



Northwest Pipe Company

Northwest Pipe Company
Parkersburg, WV Facility
183 Northwest Drive
Washington, WV 26181

4/10/15

WV Department of Environmental Protection
Attn: Department of Air Quality
Assistant Director for Permitting
Attn: Steve Pursley
WV Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304

Northwest Pipe Parkersburg is submitting a request to make a Class II Administrative Update to our existing 2011 WV NSR air permit R13-2285A. We would like to conduct a replacement of the existing ID Blast Unit with a Wheelabrator ID blast unit and its two associated filter units, (Donaldson Torit model DF03-48 and DF04-64).

The proposed change will not affect the amount of blasting done at our facility but will allow us to more efficiently blast larger diameter pipe. This change brings a more modern filtration system into our facility, allowing NWP to best manage its air quality control.

Please contact me directly should you have any questions during the permit review.

Regards,


Jeff McCrady
Northwest Pipe Company
304-863-3316 x4810
Jmccrady@nwpipe.com

Jeff Gardner
Operations Manager
Northwest Pipe Company, Parkersburg Facility

Enclosures:

- **WV Permit Determination Form**
- **Attachment A: Maps**
- **Attachment B: Process Flow Diagram**
- **Attachment C: Process Description**
- **Attachment D: MSDS for Blast Media**
- **Attachment E: Supporting Calculations**
- **Check Number 50196117, \$300 for fees**



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):

Northwest Pipe Company

2. NAME OF FACILITY (IF DIFFERENT FROM ABOVE):

3. NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (NAICS) CODE:

33121

4A. MAILING ADDRESS: 183 Northwest Drive

Washington WV, 26101

4B. PHYSICAL ADDRESS:

5A. DIRECTIONS TO FACILITY (PLEASE PROVIDE MAP AS ATTACHMENT A): from Rt. 50 take DuPont Road exit left at light. 2.1 miles take left onto Northwest Drive

5B. NEAREST ROAD:
Northwest Drive

5C. NEAREST CITY OR TOWN:
Washington WV

5D. COUNTY:
Wood

5E. UTM NORTHING (KM):
4344925

5F. UTM EASTING (KM):
440174

5G. UTM ZONE:
17

6A. INDIVIDUAL TO CONTACT IF MORE INFORMATION IS REQUIRED:
Jeff McCrady

6B. TITLE:
EHS Coordinator

6C. TELEPHONE:
(304) 863-3316 X4810

6D. FAX:
(304) 863-6984

6E. E-MAIL:
Jmccrady@nwpipe.com

7A. DAQ PLANT I.D. NO. (FOR AN EXISTING FACILITY ONLY):

107 - 00031

7B. PLEASE LIST ALL CURRENT 45CSR13, 45CSR14, 45CSR19 AND/OR TITLE V (45CSR30) PERMIT NUMBERS ASSOCIATED WITH THIS PROCESS (FOR AN EXISTING FACILITY ONLY):
2011 WV NSR air permit R13-2285B

7C. IS THIS PDF BEING SUBMITTED AS THE RESULT OF AN ENFORCEMENT ACTION? IF YES, PLEASE LIST:

8A. TYPE OF EMISSION SOURCE (CHECK ONE):
 NEW SOURCE ADMINISTRATIVE UPDATE
 MODIFICATION 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?
 YES NO

9. IS DEMOLITION OR PHYSICAL RENOVATION AT AN EXISTING FACILITY INVOLVED? YES NO

10A. DATE OF ANTICIPATED INSTALLATION OR CHANGE:

4/20/2015

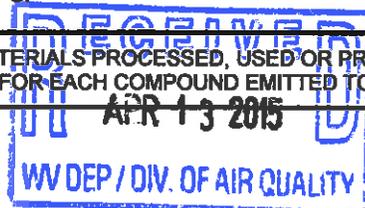
10B. DATE OF ANTICIPATED START-UP:

5/1/2015

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	1.97 #/hr	4.31 TPY (Our conservative max operations 4380 hr/hr. See App. E).
PM ₁₀	1.97 #/hr	4.31 TPY (Our conservative max operations 4380 hr/hr. See App. E).
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, JEFF GARDNER (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: _____

JAAL

TITLE: OPERATIONS MANAGER

DATE: 4 / 10 / 15

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

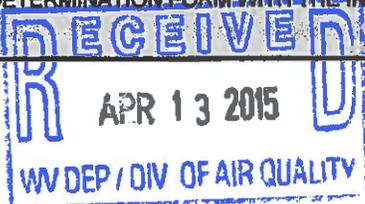
NOTE: PLEASE CHECK ENCLOSED ATTACHMENTS:

