



west virginia department of environmental protection

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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-2898A (*After-the-Fact*)
Plant ID No.: 081-00247
Applicant: Superior Steam Cleaning & Sandblasting, Inc.
Facility Name: Lanark Facility
Location: Lanark, Raleigh County
SIC Code: 3999
Application Type: Construction
Received Date: September 21, 2011
Resubmittal Date: July 13, 2012
Engineer Assigned: Lee Martin
Fee Amount: \$1,000
Date Received: July 16, 2012
Complete Date: October 03, 2012
Applicant Ad Date: September 21, 2012
Newspaper: *The Register-Herald*
DAQ Ad Date: N/A
UTM's: Easting: 486.628 km Northing: 4186.482 km Zone: 17
Description: Application for an *After-the-Fact* construction permit for the operation of an Abrasive Blast & Coating Facility located at 260 Mindora Ave., Lanark, WV.

BACKGROUND

Superior Steam Cleaning & Sandblasting, Inc. originally filed their application for construction on September 21, 2011. Upon review of application it was determined that a Workers Compensation balance required resolution before application could be processed. Applicant withdrew their application on January 24, 2012. The Workers Compensation issue has since been resolved and on July 13, 2012, the DAQ received the applicants' re-submittal.

DESCRIPTION OF PROCESS (taken from the application)

Metal structures or equipment to be blasted and coated arrive via access road and unloaded in the Drop-Off area. Fork lifts take the metal structure or equipment to the Abrasive Blasting area (3S) where the metal is cleaned via an abrasive blasting. The facility currently uses 411 ton (822,000 lbs/yr) of black beauty to prepare the structural steel for coating. The metal structure or equipment is then taken to either the Primary Paint room (2S, 75%) or the Overflow Paint room (1S, 25%) for primer and/or top coat. Painted metal structure or equipment is then allowed to dry, to the point that it is tacky, and is then moved to the Drying area. Once dry, the metal structure or equipment

is loaded onto trailer for transport back to the Customer.

SITE INSPECTION

On June 07, 2012 a full, on-site, targeted inspection was performed by John Money Penny, of DEPs' Compliance and Enforcement Section. The facility received a score of 10 (Out-of-Compliance). The facility was issued a Notice of Violation on February 16, 2012 for constructing and operating without a permit. This application for a construction permit has been submitted to bring the facility into compliance.

Directions: Take the N. Beckley exit from I-77, turn left, pass Malls on Rt. 16/19. At the intersection of CVS Pharmacy and Walgreen's, turn left onto Ragland Rd. Go to the end of Ragland Rd., turn left and go past the Beckley Garbage facility on the right, start downhill and in the dip at the bottom of hill, turn left onto Mindora Ave. (Next to Midway Ave.). Go straight up the road and you will see a hill with large buildings, keep straight until you come to white fence with brown gate.

ESTIMATE OF EMISSIONS BY SMALL BUSINESS ASSISTANCE PROGRAM (SBAP)

Abrasive Blasting Area (3S, calculated based on actual usage)

The Abrasive Blasting Area is composed of a building structure with a door. There are no proposed controls for this emission source and the door to the building is the emission point. According to the Applicant, the facility uses 411 ton of Black Beauty to prepare the structural steel for coating. The PM emissions are calculated using U.S. EPA's AP-42, a "Compilation of Air Pollutant Emission Factors", 5th Edition; specifically Chapter 13.2.6, Abrasive Blasting. As the process is uncontrolled, the "Sand blasting of mild steel panel, 5 mph wind speed" factor of 27 lbs of total PM emissions per 1,000 pounds of abrasive used ($PM_{10} = 13$ lbs of total PM emissions per 1,000 lbs of abrasive used). This would result in the following PM emission for the use of 822,000 lbs/yr :

Abrasive Blasting Area

Pollutant	Controlled Emissions	
	lb/hr	TPY
PM	5.06	11.0
PM ₁₀	2.44	5.34

Maximum Coating Emissions (1S and 2S, calculated from actual usage)

