



west virginia department of environmental protection

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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-3219
Plant ID No.: 061-00215
Applicant: Dynamic Industries, Inc. (Dynamic)
Facility Name: Morgantown Facility
Location: Monongalia County
NAICS Code: 332312 - Prefabricated Structural Metal Manufacturing
Application Type: Construction
Received Date: October 23, 2014
Engineer Assigned: John Legg
Fee Amount: \$1,000.00
Date Received: October 27, 2014
Complete Date: 2014
Due Date: 2015
Applicant Ad Date: November 4, 2014
Newspaper: *The Dominion Post*
UTM's: Easting: 588.07 km Northing: 4,384.20 km Zone: 17
Lat/Long Coordinates: Latitude: 39.603044 Longitude: -79.974171
Description: Construction of a paint booth and an enclosed abrasive blast area.

The location of this construction changed during the course of this review:

	Original/Old	Revised/Current
Address	Site 2 - New Site/Facility 2800 Industrial Park Road Morgantown, WV 26501	Shop 1 - Existing Facility 8000 Industrial Park Road Morgantown, WV 26507
Latitude:	39.607717 °	39.603044 °
Longitude:	-79.977319 °	-79.974171 °
Easting	587.7562 km	588.07028 km
Northing:	4,384.719057 km	4,384.20311 km

DESCRIPTION OF PROCESS

Paint Spraying Area (1S)

New and re-conditioned equipment is spray painted in the enclosed area designated as the Paint Spraying Area (1S). The spraying of paints, solvents and thinners in the paint spraying operation releases PM, VOCs and hazardous air pollutants (HAPs).

All activities dealing with painting must be conducted inside the enclosed Paint Spraying Area(1S). The paint fumes/exhaust will be vented through a filter system with a 90% PM collection efficiency. The filter system does not capture/control VOC's.

The painting process as described in the application (Attachment F) is given below:

- Paint is ordered based on client specifications and environmental regulations.
- Paint arrives on site.
- Paint is placed in storage location.
- Paint is removed from storage location to job location.
- Painting surface is prepared for painting (blasting, etc.).
- Paint is mixed according to manufacture specifications.
- Paint is applied to product.
- Paint gun is cleaned.
- Waste paint and solvents are placed in container for disposal.
- Waste paint and solvents are shipped off-site for disposal.

Abrasive Blasting Area (2S)

Abrasive blasting materials such as sand, garnet, black beauty and glass are used for abrasive blasting. The abrasive blasting operation is to occur in an enclosed area different than the painting spraying area.

During this review, the common/single PM filter system to have been used by both the paint spraying area (1S) and the abrasive blasting area (2S) was scrapped because the engineering design of the system was thought to be economically impractical. The Paint Spraying Area will continue to have a PM filter system, but it will not be shared with the abrasive blasting area.

The abrasive blasting operation will instead take place in its own enclosed area and will not use the Paint Spraying Area's PM control/filter system. By enclosing the abrasive blasting area, fugitive PM emissions from the abrasive blasting operation are estimated to be minimized/controlled by a factor of 80%.

The abrasive blasting operation as described in the application (Attachment F)--omitting the verbiage related to the scrapped PM filter system--is given below:

- Abrasive blast media is ordered based on client specifications.
- Media is placed in storage location.
- Media is removed from storage location and moved to the job location.
- Equipment surfaces are blasted using abrasive media.
- Used blast media is placed in container for disposal.
- Used blast media is shipped off-site for disposal.

Table 1: Emission Units

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
1S	1E	Paint Spraying Area	2015	Charging Weight 10 TPH	1C Filter System
2S	2E (vented inside building)	Abrasive Blasting Area (all blasting to take place inside an enclosed area)	2015	Charging Weight 10 TPH	None (vented inside building)

SITE INSPECTION

The writer did not inspect the existing Dynamic's facility known as Shop 1. Before this proposed construction, the facility did not have a Rule 13 air permit. Upon issuance of this permit, the facility will be added to the Airtrax Database and DAQ's Enforcement inspection list.