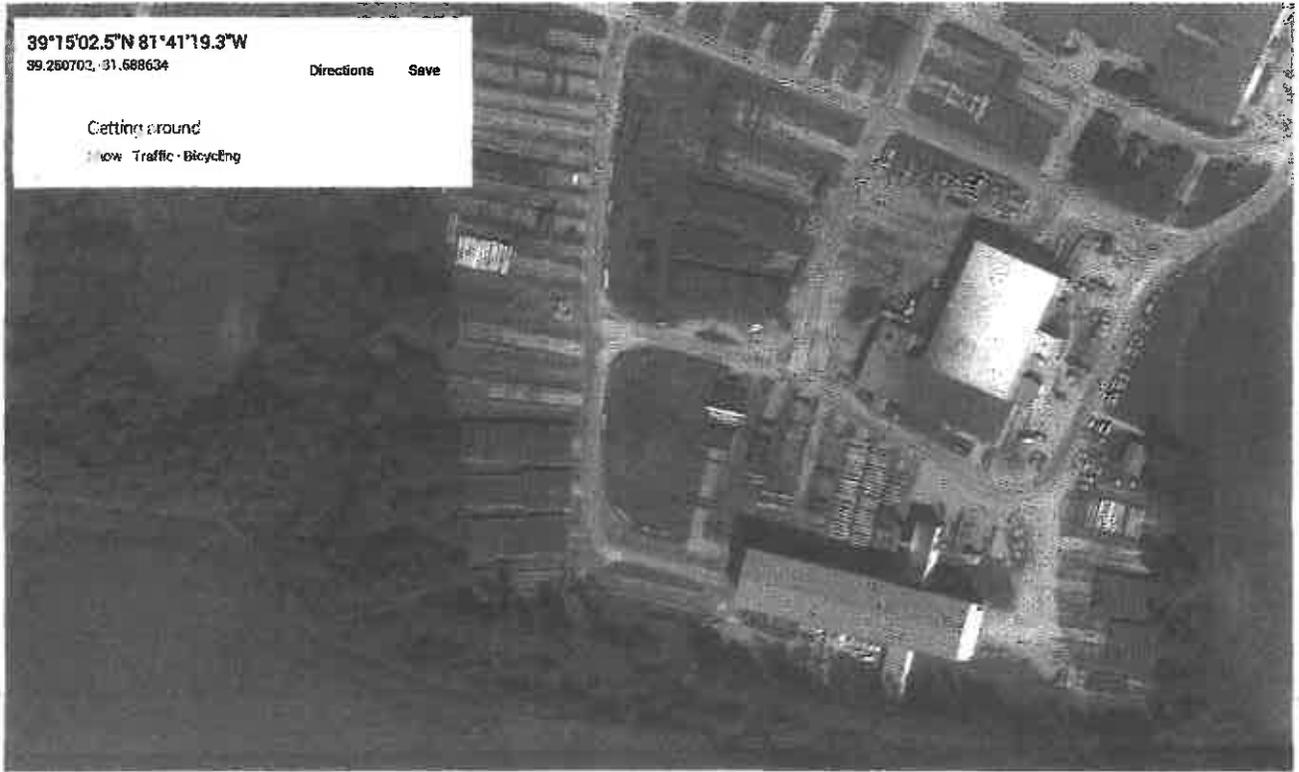
ATTACHMENT A ATTACHMENT B ATTACHMENT C ATTACHMENT D ATTACHMENT E

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

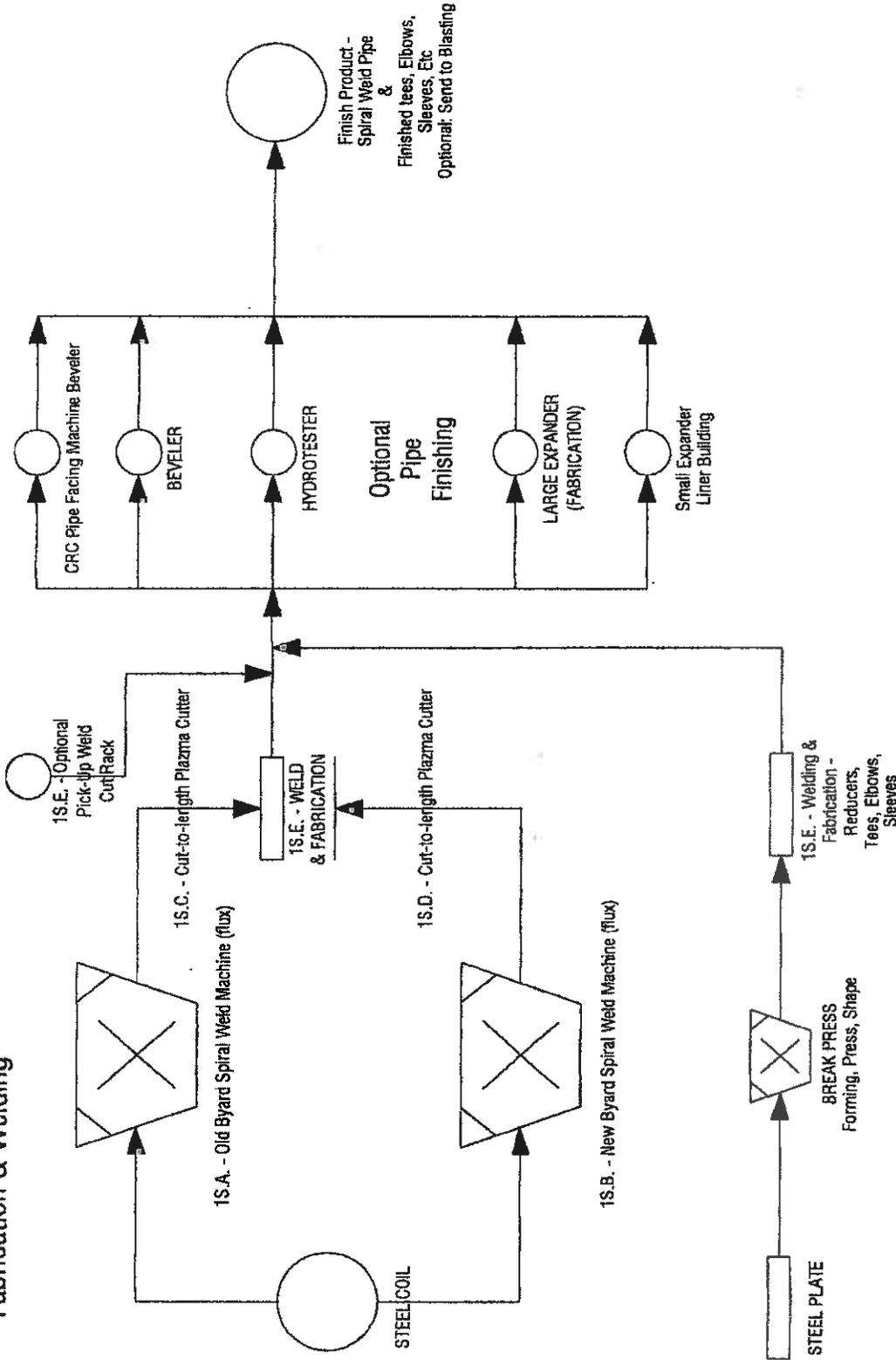
THE PERMIT DETERMINATION FORM WITH THE INSTRUCTIONS CAN BE FOUND ON DAQ'S PERMITTING SECTION WEB SITE

