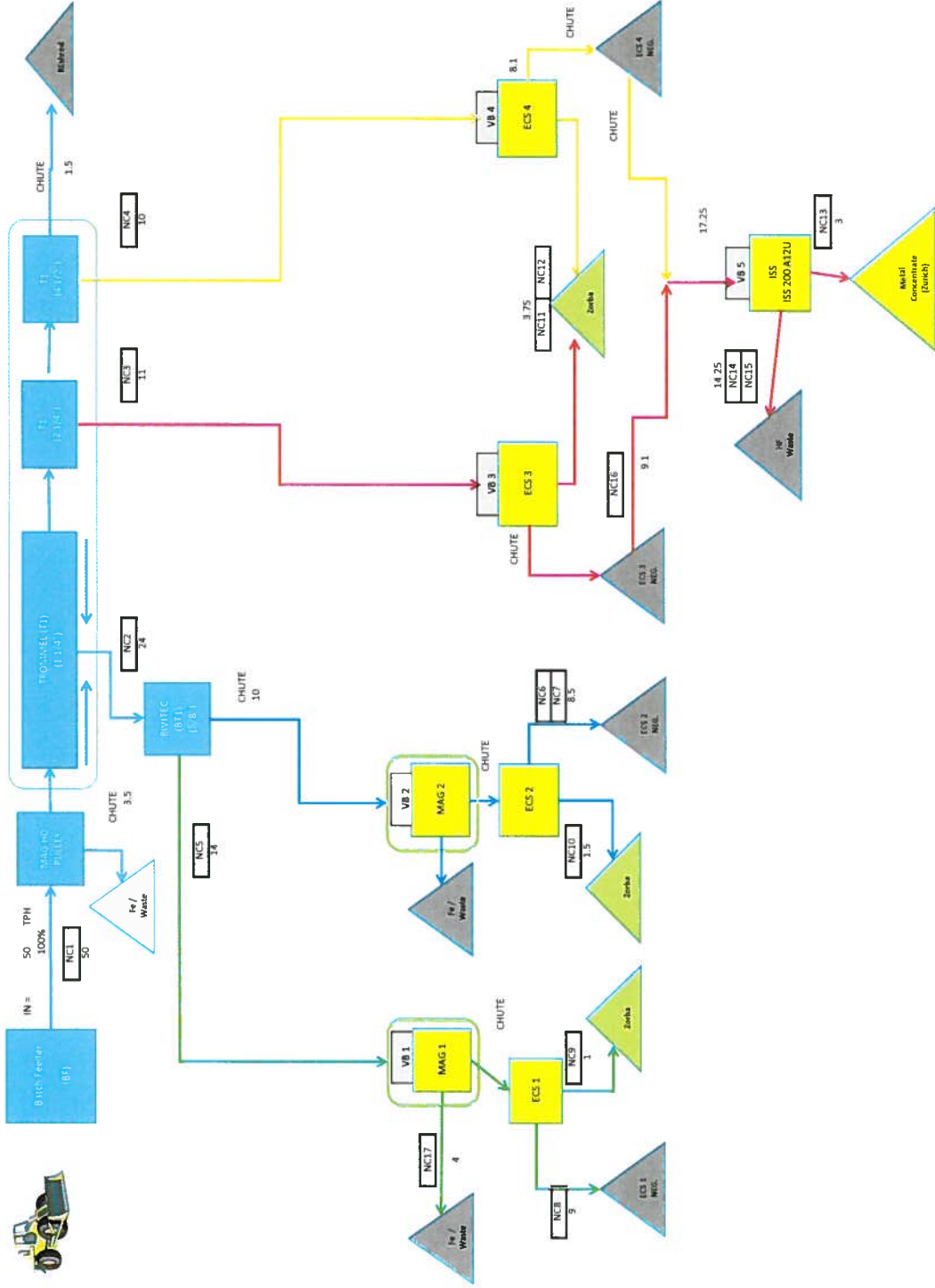
July 2016



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

# Downstream Processing

July 2016



INPUT FEEDER (BF)	% IN	TPH	SPEED
NC1	100%	50	125
MAG1	7%	3.5	250
TRIMMABLE	93%	46.5	100
NC2	48%	24	250
BIVITEC	48%	24	150
NC3	22%	11	250
NC4	20%	10	250
ECS1	28%	14	350
ECS2	20%	10	350
ECS3	22%	11	350
ECS4	20%	10	350
NC6	17%	8.5	250
NC7	17%	8.5	250
NC8	18%	9	250
NC9	2%	1	250
NC10	3%	1.5	250
NC11	8%	3.75	250
NC12	8%	3.75	250
NC13	6%	3	250
NC14	29%	14.25	250
NC15	29%	14.25	250
NC16	18%	9.1	250
NC17	8%	4	250
ISS 200	35%	17.25	400

Applicability: **Source Registration, 20.11.40.6 NMAC**

Any source which emits more than 2000 lbs of any air contaminant per year must obtain a Registration Certificate from the Program.

**Construction Permit, 20.11.41 NMAC**

20.11.41.2.C.(1) – Applicable as the applicant will be installing equipment which is subject to 20.11.64 NMAC.

**Permit Fees, 20.11.2 NMAC**

Permit application review fees:

20.11.2.19.A.(2) – Modification of existing permits for proposed sources with a proposed allowable emission rate equal to or greater than 5 tons per year and less than 25 tons per year: \$1,625.00.