Maximum potential emissions from the coatings applied in the primary (75%) paint booth and overflow (25%) paint booth were calculated by limiting the largest single HAP, Xylene, to keep it well under the 10 ton single HAP major source threshold. The other, lesser, HAP amounts were derived by taking a coating that is used frequently with the highest VOC content (SPEEDSET Enamel, 4.55 lbs/gal VOCs) and taking the maximum hourly usage of 10 gal/hr to derive 45.5 lbs/hr VOC figure). PM was calculated using Fast-Clad Urethane Mastic at 12.14 lb/gal PM to derive the 121.4 lbs/hr PM₃₀ figure and the 57.8 lbs/hr PM₁₀ figure, respectively. Total HAPs and Xylene were derived using 10 gallons of Xylol per hour (71.7 lbs/hr and 61 lbs/hr, respectively). PM₁₀ amounts are derived by dividing PM₃₀ amounts by 2.1 as per EPA's AP-42 and can be used as a surrogate for PM_{2.5} figures as well since coatings rarely result in fine PM less than 2.5 microns in diameter.

Coatings Used at Superior Steamcleaning & Sandblasting, Inc.

Coating Description	Data obtained from Application R13-2898A			
	<i>Actual Use</i>	<i>Density</i>	<i>VOC Content</i>	<i>PM Content</i>
	gal/yr	lb/gal	lb/gal	lb/gal
FAST-Clad DTM Urethane Mastic A	857	14.19	2.05	12.14
Catha-Coat 302V Inorganic Zinc A hite LF	35	24.46	0.872	23.59
Catha-Coat 302V Inorganic Zinc B	35	7.68	0.481	7.20
Devran 224 HS	33	12.19	2.32	9.87
Devran 261 QC	420	12.95	2.49	10.46
Devran 261 QC Converter	420	8.18	2.664	5.52
Devthane 389	626	9.55	3.87	6.68
Devthane 389 Converter	626	9.49	0.067	9.42
Industrial Enamel, Ultradeep Base	1956	8.37	3.71	4.66
Industrial Enamel, Pure White	75	8.78	3.68	5.10
Industrial Enamel, Safety Yellow	13	8.63	3.71	4.92
Quick Dry Enamel, Safety Yellow	110	7.66	4.54	3.12
Rustguard 4140 Shop Coat Primer	135	12.66	2.84	9.82
Speedenamel 4318 Gloss Enamel	258	7.88	3.76	4.12
ACROLON 218 Safety Yellow Pt A	7	10.51	2.97	7.54
Glidden Alkyd Semi-gloss	5	8.76	3.14	5.62
Glidden Fortis 350	40	9.75	0.411	9.34
DOD Ordnance Metal Wash Primer	5	7.34	5.90	1.44
Tar Guard Coal Tar Epoxy Pt A	4	11.13	2.19	8.94
SPEEDSET Enamel	300	9.74	4.55	5.19
BAR-RUST 231	58	11.14	2.61	8.53
BAR-RUST 231 Converter	58	7.80	2.99	4.81
MEK	125	6.72	6.72	0
Mineral Spirits	125	6.216	6.216	0
T-10 Thinner	112	6.89	6.89	0
Xylol	304	7.17	7.17	0

Maximum Coating Emissions (1S and 2S, calculated from actual useage)

Pollutant	Controlled Emissions			
	Primary (2S)		Overflow (1S)	
	lb/hr	TPY	lb/hr	TPY
VOCs	34.13	17.89	11.38	5.96
PM	91.05	3.74	30.35	1.25
PM ₁₀	43.35	1.79	14.45	0.60
Total HAPs	53.78	5.92	17.93	1.97
Xylene	45.75	4.67	15.25	1.56
Ethylbenzene	8.10	0.94	2.70	0.313
Napthalene	0.24	0.02	0.08	0.007
MIBK	15.50	0.25	5.17	0.083
Hexamethylene Diisocymate	0.71	0.05	0.24	0.015
Cumene	0.84	0.89	0.28	0.01