www.dep.wv.gov/daq





Group 1 - Manufacturing Fabrication & Welding

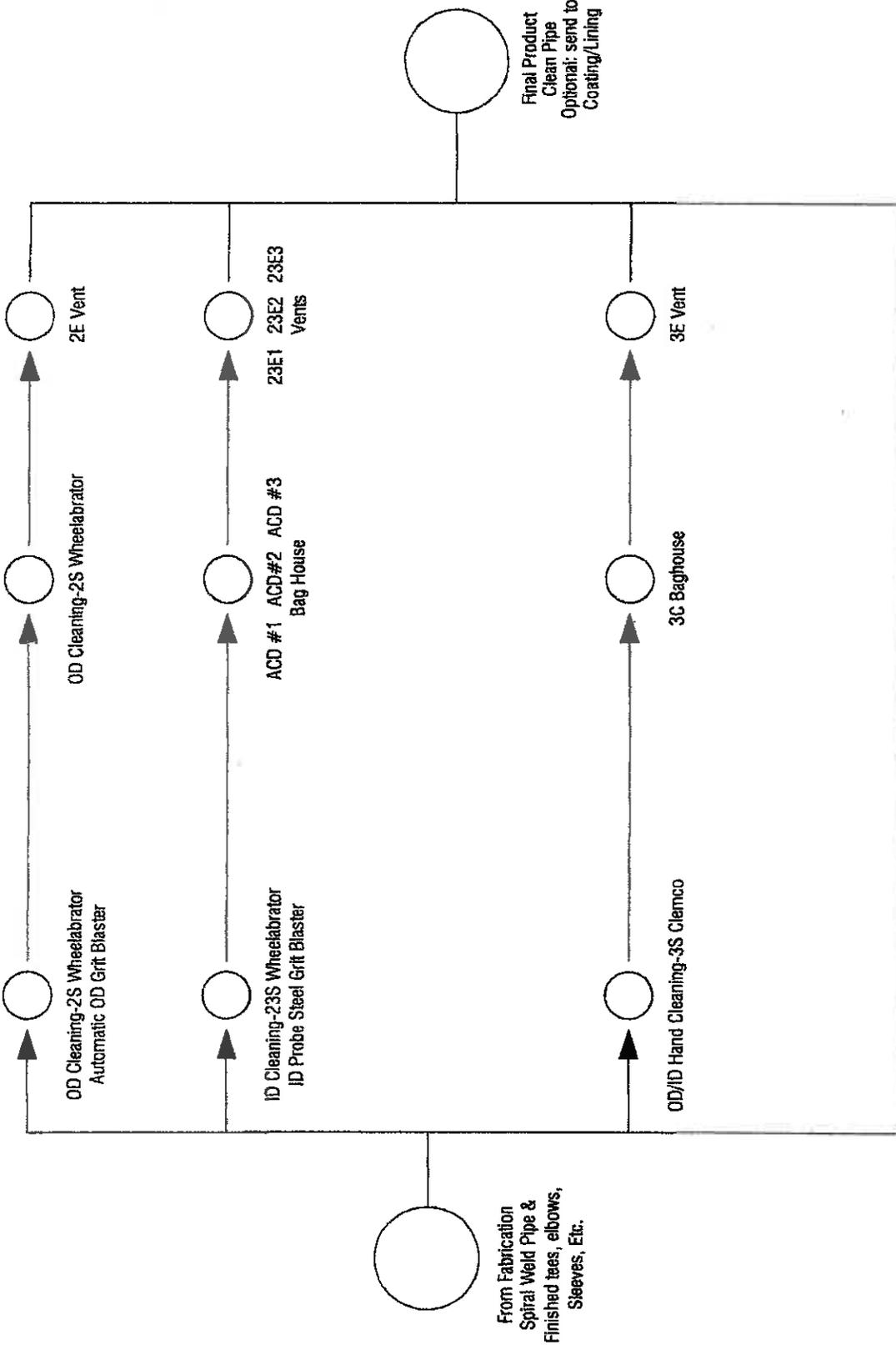


In Process Quality Testing -

- Base Metal Testing: Tensile Yield & Elongation
- Weld Test: Tensile & Bend of weld metal
- Ultrasonic, Magnetic Particle, Liquid Penetrant, Radiographic (X-Ray) spiral weld testing
- Gamma X-Ray testing (conducted on-site by outside contractor)
- Visual Inspection