20.11.2.18.D(3) – Review fee for 40 CFR 63 standards is \$1,083.00

The Department received proof of payment on July 13, 2015 and January 4, 2016.

Annual emissions fee:

20.11.2.21.B – Sources shall pay a minimum annual emissions fee of \$201.00 flat or \$48.00 per ton, whichever is greater.

Note: CPI Adjusted fees are shown and went into effect January 1, 2016.

**General Provisions, 20.11.1 NMAC**

**Emission Standards For Hazardous Air Pollutants For Stationary Sources, 20.11.64 NMAC**

20.11.64.12 – INCORPORATION OF FEDERAL STANDARDS CODIFIED AT 40 CFR PART 63: Except as otherwise provided, the National Emissions Standards for Hazardous Air Pollutants for Source Categories including the General Provisions thereto, promulgated by the United States Environmental Protection Agency and codified at 40 CFR Part 63, as amended in the Federal Register through July 1, 2004, are hereby incorporated as Air Quality Control Board Regulations of the Albuquerque/Bernalillo County Air Quality Control Board.

- This facility is subject to the requirements of the Federal National Emissions Standard for Hazardous Air Pollutants (NESHAP) found in 40 CFR 63 Subpart CCCCCC – National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities as well as the general requirements of 40 CFR 63 Subpart A – General Provisions. The permittee shall comply with the specific requirements of Subpart CCCCCC applicable to new gasoline dispensing facilities.

**Visible Air Contaminants, 20.11.5 NMAC**

20.11.5.12 -- No person shall cause or allow visible emissions from any source to exceed 20 percent opacity, 6 minute timed average.

**Ambient Air Quality Standards, 20.11.8 NMAC**

Stationary sources must demonstrate compliance with the Federal and State ambient concentration standards specified in 20.11.8.13 NMAC.

**Fugitive Dust Control, 20.11.20 NMAC**

20.11.20.12.A – No person shall allow fugitive dust, track out, or transported material from vehicle traffic areas and haul roads to be carried beyond the property line, right-of-way, easement or any other area under control of the person generating or allowing the fugitive dust. To mitigate fugitive dust, all inactive disturbed surface areas must be stabilized and maintained in stable condition by the owner, operator, or person responsible for maintenance of the disturbed surface.

***Administration, Enforcement, Inspection, 20.11.90 NMAC***

20.11.90.13.A- The owner or operator of any stationary source of an air contaminant shall, upon notification by the Director, maintain records of the nature and amounts of emissions, to which an air quality control emission regulation applies, from the source and any other information as may be deemed necessary by the Director to determine whether the source is in compliance with applicable regulations.

20.11.90.13.E-The Director shall establish a periodic visual surveillance system to detect and investigate apparent violations of visible emission limitations and such complaints relating to apparent violations of the regulations as may occur.

20.11.90.14.A-Upon request of the Director, the person responsible for the emission of air contaminants for which limits are established by the 20.11 NMAC rules shall provide such facilities, utilities, and openings exclusive of instrument and sensing devices, as may be necessary for the proper determination of the nature, extent, quantity and degree of such air contaminants. Such facilities may be either temporary or permanent at the discretion of the person responsible for their provisions; and shall be suitable for determination consistent with emission limits established in these Parts.

**Public Notice:** Public notice for this permit was published on April 6, 2016. The public comment period ended on May 6, 2016. During this period a petition was received by Mr. Lauro Silva, President of the Mountain View Neighborhood Association, with twenty-six (26) signatures requesting a public information hearing (PIH). Ms. Marla Painter, President of Mountain View Community Action, sent an email during this period requesting a copy of the permit application which was supplied to her.

**Compliance:** The following permit conditions apply:

1. The facility is limited to the following operational restrictions:
  - i. The facility may operate continuously;
  - ii. Fencing/barriers shall be installed and maintained restricting access to the property;
  - iii. Process equipment unit #1 shall not exceed a production rate of 200 ton/hr;
  - iv. Process equipment unit #1 shall be equipped with a water injection system;
  - v. Process equipment unit #5 shall not exceed a production rate of 50 tons/hr;
  - vi. Process equipment unit #9 shall not exceed a production rate of 20 tons/hr; and,
  - vii. Process equipment unit #13 annual throughput shall be limited to 3703 gallons of gasoline per 12-month rolling period.
4. Record, monitor and log the hourly throughputs for emission unit #1 using the belt scale on the shredder.
5. Record, monitor and log the hourly throughputs for emission units #5 and 9 via number of buckets loaded.
6. Record and monitor the annual gasoline throughput for emission unit #13. These records must be retained for the most recent five-year period for the facility.
7. Record and monitor the daily application of water to the haul roads. If application of water is not required, the daily record shall indicate why application was not necessary (i.e. recent rain, snowfall, etc.).
8. Report an annual (January 1 through December 31 of the previous year) emissions inventory to include the annual production in tons, together with descriptions of any reconfiguration of process technology and air pollution equipment by March 15 every year.
9. An initial performance test shall be conducted on emission units #3 through 10 to demonstrate compliance with the opacity standards established in Condition I.2.a).