Maximum Emissions Combined (1S, 2S and 3S)

Pollutant	Controlled Emissions	
	lb/hr	TPY
VOCs	45.51	23.85
PM	126.46	16.09
PM ₁₀	60.24	7.73
Total HAPs	71.71	7.89
Xylene	61	6.23
Ethylbenzene	10.80	1.25
Napthalene	0.32	0.027
MIBK	20.67	0.33
Hexamethylene Diisocymate	0.95	0.065
Cumene	1.12	0.90

REGULATORY APPLICABILITY

45CSR7 - *To Prevent and Control Particulate Matter Air Pollution From Manufacturing Processes and*

Associated Operations

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

The facility utilizes an abrasive blasting area that is considered a manufacturing process as defined by this rule. The facility will be subject to Section 3 - Emission of Smoke and/or Particulate Matter Prohibited and Standards of Measurement, Section 4 - Control and Prohibition of Particulate Emissions by Weight from Manufacturing Process Source Operations, and Section 5 - Control of Fugitive Particulate Matter.

Section 3 - Emission of Smoke and/or Particulate Matter Prohibited and Standards of Measurement, states that manufacturing sources operations shall not exceed an opacity limit of greater than twenty (20) percent. The sources described in this application are considered Type 'a' source operations type as defined in Section 2.39.a of this rule.

Section 4 - Control and Prohibition of Particulate Emissions by Weight from Manufacturing Process Source Operations, states that any type of source operation shall not exceed particulate matter emissions in excess of the quantity specified under the appropriate source operation in Table 45-7A found at the end of this rule. The sources described in this application are considered Type 'a' source operation type as defined in Section 2.39.a of this rule. Table 45-7A list the process weight rate and allowable emission rates for source within the proposed manufacturing operations. An approximate weight rate used for the abrasive blasting area is 8,000 lb/hr. The allowable PM emission rate using this process weight rate is 8 lb/hr for the source. Proposed PM emissions from the abrasive blasting area (PM = 5.07 lb/hr) are less than the allowable emission rate.

Section 5 - Control of Fugitive Particulate Matter, states that any manufacturing process or storage structure generating fugitive particulate matter to operate in a manner to minimize fugitive particulate matter.

The facility will demonstrate compliance with this rule by maintaining records of daily hours of operation and daily quantities used for all abrasive materials.

45CSR13 - Permits For Construction, Modification, Relocation and Operation Of Stationary Sources Of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures For Evaluation

The purpose of this rule is to set forth the procedures for stationary source reporting, and the criteria for obtaining a permit to construct and operate a new stationary source which is not a major stationary source, to modify a non-major stationary source, to make modifications which are not major modifications to an existing major stationary source and to relocate non-major stationary sources within the state of West Virginia.

The facility has the potential to emit above the threshold emissions that require a permit (6 lb/hr and 10 tons/yr of any regulated air pollutant). Therefore, the applicant submitted the proper \$1000 application fee and published a Class I legal advertisement in the *The Register-Herald* on September 21, 2012.

45CSR22 - Air Quality Management Fee Program

This rule establishes a program to collect fees for certificates to operate and for permits to construct, modify or relocate sources of air pollution. Funds collected from these fees will be used to supplement the Director's budget for the purpose of maintaining an effective air quality management program. An Application for a Certificate to Operate (CTO) will be sent with the permit at time of issuance as this will be a new construction.

NEW FEDERAL AREA SOURCE RULES

Superior is subject to one of two new federal rules that deal with area, or smaller sources, the first being the "National Emission Standards for Hazardous Air Pollutants (NESHAP): Area Source Standards for Nine Metal Fabrication and Finishing Categories" (Subpart XXXXXX) rule. Since the little metal fabrication that takes place on-site is purely maintenance in nature, it is thought that the facility is not subject to Subpart 6X. This means that they could potentially be subject to the provisions of the "NESHAP: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources" (Subpart HHHHHH) rule. To ensure that the Superior facility will NOT be subject to the provisions of Subpart 6H - Superior must ensure that no coating used at the facility contains the following HAP's: Nickel, Manganese, Cadmium, Chromium and Lead compounds. For those miscellaneous metal parts coating facilities that don't spray the target HAP, there is an automatic exemption.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

The information was obtained from EPA's Air Toxics Website.