4/10/2015

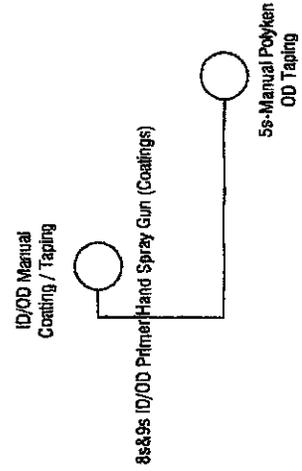
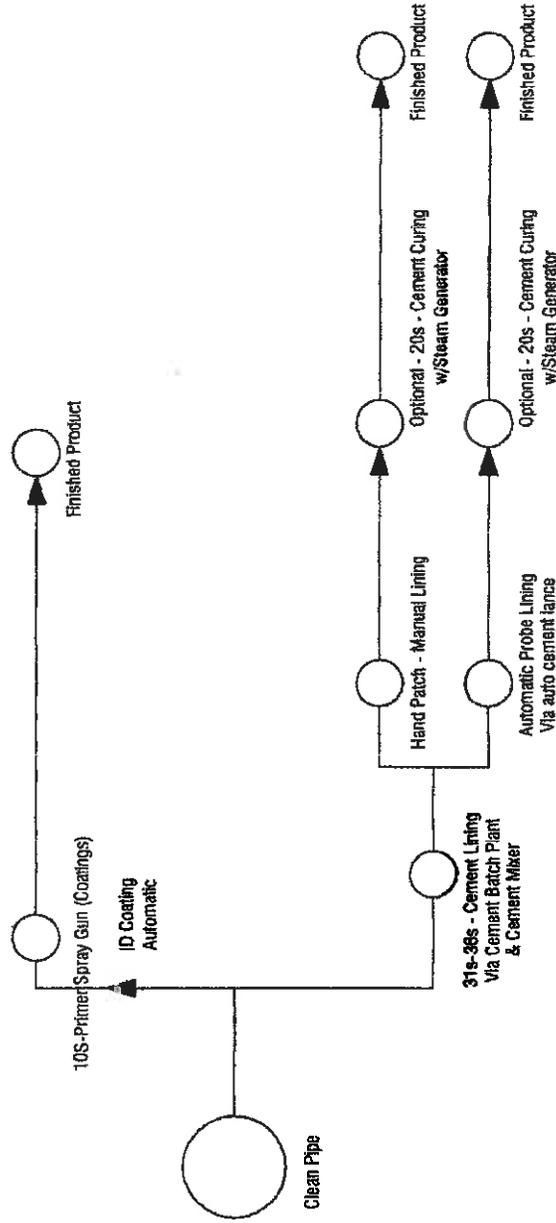
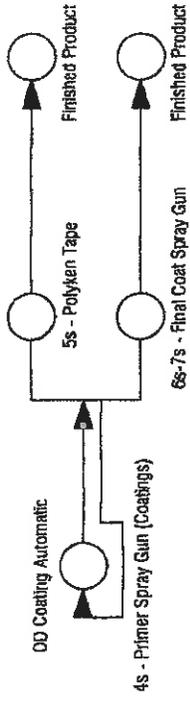
Group 2 - Pipe Cleaning Process



Finished Product Quality Testing -
Substrate Profile Verification Testing
Visual Inspection for Cleanliness

Rev 1 - 4/10/201

Group 3 - Coating and Lining Process



Finished Product Quality Testing -

Cement Compression Testing: Cement samples soaked in lime saturated water from 7 to 28 days prior to testing. Cement is then compression tested on tensile machine until failure



Process Description for Air Emissions Program Parkersburg plant

III. Coating & Lining Processes:

Blasted and cleaned pipe can be sold bare, or can be cement lined, or can be painted or tape lined or coated.

Cement Mortar ID Lining

Mortar is produced by the mixing of cement, sand, and water in a cement batch plant. No aggregate is used in the mortar making process. Cement mortar is conveyed through an automatic lance where it is centrifugally applied to spinning pipe. The cement batch plant consists of a cement silo (31S), weigh batcher (33S), a paddle mixer (34S), sand stockpile (35S), and haul road emissions (36S). Emissions are controlled with a Eurotech passive dust collector. This system was permitted and installed in 1999.

A direct, gas fired steam generator (Kemco brand) may be used to assist in curing the cement (20S). The unit generates steam into a plastic wrap enclosed pipe, which allows the cement to cure slowly, reducing cracks/breakage of the cement mortar. The Kemco unit is exempt from air permitting, and was installed with the cement batch plant in 1999.

Spray Coating:

Pipe can either be spray coated (outer diameter application) or spray lined (inner diameter application) using automatic or hand-operated airless spray guns. Spray coating applications were permitted in both 1979 & 1982, and the facility primarily used Coal Tar at that time. Spray coating applications were referred to as emissions source point "1S." Over the years, the facility reduced the coal tar material usage, and increased the usage of paints, polyurethanes, epoxies, and tape coatings to be safer for employees and more environmentally conscientious. Today, coal tar is no longer used, and to prevent confusion we no longer refer to the emissions source code "1S Coal Tar Coating." The current emission source points for spray coating are 4S through 10S; the specific description of each is as follows:

- 4S Primer Spray gun (mounted OD application)
- 5S Polyken Tape (mounted OD application, immediately downstream of 4S)
- 6S Final Spray Coat Gun (mounted OD application, downstream & in lieu of 4S & 5S)
- 7S Final Hand Spray Gun (mounted or hand-held operated OD application)
- 8S Primer Hand Spray gun (mounted or hand-held operated OD application)
- 9S Back-up sprayer (mounted or hand-held operated OD application)
- 10S ID Sprayer (mounted ID application)



Process Description for Air Emissions Program Parkersburg plant

IV. Fuel and petroleum tanks:

To support production and maintenance activities, the facility has a diesel storage tank (1000 gallons), a gasoline storage tank (500 gallons), kerosene storage tank (500 gallons), hydraulic oil tank (500 gallons), and a used oil storage tote (250 gallons). These units' emission source point numbers are 15S-18S, and are exempt from air permitting due to size and throughput.

V. Vehicle Emissions

Emissions are associated with vehicles used on site, both combustion related emissions and roadway emissions (30S). These emissions are considered fugitive.