**Actions Taken:**

- 7/13/2015 Received application
- 8/17/2015 Application ruled incomplete
- 9/4/2015 Members of the City of Albuquerque Air Quality Program (Program) visit the Albuquerque Metals Recycling, Inc. and receive a tour of the facility



- 10/28/2015 Facility received Post Inspection Notification from the Program for not submitting application to modify permit prior to construction of auto shredder residue piles and tank dispensing gasoline
- 12/7/2015 Received updated application
- 1/06/2016 Application ruled incomplete
- 3/10/2016 Air dispersion model received by the Program
- 4/01/2016 Application ruled complete
- 4/18/2016 Request for PIH received by Lauro Silva
- 5/06/2016 Application sent to Marla Painter at her request
- 5/17/2016 Draft permit sent to Envirosure, consultant to Albuquerque Metals Recycling, for review
- 6/01/2016 Another site visit to the facility paid by Regan Eyeran and Damon Reyes of the Program, Steve Wood of Albuquerque Metals Recycling, Inc. and Hal Rosen of Envirosure
- 6/03/2016 Request for PIH received by Marla Painter
- 6/06/2016 Request for PIH received by Andrés Romero, District 10 Representative
- 7/07/2016 Conference call between representatives of the Program and Envirosure
- 7/15/2015 Received updated application
- 7/22/2016 Updated draft permit sent to Envirosure for their review
- 7/27/2016 Updated air dispersion model received by the Program
- 8/03/2016 Jeff Stonesifer, model reviewer, provided concerns on air dispersion model to consultant
- 8/04/2016 Updated air dispersion model received by the Program addressing Jeff's concerns
- 8/05/2016 Final draft permit sent to Envirosure for review, they replied they had no comment on draft
- 8/08/2016 Air dispersion model review completed

Annual Fees: Pursuant to Permit Fees, 20.11.2.21.B NMAC, annual fee of \$768.00 (16 tpy @ \$48.00 per ton)

Emission Unit Number	TSP, TPY	VOC, TPY
1	2.1	--
2	3.75	--
3	0.28	--
4	0.03	--
5	0.03	--
6	0.13	--
7	0.48	--
8	0.60	--
9	0.19	--
10	0.06	--
11	0.08	--
12	8.67	--
13	--	0.07
<b>Total TPY = 16 tons</b>	<b>16</b>	<b>0</b>

## Process Equipment Tables

### Ferrous Processing

Process Equipment Unit #	Process Equipment Description	Manufacturer	Model Number	Serial Number	Date of Mfg.	Rated Process Rate (each)	Unit Subject To NSPS
1	Hammer Mill	Metso	98 X 104	N/A	2011	200 ton/hr	No
2	Cyclone	Metso	250 HP Fan	N/A	2011	150 ton/hr	No
3	Ferrous Conveyors (3)	Metso	N/A	N/A	2011	150 ton/hr	No
4	Non-Ferrous (NF) Conveyor	Metso	N/A	N/A	2011	50 ton/hr	No

### Non-Ferrous and Fines Processing

Process Equipment Unit #	Process Equipment Description	Manufacturer	Model Number	Serial Number	Date of Mfg.	Rated Process Rate (each)	Unit Subject To NSPS
5	Pre-Trommel NF Conveyor	Metso	N/A	N/A	2011	50 ton/hr	No
6	Post-Trommel NF Conveyors (17)	Metso	N/A	N/A	2011	12.5 ton/hr	No
7	NF Trommel Screening	Metso	N/A	N/A	2011	50 ton/hr	No
8	Post-Trommel Screening (5)	Metso	N/A	N/A	2011	12.5 ton/hr	No
9	Fines Screening	Metso	N/A	N/A	2011	20 ton/hr	No
10	Fines Conveyors (5)	Metso	N/A	N/A	2011	20 ton/hr	No
11	Auto Shredder Residue (ASR) Piles (4)	N/A	N/A	N/A	N/A	N/A	No

### Other Equipment

Process Equipment Unit #	Process Equipment Description	Manufacturer	Model Number	Serial Number	Date of Mfg.	Rated Process Rate (each)	Unit Subject To NSPS
12	Unpaved Haul Road	N/A	N/A	N/A	N/A	N/A	No
13	Gasoline Above-Ground Storage Tank	N/A	N/A	N/A	N/A	N/A	No



**Table A  
Uncontrolled and Controlled Emissions  
Hammer Mill**

Controlled TSP, PM10 and PM2.5 emissions have been calculated from a study conducted at the Capital City Metals, LLC facility in Indianapolis, IN. Compliance emission tests were performed on February 8, 2005 to measure particulate emissions from their hammermill. According to the summary of emissions for the shredder, an average production rate of 67.5 tons/hr produced an average emissions rate of 0.16 lb/hr (0.16 lb/hr / 67.5 tons/hr = 0.00237 lb/ton). Uncontrolled emission estimates are based on controlled emissions divided by a 90% control efficiency using a water injection system. Uncontrolled and controlled emissions are based on 8,760 hours annually with a process rate of 200 tons/hr.