Toluene

Toluene is added to gasoline, used to produce benzene, and used as a solvent. Exposed to toluene may occur from breathing ambient or indoor air. The central nervous system (CNS) is the primary target organ for toluene toxicity in both humans and animals for acute (short-term) and chronic (long-term) exposures. CNS dysfunction and narcosis have been frequently observed in humans acutely exposed to toluene by inhalation; symptoms include fatigue, sleepiness, headaches, and nausea. CNS depression has been reported to occur in chronic abusers exposed to high levels of toluene. Chronic inhalation exposure of humans to toluene also causes irritation of the upper respiratory tract and eyes, sore throat, dizziness, and headache. Human studies have reported developmental effects, such as CNS dysfunction, attention deficits, and minor craniofacial and limb anomalies, in the children of pregnant women exposed to toluene or mixed solvents by inhalation. Reproductive effects, including an association between exposure to toluene and an increased incidence of spontaneous abortions, have also been noted. However, these studies are not conclusive due to many confounding variables. EPA has classified toluene as a Group D, not classifiable as to human carcinogenicity.

Ethylbenzene

Ethylbenzene is mainly used in the manufacture of styrene. Acute (short-term) exposure to ethylbenzene in humans results in respiratory effects, such as throat irritation and chest constriction, irritation of the eyes, and neurological effects such as dizziness. Chronic (long-term) exposure to ethylbenzene by inhalation in humans has shown conflicting results regarding its effects on the blood. Animal studies have reported effects on the blood, liver, and kidneys from chronic inhalation exposure to ethylbenzene. Limited information is available on the carcinogenic effects of ethylbenzene in humans. In a study by the National Toxicology Program (NTP), exposure to ethylbenzene by inhalation resulted in an increased incidence of kidney and testicular tumors in rats, and lung and liver tumors in mice. EPA has classified ethylbenzene as a Group D, not classifiable as to human carcinogenicity.

Xylene

Commercial or mixed xylene usually contains about 40-65% m-xylene and up to 20% each of o-xylene and p-xylene

and ethylbenzene. Xylenes are released into the atmosphere as fugitive emissions from industrial sources, from auto exhaust, and through volatilization from their use as solvents. Acute (short-term) inhalation exposure to mixed xylenes in humans results in irritation of the eyes, nose, and throat, gastrointestinal effects, eye irritation, and neurological effects. Chronic (long-term) inhalation exposure of humans to mixed xylenes results primarily in central nervous system (CNS) effects, such as headache, dizziness, fatigue, tremors, and incoordination; respiratory, cardiovascular, and kidney effects have also been reported. EPA has classified mixed xylenes as a Group D, not classifiable as to human carcinogenicity.

AIR QUALITY IMPACT ANALYSIS

An air quality impact analysis is deemed unnecessary because the facility is not subject to Prevention of Significant Deterioration (PSD) requirements and as a result of the type and quantities of pollutants to be emitted from the proposed flare.

MONITORING OF OPERATIONS

- Monthly visual emission checks of the spray rooms
- Daily coating usage and type of coating used
- Hours of operation of the spray rooms
- Weekly checks of filter integrity of the spray rooms
- Monthly and yearly monitoring of waste paint/filters
- Hours of operation of the abrasive blasting area
- Daily abrasive usage and type of abrasive used

RECOMMENDATION TO DIRECTOR

This Regulation 13 Construction Permit application submitted by Superior Steamcleaning & Sandblasting, Inc. for the **After-the-Fact** construction and operation of two paint spray rooms and abrasive blasting area at their Lanark, Raleigh County, WV facility has been reviewed and determined to meet all applicable requirements. It is therefore, recommended for approval.

Permit Engineer

October 03 2012

Date