Process Description for Air Emissions Program Parkersburg plant

General Process Overview The facility manufactures various sizes of steel pipe used mainly for water conveyance systems in large metropolitan areas. Mild steel coils of 3/16 to 3/4 inch thickness are uncoiled, formed, and welded into specified size pipe ranging in size up to 145 inches in diameter.

The pipe is abrasive blasted, then lined and/or coated with a protective paint and/or is wrapped with a special tape and lined with cement mortar. Products are stored onsite then delivered by semi truck.

I. Pipe Manufacturing, Fabrication & Welding

Steel Coil enters the facility via rail way, semi truck, or barge.

The coil is unloaded and either stored or sent into the coil bay for production.

The coil is processed through one of two Byard spiral mills then cut to length. One spiral mill is referred to as "Old Byard" with a Cut-To-Length plasma cutter. These emissions source points are 1S.A and 1S.C, respectively. The second spiral mill is referred to as "New Byard" with a Cut-To-Length plasma cutter. These emissions source points are 1S.B and 1S.D, respectively. The welding process used is a double submerged arc weld (DSAW) using weld wire & flux. This process, as well as the cutting, generates only minor fugitive emissions.

The pipe may have additional repair welding or fabrication (emissions source point 1S.E.) needed before it moves onto the next production process. Repair rack and pick-up welding involves use of mainly E71 (FCAW) weld wire or similar and carbon arc rods to back gouge the welds. We have minor hand grinding on-site in the fabrication area. We could have at most 3 grinders intermittently operating. This process generates only minor fugitive emissions.

If the spiral welded pipe is to be used as water transmission piping it will be moved into the hydrotest bay for pressurized water testing. Hydrotesting does not generate air emissions of concern.

The pipe may require additional finishing processes such as beveling or expansion of the pipe ends. These finishing processes are mechanical, and do not generate air emissions of concern.



Process Description for Air Emissions Program Parkersburg plant

II. Pipe Cleaning Processes:

Pipe enters the coating building where it can be cleaned via ID (Inside Diameter) and/or OD (Outside Diameter) grit blast in one of three methods, as described below. The grit blasting operation is to remove rust and produce a profile on the pipe surface. The spent grit falls to the bottom of the chamber for reuse. Emissions from abrasive blasting operations are controlled with dust collectors.

Wheelabrator OD (Outside Diameter) Shot Blast Cabinet

The Wheelabrator steel grit blast machine is a booth approximately 12 foot by 12 foot by 20 foot with inserts on each end with rubber seals to prevent loss of shot and dust. The Wheelabrator and dust collection system is currently referred to as emission source point 2S and 2C respectively. The dust collector system is a Donaldson Torit. This system was permitted and installed in 1980.

Clemco ID/OD/Hand Blast Booth

The Clemco blast system uses steel grit and can be used by hand or on an automated probe. The booth is approximately 24 foot by 24 foot by 60 foot and fully enclosed. The Clemco and dust collection system is currently referred to as emission source point 3S and 3C respectively. This system was permitted and installed in 1982. The dust collector system is a FARR / Tenkay, and replaced the previous older unit in 2013.

****Selmers ID (Inside Diameter) Blast System (proposed Change)****

The 2015 Selmers ID Blaster will replace the previous ID Blaster. The previous ID Blaster was named the "Gardner Blaster," and was permitted in 2011. The "Gardner Blaster" replaced the Selmer's Blaster which was permitted and installed in 2003. The 2015 Selmers ID blaster system is vented through three (3) cartridge-type filters. Two (2) of the filters are cartridge-type filters (Donaldson Torit Models DFO 3-48 and DFO 4-64) that vent the abrasive blasting operation itself. The DFO 4-64 cleans about 55%, and the DFO 3-48 cleans about 45% of the air, based on horsepower rates of each. A third smaller unit (Donaldson Torit Model TDP 675) filters the air vented from the elevator, screw conveyor and air wash equipment that recovers and recycles used blast media. Literature on the Donaldson/Torit DFO units is attached. All the filter makers claim 99.9% removal efficiency for Particulate Matter. The Selmers ID and dust collection system is currently referred to as emission source points 23S and 23C1/23C2/23C3 respectively.

It should be noted, that any steel pipe that has been blasted on this unit, continues on to the Wheelabrator, above. The Selmers ID blaster activity is directly limited in steel pipe throughput by the Wheelabrator speed, which is much slower than the ID Blaster.



WHEELABRATOR ABRASIVES, INC. MATERIAL SAFETY DATA SHEET

CAST STEEL ABRASIVES

Date of Preparation: January 1, 2007

Section 1. PRODUCT IDENTIFICATION.

Product Name:	Steel Shot, Steel Grit, Steel Shot/Grit blend.	Manufacturer:	Wheelabrator Abrasives, Inc. 1 Abrasive Avenue Bedford, Virginia 24523 USA www.wheelabr.com
Chemical Name:	Steel	Emergency Phone:	(540) 586-0856
Chemical Family:	Metals		
Formula:	Not Applicable (N/A)		

Section 2. HAZARDOUS INGREDIENTS.

Round or angular steel pellets used primarily for impact treatment of metallic surfaces. There are no threshold limit values (TLV) or permissible exposure limits (PEL) for cast steel abrasives.