Emission Unit Number	Pollutant	Emission Rate (lb/ton)	Emission Calculation	Emissions lbs/hour	Emissions tons/year
1	TSP	0.00237 lb/ton	$[200 \text{ ton/hr}][0.00237 \text{ lbs/ton}]/[1-0.9] = 4.74 \text{ lb/hr}$ $[4.74 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 20.76 \text{ tpy}$	4.74	20.76
Uncontrolled (8,760 hours)	PM <sub>10</sub>	0.00237 lb/ton	$[200 \text{ ton/hr}][0.00237 \text{ lbs/ton}]/[1-0.9] = 4.74 \text{ lb/hr}$ $[4.74 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 20.76 \text{ tpy}$	4.74	20.76
	PM <sub>2.5</sub>	0.00237 lb/ton	$[200 \text{ ton/hr}][0.00237 \text{ lbs/ton}]/[1-0.9] = 4.74 \text{ lb/hr}$ $[4.74 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 20.76 \text{ tpy}$	4.74	20.76
1	TSP	0.00237 lb/ton	$[200 \text{ ton/hr}][0.00237 \text{ lbs/ton}] = 0.47 \text{ lb/hr}$ $[0.47 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 2.08 \text{ tpy}$	0.47	2.08
	PM <sub>10</sub>	0.00237 lb/ton	$[200 \text{ ton/hr}][0.00237 \text{ lbs/ton}] = 0.47 \text{ lb/hr}$ $[0.47 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 2.08 \text{ tpy}$	0.47	2.08
	PM <sub>2.5</sub>	0.00237 lb/ton	$[200 \text{ ton/hr}][0.00237 \text{ lbs/ton}] = 0.47 \text{ lb/hr}$ $[0.47 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 2.08 \text{ tpy}$	0.47	2.08

**Table B  
Uncontrolled and Controlled Emissions  
Cyclone**

Controlled TSP, PM10 and PM2.5 emissions have been calculated using the Institute of Scrap Recycling Industries, Title V Workbook, Appendix D, Table D-11.A. Uncontrolled emission estimates are based on controlled emissions divided by a 90% control efficiency using a water injection system. Uncontrolled and controlled emissions are based on 8,760 hours annually with a process rate of 150 tons/hr.

Emission Unit Number	Pollutant	Emission Rate (lb/ton)	Emission Calculation	Emissions lbs/hour	Emissions tons/year
2	TSP	0.00571 lb/ton	$[150 \text{ ton/hr}][0.00571 \text{ lbs/ton}]/[1-0.9] = 8.57 \text{ lb/hr}$ $[8.57 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 37.51 \text{ tpy}$	8.57	37.51
Uncontrolled (8,760 hours)	PM <sub>10</sub>	0.00571 lb/ton	$[150 \text{ ton/hr}][0.00571 \text{ lbs/ton}]/[1-0.9] = 8.57 \text{ lb/hr}$ $[8.57 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 37.51 \text{ tpy}$	8.57	37.51
	PM <sub>2.5</sub>	0.00571 lb/ton	$[150 \text{ ton/hr}][0.00571 \text{ lbs/ton}]/[1-0.9] = 8.57 \text{ lb/hr}$ $[8.57 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 37.51 \text{ tpy}$	8.57	37.51
2	TSP	0.00571 lb/ton	$[150 \text{ ton/hr}][0.00571 \text{ lbs/ton}] = 0.86 \text{ lb/hr}$ $[0.86 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 3.75 \text{ tpy}$	0.86	3.75
	PM <sub>10</sub>	0.00571 lb/ton	$[150 \text{ ton/hr}][0.00571 \text{ lbs/ton}] = 0.86 \text{ lb/hr}$ $[0.86 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 3.75 \text{ tpy}$	0.86	3.75
	PM <sub>2.5</sub>	0.00571 lb/ton	$[150 \text{ ton/hr}][0.00571 \text{ lbs/ton}] = 0.86 \text{ lb/hr}$ $[0.86 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 3.75 \text{ tpy}$	0.86	3.75

**Table C  
Uncontrolled and Controlled Emissions  
Ferrous Conveyors (3 Total)**

Controlled TSP, PM10 and PM2.5 emissions have been calculated using AP-42 Table 11.19.2-2, Crushed Stone Processing Operations. Uncontrolled emission estimates are based on controlled emissions divided by a 90% control efficiency using a water injection system. Uncontrolled and controlled emissions are based on 8,760 hours annually with a process rate of 150 tons/hr.

Emission Unit Number	Pollutant	Emission Rate (lb/ton)	Emission Calculation	Emissions lbs/hour x3	Emissions tons/year x3
3	TSP	0.00014 lb/ton	$[150 \text{ ton/hr}][0.00014 \text{ lbs/ton}]/[1-0.9] = 0.21 \text{ lb/hr}$ $[0.21 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.92 \text{ tpy}$	0.63	2.76
Uncontrolled (8,760 hours)	PM <sub>10</sub>	0.000046 lb/ton	$[150 \text{ ton/hr}][0.000046 \text{ lbs/ton}]/[1-0.9] = 0.07 \text{ lb/hr}$ $[0.07 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.30 \text{ tpy}$	0.21	0.91
	PM <sub>2.5</sub>	0.000013 lb/ton	$[150 \text{ ton/hr}][0.000013 \text{ lbs/ton}]/[1-0.9] = 0.02 \text{ lb/hr}$ $[0.02 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.09 \text{ tpy}$	0.06	0.26
3	TSP	0.00014 lb/ton	$[150 \text{ ton/hr}][0.00014 \text{ lbs/ton}] = 0.02 \text{ lb/hr}$ $[0.02 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.09 \text{ tpy}$	0.06	0.28
	PM <sub>10</sub>	0.000046 lb/ton	$[150 \text{ ton/hr}][0.000046 \text{ lbs/ton}] = 0.007 \text{ lb/hr}$ $[0.007 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.03 \text{ tpy}$	0.02	0.09
	PM <sub>2.5</sub>	0.000013 lb/ton	$[150 \text{ ton/hr}][0.000013 \text{ lbs/ton}] = 0.002 \text{ lb/hr}$ $[0.002 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.009 \text{ tpy}$	0.006	0.03

**Table D  
Uncontrolled and Controlled Emissions  
Non-Ferrous Conveyors (2 Total)**

Controlled TSP, PM10 and PM2.5 emissions have been calculated using AP-42 Table 11.19.2-2, Crushed Stone Processing Operations. Uncontrolled emission estimates are based on controlled emissions divided by a 90% control efficiency using a water injection system. Uncontrolled and controlled emissions are based on 8,760 hours annually with a process rate of 50 tons/hr.