Table 2: Directions from DAQ Charleston, WV 25304 to Dynamic's Shop 1, Located at 8000 Industrial Park Road, Morgantown, WV 26507.		
1.	Head northeast on 57th St SE toward Washington Ave SE	1.0.1 mi
2.	Turn left onto Maccorkle Ave SE	1.8 mi
3.	Turn right onto 36th St SE	0.2 mi
4.	Continue onto 36th St Southeast Bridge	0.2 mi
5.	Take the ramp onto I-64 W/I-77 N	2.7 mi
6.	Take the Interstate 77 N/Interstate 79 N exit toward Parkersburg	0.5 mi

Table 2: Directions from DAQ Charleston, WV 25304 to Dynamic's Shop 1, Located at 8000 Industrial Park Road, Morgantown, WV 26507.		
7.	Continue onto I-77 N	1.4 mi
8.	Keep right at the fork to continue on I-79 N, follow signs for Clarksburg 8.	152 mi
9.	Take exit 152 for US-19 toward Westover/Morgantown	0.3 mi
10.	Turn right onto US-19 N/Fairmont Rd	0.8 mi
11.	Turn right onto DuPont Road	1.3 mi
12.	Continue straight onto Industrial Park Rd	0.5 mi

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Dynamic's emissions calculations are given in Attachment N to the permit application. The writer reviewed the estimated emissions for the proposed construction and believes the estimation to be reasonable. This believe is also based on an email discussion concerning emissions with Dynamic's environmental consultant Greg Cates who has 15 years of experience working with Dynamic at another site.

Potential emissions for the facility, as advertised in Dynamic's November 4, 2014 legal advertisement (*The Dominion Post*), are given below in Table 3.

DAQ's own advertisement (yet to be run) will increase PM10 emissions by 1.95 ton/yr (from 5.00 to 6.95 ton/yr) to account for an increase in PM10 emissions from the abrasive blasting area not sharing the paint spraying area's filter system (90% control). Instead the abrasive blasting area will be enclosed (80% control) with no filter system.

Increase in PM ₁₀	=	Amount of Abrasive Blast Material Used	X	AP-42 Emission Factor For Abrasive Blasting	X	Percentage Decrease In Control Efficiency
	=	3MM (lb/yr)	X	13 (lb PM ₁₀ /1,000 lb)	X	(90 % - 80%)
	=	3,900 lb/yr				
	=	1.95 ton/yr				

Table 3: Potential To Emit as Advertised for Dynamic's "Shop 1" Facility, Located at Morgantown, Monogalia County WV Facility.

Pollutant	Potential To Emission	
	As Advertised by Dynamic 11/4/14 (ton/yr)	To Be Advertised by DAQ (ton/yr)
⁽⁵⁾ Ethyl Benzene	2.86	No Change
⁽⁵⁾ Xylene (isomers and mix)	9.14	No Change
Glycol Ethers	1.99	No Change
Methyl Isobutyl Ketone	1.01	No Change
Toluene	6.14	No Change
Total VOC	47.56	No Change
Total HAPs	21.15	No Change
⁽¹⁾ PM	10.00	14.10 ⁽²⁾
⁽¹⁾ PM ₁₀	5.00	6.95 ⁽²⁾

(1) $PM_{10} = PM / 2.1$

(2) The Abrasive Blasting Area's PM Control Efficiency was decreased from 90% (venting through the Paint Spraying Area's filters) to 80% (full enclosure and no filter system).

REGULATORY APPLICABILITY

Dynamic's Morgantown, WV facility is a non-major stationary source, not subject to Title V (45SCR30) because it is not subject to a standard or other requirement under § 112 of the Clean Air Act.

Applicable State Rules:

45CSR7 - To Prevent and Control Particulate Matter Air Pollution from Manufacturing Processes and Associated Operations

The purpose of Rule 7 is to prevent and control particulate matter air pollution from manufacturing processes and associated operations.