CHEMICAL NAME	CAS NUMBER	% WEIGHT	ACGIH LEVEL (mg/m ³)	OSHA PEL (mg/m ³)
Iron – Fe Oxide & Fume, as Fe	7439-89-6	>95	5	10
Manganese – Mn Inorganic compounds, as Mn Fume, as Mn	7439-96-5	<1.2	0.2	5 (ceiling) 5 (ceiling)
Silicon – Si Total Dust Respirable Fraction	7440-21-3	<1.2	10	15 5
Carbon – C	1333-86-4	<1.2	3.5	3.5
Chromium – Cr Metal Cr II compounds, as Cr Cr III compounds, as Cr Cr VI compounds, water soluble Cr VI compounds, insoluble	7440-47-3	<0.8	0.5 0.5 0.05 0.01	0.5 0.5 0.5
Nickel – Ni Metal & other compounds, as Ni Elemental Soluble inorganic compounds Insoluble inorganic compounds	7440-02-0	<0.2	1.5 0.1 0.2	1

Note: This product is manufactured from recycled steel scrap and may contain hazardous materials not listed above. The following is a list of typical chemicals that may be found in recycled steel scrap (this list is not all inclusive): aluminum, antimony, arsenic, bismuth, cadmium, chromium, cobalt, copper, lead, magnesium, molybdenum, nickel, phosphorus, potassium, selenium, sodium, sulfur, tin, vanadium, zinc.

Section 3. PHYSICAL DATA.

Melting Point:	1371-1482°C
Vapor Pressure:	Not applicable
Vapor density:	Not applicable
Solubility in water:	Negligible
Specific gravity:	> 7 g/cc
% Volatile:	N/A
Evaporation rate:	N/A
Appearance and odor:	Metallic gray to blue odorless spherical and/or angular pellets.

Section 4. FIRE AND EXPLOSION HAZARD DATA.

Flash Point:	Not applicable
Flammable limits:	Not applicable
Autoignition Temperature (of solid iron exposed to oxygen):	930°C
Extinguishing media:	Select media appropriate for the surrounding area, including dry chemical, soda ash etc. Note: Do not use water, CO, or form of Iron Oxide fume/dust materials.
Unusual fire and explosion hazards:	Dusts generated from use may be explosive.
Special fire fighting equipment:	Dry chemicals, dry sand, soda ash or lime.

Section 5. REACTIVITY DATA.

Stability:	Stable
Incompatibility:	Strong Acids
Hazardous Polymerization:	Not applicable
Conditions to avoid:	None

Section 6. HEALTH HAZARD DATA.

There is no applicable statutory or recommended occupational exposure limits for cast steel abrasives. However, operations that elevate the temperature of the product or the dust to above its melting point, generate metal fumes and result in the breaking down of the product into dusts may present hazards. These operations should be performed in well-ventilated areas. The major exposure hazard is inhalation.

Inert or nuisance dust:	OSHA PEL:
Respirable fraction:	5 mg/m ³
Total dust:	15 mg/m ³

Carcinogenicity:

Chromium and Nickel are confirmed human carcinogens according to the ACGIH.

Carbon and Nickel are potential occupational carcinogens according to the NIOSH Pocket Guide to Chemical Hazards.

The NIOSH Pocket Guide to Chemical Hazards list the following symptoms for chronic or prolonged inhalation of fumes or dust:

Iron oxide: Benign pneumoconiosis with X-ray shadows indistinguishable from fibrotic pneumoconiosis (siderosis).

Manganese: Parkinson's; asthenia, insomnia, mental confusion; metal fume fever: dry throat, cough, chest tightness, dyspnea (breathing difficulty), rales, flu-like fever; lower back pain; vomiting; malaise (vague feeling of discomfort); fatigue; kidney damage.

Silicon: irritation eyes, skin, upper respiratory system; cough.

Carbon: cough, irritation eyes.

Chromium: irritation eyes, skin; lung fibrosis (histologic); sensitization dermatitis.

Nickel: sensitization dermatitis, allergic asthma, pneumonitis.

Copper: irritation eyes, upper respiratory system, nose, pharynx; nasal septum perforation; dermatitis; metal fume fever: chills, muscle ache, nausea, fever, dry throat, cough, weakness, lassitude (weakness, exhaustion); metallic or sweet taste; discoloration skin, hair.

Lead: weakness, lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation eyes; hypotension.

Section 6a. EMERGENCY AND FIRST AID PROCEDURES.

- If inhaled, move to fresh air, and if symptoms persist, consult a qualified medical person.
- If shot, grit or dust particles get in the eyes, flush eyes with running water for at least 15 minutes and have any remaining particles removed from eyes by a qualified medical person.
- Wash with soap and water after contact with dust.

Section 7. SPILL OR LEAK PROCEDURES.

Shot and/or grit spilled or leaked onto floors can create hazardous walking conditions. In case material is released or spilled, sweep up and collect for reclamation or disposal.

Waste disposal method: the material may be reused or disposed of in sanitary landfills in compliance with local, federal and state regulations. The dust generated by the use of the material may be classified as hazardous and therefore must be disposed of according to local, federal and state regulations.

Section 8. SPECIAL PROTECTION INFORMATION.

- Ventilation: adequate ventilation and exhaust of the dust and fumes generated during operations should be provided to reduce the exposure levels.
- Respiratory protection: NIOSH approved respirator is recommended.
- Eye protection: Approved safety eye protection (ANSI-Z87) with side shields should be worn.

Section 9. SPECIAL PRECAUTIONS. Precautions to be taken in handling and storing: keep dry to reduce rusting.**Section 10. NOTIFICATION ABOUT TOXIC CHEMICALS.**

This product contains the following chemicals subject to the requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372:

Chemical Abstract Nb	Chemical Name	% By Weight
7440-47-43	Chromium	< 0.8%
7439-96-5	Manganese	< 1.2%
7440-02-0	Nickel	< 0.2%
1336-86-4	Carbon	< 1.2%

This notification must not be detached from this MSDS and must be included in all MSDS's that are copied and distributed for this product.