**Transfer Points**

Emission Unit Number	Pollutant	Emission Rate (lb/ton)	Emission Calculation	Emissions lbs/hour x2	Emissions tons/year x2
4, 5	TSP	0.00014 lb/ton	$[50 \text{ ton/hr}][0.00014 \text{ lbs/ton}]/[1-0.9] = 0.07 \text{ lb/hr}$ $[0.07 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.31 \text{ tpy}$	0.14	0.61
Uncontrolled (8,760 hours)	PM <sub>10</sub>	0.000046 lb/ton	$[50 \text{ ton/hr}][0.000046 \text{ lbs/ton}]/[1-0.9] = 0.02 \text{ lb/hr}$ $[0.02 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.10 \text{ tpy}$	0.05	0.20
	PM <sub>2.5</sub>	0.000013 lb/ton	$[50 \text{ ton/hr}][0.000013 \text{ lbs/ton}]/[1-0.9] = 0.007 \text{ lb/hr}$ $[0.007 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.03 \text{ tpy}$	0.01	0.06
4, 5	TSP	0.00014 lb/ton	$[50 \text{ ton/hr}][0.00014 \text{ lbs/ton}] = 0.007 \text{ lb/hr}$ $[0.007 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.03 \text{ tpy}$	0.01	0.06
	PM <sub>10</sub>	0.000046 lb/ton	$[50 \text{ ton/hr}][0.000046 \text{ lbs/ton}] = 0.002 \text{ lb/hr}$ $[0.002 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.01 \text{ tpy}$	0.005	0.02
	PM <sub>2.5</sub>	0.000013 lb/ton	$[50 \text{ ton/hr}][0.000013 \text{ lbs/ton}] = 0.001 \text{ lb/hr}$ $[0.001 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.003 \text{ tpy}$	0.001	0.006

**Table E  
Uncontrolled and Controlled Emissions  
Post-Trommel Non-Ferrous Conveyors (17 Total)**

Controlled TSP, PM10 and PM2.5 emissions have been calculated using AP-42 Table 11.19.2-2, Crushed Stone Processing Operations. Uncontrolled emission estimates are based on controlled emissions divided by a 90% control efficiency using a water injection system. Uncontrolled and controlled emissions are based on 8,760 hours annually with a process rate of 12.5 tons/hr.

Emission Unit Number	Pollutant	Emission Rate (lb/ton)	Emission Calculation	Emissions lbs/hour x17	Emissions tons/year x17
6	TSP	0.00014 lb/ton	$[12.5 \text{ ton/hr}][0.00014 \text{ lbs/ton}]/[1-0.9] = 0.02 \text{ lb/hr}$ $[0.02 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.08 \text{ tpy}$	0.30	1.30
Uncontrolled (8,760 hours)	PM <sub>10</sub>	0.000046 lb/ton	$[12.5 \text{ ton/hr}][0.000046 \text{ lbs/ton}]/[1-0.9] = 0.006 \text{ lb/hr}$ $[0.006 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.03 \text{ tpy}$	0.10	0.43
	PM <sub>2.5</sub>	0.000013 lb/ton	$[12.5 \text{ ton/hr}][0.000013 \text{ lbs/ton}]/[1-0.9] = 0.002 \text{ lb/hr}$ $[0.002 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.007 \text{ tpy}$	0.03	0.12
6	TSP	0.00014 lb/ton	$[12.5 \text{ ton/hr}][0.00014 \text{ lbs/ton}] = 0.002 \text{ lb/hr}$ $[0.002 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.008 \text{ tpy}$	0.03	0.13
	PM <sub>10</sub>	0.000046 lb/ton	$[12.5 \text{ ton/hr}][0.000046 \text{ lbs/ton}] = 0.001 \text{ lb/hr}$ $[0.001 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.003 \text{ tpy}$	0.01	0.04
	PM <sub>2.5</sub>	0.000013 lb/ton	$[12.5 \text{ ton/hr}][0.000013 \text{ lbs/ton}] = 0.0002 \text{ lb/hr}$ $[0.0002 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.0007 \text{ tpy}$	0.003	0.01

**Table F  
Uncontrolled and Controlled Emissions  
Non-Ferrous Trommel Screening**

Controlled TSP, PM10 and PM2.5 emissions have been calculated using AP-42 Table 11.19.2-2, Crushed Stone Processing Operations. Uncontrolled emission estimates are based on controlled emissions divided by a 90% control efficiency using a water injection system. Uncontrolled and controlled emissions are based on 8,760 hours annually with a process rate of 50 tons/hr.