The paint spray booth (1S) and the abrasive blasting operation (2S) are subject to the emissions standards of 45CSR7.

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- 45CSR§7-3.1. - Opacity can not exceed 20%.
- 45CSR§7-5.1. - Must be equipped with control system(s) to minimize fugitive PM.
- The paint booth has filters that the paint fumes must pass through before being exhausted to the outside. The control efficiency for the filters is estimated at 90%.
- The abrasive blasting operation is to be located in an enclosed area and will vent inside the building. The control efficiency for enclosure is estimated at 80%.
- 45CSR§7-8.1. - Director may required PM stack testing.
- 45CSR§7-8.2. - Director or his representative may conduct tests to evaluate emissions.
- 45CSR§7-9.1. - Continued operation allowances for unavoidable malfunction of equipment.

45CSR13 - **Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, Permission to Commence Construction, and Procedures for Evaluation**

Dynamic's Morgantown Facility has the potential to discharge more than six (6) pounds per hour and ton (10) tons per year of PM and VOC.

Dynamic is subject to substantive requirements of emission control rules promulgated by the Secretary:

- The paint booth (1S) and the abrasive blasting operation (2S) are subject to the PM emission standards of 45CSR7.

Dynamic submitted a Rule 13 permit application (10/23/14) and paid a \$1,000.00 permitting fee (10/27/14).

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

Approximately fifty (50) Material Safety Data Sheets (MSDS) were submitted in Attachment H to the application for the various coatings, thinners, solvents, and abrasive blasting materials used in the past at the facility. A listing of the MSDS is provided below in Table 4.

In Table 5, below, is a list of HAPs that have in the past been used at the facility.

Table 4: Listing of MSDS in Permit Application R13-3219.			
No.	Name of Process Material for which a MSDS was Submitted.	No.	Name of Process Material for which a MSDS was Submitted.
1	Glass Blast Media	27	Amerlock 400 High Solids Epoxy Coating
2	Ballotini Impact Beads	28	Amercoat 370 Fast Dry Multi-purpose Epoxy Coating
3	Crushed Glass	29T	Amercoat Thinners
4	Carbomastic 15 FC Part B	30	Amercoat 370 ANSI #79 Gray Resin
5	Heat-Flex Hi-Temp 1200 coating under insulation	31	Page 5 of 5 (Not sure what happened here!)
6 7	Acrolon 218 HS Acrylic Polyurethane MSDS	32	Carboline Thinner #25
8	Acrolon 218 HS Acrylic Polyurethane (Part B) Hardner MSDS	33	Carboline Thinner #33
9 10	Macropoxy 646 Fast Cure Epoxy (Part A) MSDS	34	Amercoat 65 Thinner
11	Macropoxy 646 Fast Cure Epoxy (Part B) MSDS	35	Tiger Blend 60/40
12	Carbomastic 15	36	Carboline Thinner #2
13	Carbomastic 15 (Part B)	37	Carboline Thinner #72
14	Carboguard 890	38	Carboline Thinner #10
15	Carboguard 893 (Part A)	39	Carboline Thinner #214
16	Carboguard 893 (Part B)	40	Amercoat 450H Gloss Acrylic Aliphatic Polyurethane Topcoat
17	Carboline Phenoline 311 MSDS (Part A)	41	Carbothane 134 HG Part B Urethane Converter 811
18	Urethane Converter 811	42	Carbothane 134 HG Part A
19	Amercoat 240 Universal Amine Epoxy Coating	43 44	Carboguard 695 PM Part A

Table 4: Listing of MSDS in Permit Application R13-3219.			
No.	Name of Process Material for which a MSDS was Submitted.	No.	Name of Process Material for which a MSDS was Submitted.
20	Amercoat 240 Cure	45	Carboguard 695 PM Part B
21	Amercoat 240 Buff DV1642 Resin	46	Carboline Filler #50
22	Amercoat 450H	47 48	Carboguard 890 Part A
23	Amercoat 450H Red Tint Resin	49	Carboguard 890 Part B
24	Amerlock 400 High Solids Epoxy Coating		
25	Amerlock 2/400 White Resin		
26	Amerlock 2/400 Pearl Gray Resin		