DISCLAIMER.

The information contained in this Material Safety Data Sheet was obtained from sources Wheelabrator Abrasives believes to be reliable. However, Wheelabrator Abrasives makes no guarantee, representation or warranty as to the correctness or accuracy of the information.

The information in this Material Safety Data Sheet is intended as a guide to be used in safety training and education. It is the responsibility of the user to provide a safe workplace, and to determine if precautions in addition to those described herein are required.

Compliance with all applicable federal, state and local laws and regulations is the responsibility of the user. The user assumes all risk and liability for any use. Wheelabrator Abrasives, Inc. does not assume responsibility and disclaims liability for any losses, damages or expense associated with the use of these products.



Attachment E

Emission Estimate for 2015 Selmers ID Blaster & Dust Control

As requested in the Permit Determination Form, Attachment E is to calculate an hourly and yearly PTE of the process emission point (shown in your detailed process flow diagram). For this process, only particulate matter emissions are applicable.

Process Description

The 2015 Selmers ID Blaster will replace the previous ID Blaster. The previous ID Blaster was named the "Gardner Blaster," and was permitted and installed in 2011. The "Gardner Blaster" replaced the Selmer's Blaster which was permitted and installed in 2003. The 2015 Selmers ID blaster system is vented through three (3) cartridge-type filters. Two (2) of the filters are cartridge-type filters (Donaldson Torit Models DFO 3-48 and DFO 4-64) that vent the abrasive blasting operation itself. The DFO 4-64 cleans about 55%, and the DFO 3-48 cleans about 45% of the air, based on horsepower rates of each. A third smaller unit (Donaldson Torit Model TDP 675) filters the air vented from the elevator, screw conveyor and air wash equipment that recovers and recycles used blast media. Literature on the Donaldson/Torit DFO units is attached. All the filter makers claim 99.9% removal efficiency for Particulate Matter. The Selmers ID and dust collection system is currently referred to as emission source points 23S and 23C1/23C2/23C3 respectively.

Assumptions

The 2015 Selmers ID blaster can propel about 748 pounds of abrasive/minute or 44,900 pounds of abrasive per hour of blasting, based on the blaster manufacture's information and internal engineering estimates. This blaster will use a grit/shot blend abrasive.

We assume 100 psi, based on maximum air pressure rate, to be conservative.

Facility hours are based on a 16 hr/day, 365 days/year. Actual blasting hours/day for this unit can be as little as 2-3 hours a day. To be conservative, we will use the same number of hours of blasting operation from the 2003 permit application; which assumed a 12 hour blasting per day, or 4380 hrs/yr.

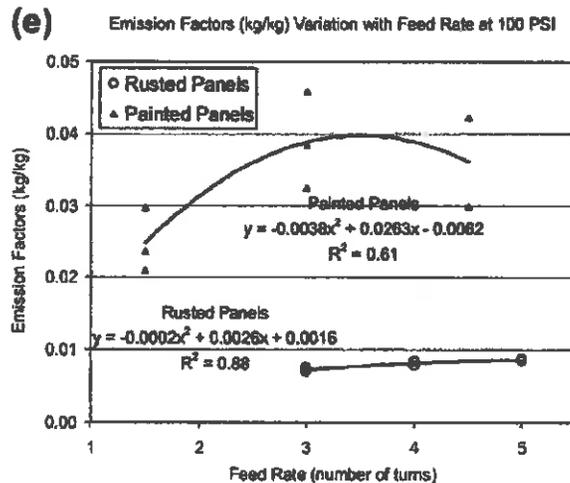
Emissions in the following calculations are combining all three (3) air outlets; each dust collector off of the pipe blasting itself, and the dust collector off the air wash separator.

Attachment E Emission Estimate for 2015 Selmers ID Blaster & Dust Control

Controlled PM_{total} & PM₁₀ Calculations

We assume PM_{total} & PM₁₀ to be equal.

To calculate emissions associated with the replacement unit, we refer to the Journal of Environmental Engineering, December 2006 edition; "Total PM Emission Factors for Steel Grit Used in Dry Abrasive Blasting," page 1620 Figure 2 (e) for Rusted Panels.



X = Feed Rate (the number of turns)

Y = Emission factor ($\text{kg}_{\text{PM Em}}/\text{kg}_{\text{abr}}$)

$$Y_{\text{Em.Fa}} = -0.0002x^2 + 0.0026x + 0.0016$$

$$Y_{\text{Em.Fa}} = -0.0002(4)^2 + 0.0026(4) + 0.0016$$

$$Y_{\text{Em.Fa}} = -0.0002(16) - 0.0104 + 0.0016$$

$$Y_{\text{Em.Fa}} = -0.0032 + 0.0104 + 0.0016$$

$$Y_{\text{Em.Fa}} = 0.0088 \text{ kg}_{\text{PM Em}}/\text{kg}_{\text{abr}}$$

Convert emission factor $\text{kg}_{\text{PM Em}}/\text{kg}_{\text{abr}}$ into $\text{lb}_{\text{PM Em}}/\text{hr}$

$$\frac{0.0088 \text{ kg}_{\text{PM Em}}}{\text{kg}_{\text{abr}}} \times \frac{748 \text{ lb}_{\text{abr}}}{\text{min}} \times \frac{60 \text{ min}}{1 \text{ hour}} = 394.9 \text{ lb}_{\text{PM Em}}/\text{hr}$$

Donaldson Torit claims 99.9% Control Efficiency (CE). To be conservative in these calculations, we will use 99.5% CE. Applying the 99.5% CE of the filters, the controlled PM_{total} or PM₁₀ emissions can be estimated at:

$$(394.9 \text{ lb}_{\text{PM Em}}/\text{hr}) \times (1 - 0.995) = 1.97 \text{ lb PM}_{\text{total}} \text{ or PM}_{10} \text{ lb/yr controlled}$$

$$(1.97 \text{ lb/hr controlled PM}_{\text{total or 10}}) \times 4380 \text{ hr/yr} = 8,628.6 \text{ PM}_{\text{total or PM}_{10}} \text{ lb/yr or 4.31 TPY controlled}$$

**Attachment E
Emission Estimate for 2015 Selmers ID Blaster & Dust Control**

Controlled PM_{2.5} Calculations

To estimate PM_{2.5} we refer to EPA's AP-42, Chapter 13.2.6, Table 13.2.6-1, Particle Emission Factors for Abrasive Blasting. This table shows PM_{2.5} as 10% of PM₁₀, so we will apply that approach.