Emission Unit Number	Pollutant	Emission Rate (lb/ton)	Emission Calculation	Emissions lbs/hour	Emissions tons/year
7	TSP	0.0022 lb/ton	$[50 \text{ ton/hr}][0.0022 \text{ lbs/ton}]/[1-0.9] = 1.10 \text{ lb/hr}$ $[1.10 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 4.82 \text{ tpy}$	1.10	4.82
Uncontrolled (8,760 hours)	PM <sub>10</sub>	0.00074 lb/ton	$[50 \text{ ton/hr}][0.00074 \text{ lbs/ton}]/[1-0.9] = 0.37 \text{ lb/hr}$ $[0.37 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 1.60 \text{ tpy}$	0.37	1.60
	PM <sub>2.5</sub>	0.00005 lb/ton	$[50 \text{ ton/hr}][0.00005 \text{ lbs/ton}]/[1-0.9] = 0.03 \text{ lb/hr}$ $[0.03 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.11 \text{ tpy}$	0.03	0.11
7	TSP	0.0022 lb/ton	$[50 \text{ ton/hr}][0.0022 \text{ lbs/ton}] = 0.11 \text{ lb/hr}$ $[0.11 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.48 \text{ tpy}$	0.11	0.48
	PM <sub>10</sub>	0.00074 lb/ton	$[50 \text{ ton/hr}][0.00074 \text{ lbs/ton}] = 0.04 \text{ lb/hr}$ $[0.04 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.16 \text{ tpy}$	0.04	0.16
	PM <sub>2.5</sub>	0.00005 lb/ton	$[50 \text{ ton/hr}][0.00005 \text{ lbs/ton}] = 0.003 \text{ lb/hr}$ $[0.003 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.01 \text{ tpy}$	0.003	0.01

**Table G**  
**Uncontrolled and Controlled Emissions**  
**Post-Trommel Screening**

Controlled TSP, PM10 and PM2.5 emissions have been calculated using AP-42 Table 11.19.2-2, Crushed Stone Processing Operations. Uncontrolled emission estimates are based on controlled emissions divided by a 90% control efficiency using a water injection system. Uncontrolled and controlled emissions are based on 8,760 hours annually with a process rate of 12.5 tons/hr.

Emission Unit Number	Pollutant	Emission Rate (lb/ton)	Emission Calculation	Emissions lbs/hour x5	Emissions tons/year x5
8	TSP	0.0022 lb/ton	[12.5 ton/hr][0.0022 lbs/ton]/[1-0.9] = 0.28 lb/hr [0.28 lbs/hr][8,760 hrs/yr][1 ton/2000 lbs] = 1.20 tpy	1.38	6.02
Uncontrolled (8,760 hours)	PM <sub>10</sub>	0.00074 lb/ton	[12.5 ton/hr][0.00074 lbs/ton]/[1-0.9] = 0.09 lb/hr [0.09 lbs/hr][8,760 hrs/yr][1 ton/2000 lbs] = 0.41 tpy	0.46	2.03
	PM <sub>2.5</sub>	0.00005 lb/ton	[12.5 ton/hr][0.00005 lbs/ton]/[1-0.9] = 0.006 lb/hr [0.006 lbs/hr][8,760 hrs/yr][1 ton/2000 lbs] = 0.03 tpy	0.03	0.14
8	TSP	0.0022 lb/ton	[12.5 ton/hr][0.0022 lbs/ton] = 0.03 lb/hr [0.03 lbs/hr][8,760 hrs/yr][1 ton/2000 lbs] = 0.12 tpy	0.14	0.60
	PM <sub>10</sub>	0.00074 lb/ton	[12.5 ton/hr][0.00074 lbs/ton] = 0.009 lb/hr [0.009 lbs/hr][8,760 hrs/yr][1 ton/2000 lbs] = 0.04 tpy	0.05	0.20
	PM <sub>2.5</sub>	0.00005 lb/ton	[12.5 ton/hr][0.00005 lbs/ton] = 0.001 lb/hr [0.001 lbs/hr][8,760 hrs/yr][1 ton/2000 lbs] = 0.003 tpy	0.003	0.01



**Table H**  
**Uncontrolled and Controlled Emissions**  
**Fines Screening**

Controlled TSP, PM10 and PM2.5 emissions have been calculated using AP-42 Table 11.19.2-2, Crushed Stone Processing Operations. Uncontrolled emission estimates are based on controlled emissions divided by a 90% control efficiency using a water injection system. Uncontrolled and controlled emissions are based on 8,760 hours annually with a process rate of 20 tons/hr.

Emission Unit Number	Pollutant	Emission Rate (lb/ton)	Emission Calculation	Emissions lbs/hour	Emissions tons/year
9	TSP	0.0022 lb/ton	$[50 \text{ ton/hr}][0.0022 \text{ lbs/ton}]/[1-0.9] = 1.10 \text{ lb/hr}$ $[1.10 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 4.82 \text{ tpy}$	1.10	4.82
Uncontrolled (8,760 hours)	PM <sub>10</sub>	0.00074 lb/ton	$[50 \text{ ton/hr}][0.00074 \text{ lbs/ton}]/[1-0.9] = 0.37 \text{ lb/hr}$ $[0.37 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 1.60 \text{ tpy}$	0.37	1.60
	PM <sub>2.5</sub>	0.00005 lb/ton	$[50 \text{ ton/hr}][0.00005 \text{ lbs/ton}]/[1-0.9] = 0.03 \text{ lb/hr}$ $[0.03 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.11 \text{ tpy}$	0.03	0.11
9	TSP	0.0022 lb/ton	$[50 \text{ ton/hr}][0.0022 \text{ lbs/ton}] = 0.04 \text{ lb/hr}$ $[0.04 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.19 \text{ tpy}$	0.04	0.19
	PM <sub>10</sub>	0.00074 lb/ton	$[50 \text{ ton/hr}][0.00074 \text{ lbs/ton}] = 0.01 \text{ lb/hr}$ $[0.01 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.06 \text{ tpy}$	0.01	0.06
	PM <sub>2.5</sub>	0.00005 lb/ton	$[50 \text{ ton/hr}][0.00005 \text{ lbs/ton}] = 0.001 \text{ lb/hr}$ $[0.001 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.004 \text{ tpy}$	0.001	0.004