Table 5: List of Recognized HAPs Used at Dynamic's Facility.	
Hazardous Air Pollutant (HAP)	CAS #
Cumene	98-82-8
Hexamethylene-1,6-Diisocyanate	822-06-0
Dibutyl Phtalate	84-74-2
Ethylbenzene	100-41-4
Glycol Ethers	109-86-4
Methanol	67-56-1
Methyl Isobutyl Ketone (MIBK; also Hexone)	108-10-1
Naphthalene	91-20-3
Phenol	108-95-2
Toluene	108-88-3
Xylenes (isomers and mixture)	1330-20-7
o-Xylenes	95-47-6
m-Xylenes	108-38-3

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Table 5: List of Recognized HAPs Used at Dynamic's Facility.	
Hazardous Air Pollutant (HAP)	CAS #
p-Xylenes (1,4-Dimethyl-Benzene)	106-42-3

AIR QUALITY IMPACT ANALYSIS

Dynamic's Morgantown, WV facility is considered to be a non-major source. No impact analysis study was conducted for the source.

MONITORING & RECORD KEEPING REQUIREMENTS

Permit

Section 5.2.1. Monthly visible emission checks (and/or opacity monitoring) are to be conducted for the Paint Booth (1S). The Abrasive Blast Operation (2S) vents inside the building. See permit section 5.1.6. **[45CSR§7-3.1.]**

Permit

Section 5.4.1. Paint Booth (1S) Daily VOC Emission Rate. The following records are to be kept on a daily basis: name, identification number, and number of gallons of coating applied; the mass of VOC per volume of each coating (minus water and exempt compounds, as applied). An example record is given in Appendix B to the permit. Records are to be kept for three years. See permit section 5.1.3. **[45CSR§13-5.11.]**

Permit

Section 5.4.2. Records of monthly visible emission checks (and/or opacity monitoring) of the Paint Booth (1S) are to be kept for three years. An example record is given in Appendix A. See permit section 5.1.6. **[45CSR§7-3.1.]**

Permit

Section 5.4.3. Record of Abrasive Blast Media/Steel Shot Usage. On a daily basis, record: 1) the amount of abrasive/steel shot used and/or added, and the 12-month rolling total abrasive/steel shot usage and or addition rate. See permit section 5.1.5.

- Permit
Section 5.4.4. Daily Cleaning Solvent(s) Usage. Daily records of the amount of cleaning solvent(s) used, the VOC content of the cleaning solvent(s) (if less than 100%), the amount of cleaning solvent(s) emitted [subtracting out any used cleaning solvent(s) captured and not allowed to evaporate] and the 12-month rolling VOC cleaning solvent(s) emission rate for the facility. Records are to be maintained for three years. See permit section 5.1.3, footnote 2.
- Permit
Section 5.4.5. Daily records are to be kept of all single HAP emission rate(s) for the facility using information collected from the Paint Booth (1S) operation and from cleaning solvent(s) usage for the facility. See permit sections 5.1.1.c and 5.1.3, footnote 2.
- Permit
Section 5.4.6. Permittee to record when the Paint Spray Booth Exhaust filters are changed out. If not all the pads/filters are changed out at the same time, then the location of the changed out and non-changed out pads/filters are to be noted for the record. See permit section 5.1.2.
- Permit
Section 5.5.1. Permittee is to notify DAQ/Director in writing of the use of any new surface coating containing any HAP(s) within thirty days of use. An MSDS shall be included with the notice to the DAQ. See permit section 5.1.1.a.

RECOMMENDATION TO DIRECTOR

Dynamic's request for a construction permit for a paint spray booth and an abrasive blasting operation for the manufacture of small pre-fabricated building systems at their Morgantown, Monogalia County, WV facility meets the requirements of all applicable rules and therefore should be granted said construction permit (R13-3219).

John Legg
Permit Writer

March 17, 2015

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