Table 13.2.6-1. PARTICULATE EMISSION FACTORS FOR ABRASIVE BLASTING^a

EMISSION FACTOR RATING: E

Source	Particle size	Emission factor, lb/1,000 lb abrasive
Sand blasting of mild steel panels ^b (SCC 3-09-002-02)	Total PM	
	5 mph wind speed	27
	10 mph wind speed	55
	15 mph wind speed	91
	PM-10 ^c	13
	PM-2.5 ^c	1.3
Abrasive blasting of unspecified metal parts, controlled with a fabric filter ^d (SCC 3-09-002-04)	Total PM	0.69

$$1.97 \text{ lb PM}_{\text{total}} \text{ or PM}_{10}/\text{hr controlled} \times 10\% = 0.0197 \text{ PM}_{2.5}$$

$$8,628.6 \text{ PM}_{\text{total}} \text{ or PM}_{10}/\text{yr} = 0.862.8 \text{ PM}_{2.5}$$

$$4.31 \text{ TPY} = 0.431 \text{ PM}_{2.5}$$

**Attachment E
Emission Estimate for 2015 Selmers ID Blaster & Dust Control**

This equipment replacement project does not constitute a “Modification” as described under 45 CSR13 2.17. Therefore this replacement is considered a Class II Administrative Update. A “Modification” means any physical change in or change in the method of operation of any existing stationary source, which:

Sub-Heading	Regulation	NW Pipe Response
A.	Results in emissions increase of six (6) pounds per hour and ten (10) tons per year or more, or more than 144 pounds per calendar day	Original 2003 permit application for this unit provided: <ul style="list-style-type: none"> • 0.06 #/hr • 0.15 TPY • 0.72 #/calendar day Today's equipment replacement provides the following emissions: <ul style="list-style-type: none"> • 1.97 #/hr (< 6#/hr difference) • 4.31 TPY (< 10 TPY difference) • 23.64 #/calendar day (< 144 #/day difference)
B.	Results in an emissions increase of 2 pounds over hour or 5 tons per year of hazardous air pollutants considered on an aggregated basis	HAP emissions related to this process would be Mn and Ni in the blasted steel, and Mg, Ni, and Cr in the blast media. The blasted steel is typically around 1% Mn, and less than 0.01% Ni. The blast media is <1.2% Mn, <0.2%Ni, and <0.8% Cr. Assuming the PM _{total} emissions are made up of 50% blast media and 50% steel rust/scale dusts, and using the higher % of each HAP listed, we could say the following: <p>Mn</p> <ul style="list-style-type: none"> • 1.97 #/hr x 1.2% = 0.024 Mn #/hr (< 2 #/hr) • 4.31 TPY x 1.2% = 0.052 Mn TPY (< 5 TPY) <p>Ni</p> <ul style="list-style-type: none"> • 1.97 #/hr x 0.2% = 0.004 Ni #/hr (< 2 #/hr) • 4.31 TPY x 0.2% = 0.008 Ni TPY (< 5 TPY) <p>Cr</p> <ul style="list-style-type: none"> • 1.97 #/hr x 0.8% = 0.016 Cr #/hr (< 2 #/hr) • 4.31 TPY x 0.8% = 0.034 Cr TPY (< 5 TPY)
C.	Results in an increase of an air emission listed on Table 45-13A	Not applicable. Listed chemicals are not associated with this process.
D.	Results in an increase in emissions of any pollutant listed in Table 45-13A	Not applicable. Listed chemicals are not associated with this process.
E.	Results in an increase in emissions of any regulated air pollutant increase for which the owner or operator of a source voluntarily chooses to obtain a modification permit pursuant to this rule.	Not applicable.
F.	These do not constitute a modification of a stationary source:	
F.1	Installation or replacement of air pollution equipment provided that such equipment is at least as effective as equipment replaced & no new air pollutant discharge	Replacement equipment is equal in effectiveness as the originally installed equipment (99.5% control efficiency from original equipment, 99.9% CE for replacement equipment)
F.2	Routine maintenance, repair, & replacement	Not applicable
F.3	An increase in hours of operation unless a limitation has been placed	Using same number of blaster calculated hours from the original 2003 permit application
F.4	An increase in throughput or production rate if such increase does not exceed the design capacity of the source unit or increase emissions above the levels provided in this paragraph	Blast media throughput is higher, but does not result in emissions greater than levels provided in subheading A. Furthermore, this process is restricted by, and always has been restricted by, the next Wheelabrator immediately downstream of the process. The Wheelabrator is relatively slow equipment, restricting the pipe throughput of the ID Blaster.
F.5	Use of an alternative fuel or raw material, provided that the source is designated to accommodate such alternative use without increasing emissions	Not applicable
F.6	An emissions reduction for each regulated pollutant from current actual emissions to new potential emissions from any replacement of natural gas compressor engine not previously required to obtain a permit...	Not applicable