**Table I  
Uncontrolled and Controlled Emissions  
Fines Conveyors (5 Total)**

Controlled TSP, PM10 and PM2.5 emissions have been calculated using AP-42 Table 11.19.2-2, Crushed Stone Processing Operations. Uncontrolled emission estimates are based on controlled emissions divided by a 90% control efficiency using a water injection system. Uncontrolled and controlled emissions are based on 8,760 hours annually with a process rate of 20 tons/hr.

Emission Unit Number	Pollutant	Emission Rate (lb/ton)	Emission Calculation	Emissions lbs/hour x5	Emissions tons/year x5
10	TSP	0.00014 lb/ton	$[20 \text{ ton/hr}][0.00014 \text{ lbs/ton}]/[1-0.9] = 0.03 \text{ lb/hr}$ $[0.03 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.12 \text{ tpy}$	0.14	0.61
Uncontrolled (8,760 hours)	PM <sub>10</sub>	0.000046 lb/ton	$[20 \text{ ton/hr}][0.000046 \text{ lbs/ton}]/[1-0.9] = 0.009 \text{ lb/hr}$ $[0.009 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.04 \text{ tpy}$	0.05	0.20
	PM <sub>2.5</sub>	0.000013 lb/ton	$[20 \text{ ton/hr}][0.000013 \text{ lbs/ton}]/[1-0.9] = 0.003 \text{ lb/hr}$ $[0.003 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.01 \text{ tpy}$	0.01	0.06
10	TSP	0.00014 lb/ton	$[20 \text{ ton/hr}][0.00014 \text{ lbs/ton}] = 0.003 \text{ lb/hr}$ $[0.003 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.01 \text{ tpy}$	0.01	0.06
	PM <sub>10</sub>	0.000046 lb/ton	$[20 \text{ ton/hr}][0.000046 \text{ lbs/ton}] = 0.001 \text{ lb/hr}$ $[0.001 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.004 \text{ tpy}$	0.005	0.02
	PM <sub>2.5</sub>	0.000013 lb/ton	$[20 \text{ ton/hr}][0.000013 \text{ lbs/ton}] = 0.0003 \text{ lb/hr}$ $[0.0003 \text{ lbs/hr}][8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.001 \text{ tpy}$	0.001	0.006

**Table J**  
**Uncontrolled and Controlled Emissions**  
**Auto Shredder Residue Piles**

Controlled TSP, PM10 and PM2.5 emissions have been calculated using AP-42 Section 13.2, Aggregate Handling and Storage Piles. Uncontrolled emission estimates are based on controlled emissions divided by a 90% control efficiency using a water injection system. Uncontrolled and controlled emissions are based on 8,760 hours annually with a process rate of 44 tons/hr.

Emission Unit Number	Emission Factor	Pollutant	Emission Calculation	Piles lbs/hour	Piles tons/year
11 Uncontrolled 8,760 hours/yr	TSP	AP-42 Section 11.12	Emission Factor (lb/ton) = $k(0.0032)(U/5)^{1.3}/(M/2)^{1.4}$ Emission Factor = lb/ton		
k = TSP k = PM10 k = PM2.5	0.74 0.35 0.053		TSP (lb/ton) = $0.74(0.0032)(5/5)^{1.3}/(8/2)^{1.4}$ TSP (lb/ton) = 0.00034 lb/ton		
U = wind speed, mph M = minimum moisture, %	5 8		PM <sub>10</sub> (lb/ton) = $0.35(0.0032)(5/5)^{1.3}/(8/2)^{1.4}$ PM <sub>10</sub> (lb/ton) = 0.00016 lb/ton		
			PM <sub>2.5</sub> (lb/ton) = $0.053(0.0032)(5/5)^{1.3}/(8/2)^{1.4}$ PM <sub>2.5</sub> (lb/ton) = 0.000024 lb/ton		
		TSP	[44 ton/hr][0.00034 lbs/ton]/[1-0.9] = 0.15 lb/hr [0.15 lbs/hr][8,760 hrs/yr][1 ton/2000 lbs] = 0.66 tpy	0.15	0.66
		PM <sub>10</sub>	[44 ton/hr][0.00016 lbs/ton]/[1-0.9] = 0.07 lb/hr [0.07 lbs/hr][8,760 hrs/yr][1 ton/2000 lbs] = 0.31 tpy	0.07	0.31
		PM <sub>2.5</sub>	[44 ton/hr][0.000024 lbs/ton]/[1-0.9] = 0.01 lb/hr [0.01 lbs/hr][8,760 hrs/yr][1 ton/2000 lbs] = 0.05 tpy	0.01	0.05
11 Controlled		TSP	[44 ton/hr][0.00034 lbs/ton] = 0.02 lb/hr [0.02 lbs/hr][8,760 hrs/yr][1 ton/2000 lbs] = 0.07 tpy	0.02	0.07
90% Control Efficiency		PM <sub>10</sub>	[44 ton/hr][0.00016 lbs/ton] = 0.01 lb/hr [0.01 lbs/hr][8,760 hrs/yr][1 ton/2000 lbs] = 0.03 tpy	0.01	0.03
		PM <sub>2.5</sub>	[44 ton/hr][0.000024 lbs/ton] = 0.001 lb/hr [0.001 lbs/hr][8,760 hrs/yr][1 ton/2000 lbs] = 0.01 tpy	0.001	0.01

**Table K  
Uncontrolled and Controlled Emissions  
Unpaved Haul Road**

Controlled TSP and PM10 emissions have been calculated from an emission factor taken from Arizona's DEQ's Application Packet for Hot Mix Asphalt Plants General Permit, Table 7, page 23 dated March 30, 2010. For PM2.5, a factor was developed using a ratio from a study published in "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors" by Midwest Research Institute, 11/1/2006. The PM2.5/PM10 ratio is 0.1. Vehicle Miles Travelled (VMT) are conservatively assumed to be 72 miles/day. Uncontrolled emission estimates are based on controlled emissions divided by a 90% control efficiency achieved by water application. Uncontrolled and controlled emissions are based on 312 days (7,488 hours) of haul traffic per year.

Emission Unit Number	Pollutant	Emission Rate (lb/ton)	Emission Calculation	Emissions lbs/hour	Emissions tons/year
12	TSP	0.66 lb/VMT	$[72 \text{ VMT/day}][0.66 \text{ lb/VMT}][365 \text{ days/year}][1 \text{ ton}/2000 \text{ lbs}] / [1-0.9] = 86.72 \text{ tons/yr}$ $[86.72 \text{ tons/yr}][2000 \text{ lbs/ton}] / [8,760 \text{ hrs/yr}] = 19.80 \text{ lb/hr}$	19.80	86.72
Uncontrolled (8,760 hours)	PM <sub>10</sub>	0.17 lb/VMT	$[72 \text{ VMT/day}][0.17 \text{ lb/VMT}][365 \text{ days/year}][1 \text{ ton}/2000 \text{ lbs}] / [1-0.9] = 22.34 \text{ tons/yr}$ $[22.34 \text{ tons/yr}][2000 \text{ lbs/ton}] / [8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 5.10 \text{ lb/hr}$	5.10	22.34
	PM <sub>2.5</sub>	0.17 lb/VMT	$[72 \text{ VMT/day}][0.17 \text{ lb/VMT}][365 \text{ days/year}][1 \text{ ton}/2000 \text{ lbs}] / [1-0.9][0.1] = 2.23 \text{ tons/yr}$ $[2.23 \text{ tons/yr}][2000 \text{ lbs/ton}] / [8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.51 \text{ lb/hr}$	0.51	2.23
12	TSP	0.66 lb/VMT	$[72 \text{ VMT/day}][0.66 \text{ lb/VMT}][365 \text{ days/year}][1 \text{ ton}/2000 \text{ lbs}] = 8.67 \text{ tons/yr}$ $[8.67 \text{ tons/yr}][2000 \text{ lbs/ton}] / [8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 1.98 \text{ lb/hr}$	1.98	8.67
	PM <sub>10</sub>	0.17 lb/VMT	$[72 \text{ VMT/day}][0.17 \text{ lb/VMT}][365 \text{ days/year}][1 \text{ ton}/2000 \text{ lbs}] = 2.23 \text{ tons/yr}$ $[2.23 \text{ tons/yr}][2000 \text{ lbs/ton}] / [8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.51 \text{ lb/hr}$	0.51	2.23
	PM <sub>2.5</sub>	0.17 lb/VMT	$[72 \text{ VMT/day}][0.17 \text{ lb/VMT}][365 \text{ days/year}][1 \text{ ton}/2000 \text{ lbs}][0.1] = 0.22 \text{ tons/yr}$ $[0.22 \text{ tons/yr}][2000 \text{ lbs/ton}] / [8,760 \text{ hrs/yr}][1 \text{ ton}/2000 \text{ lbs}] = 0.05 \text{ lb/hr}$	0.05	0.22

**Table L  
Uncontrolled and Controlled Emissions  
Gasoline Above-Ground Storage Tank**

VOC emissions from gasoline dispensing have been calculated utilizing AP-42, Section 5.2, Table 5.2-7, the permit application values for annual throughput of gasoline products and 8760 hours of operation. Operations assume splash filling and uncontrolled displacement losses.

Unit #	Annual Throughput (gallons)	Emission Rate Calculations <sup>1</sup>	Total Emissions
13	3703	$3703 \text{ gal/yr} \times 24.2 \text{ lb}/10^3 \text{ gal} \times 1 \text{ yr} / 8760 \text{ hrs}$	0.01 lbs/hr
		$0.01 \text{ lbs/hr} \times 8760 \text{ hrs/yr} \times 1 \text{ ton}/2000 \text{ lbs}$	0.04 tpy

<sup>1</sup> Applicant used EPA Tanks 4.0.9d for emissions calculation