



west virginia department of environmental protection

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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-3180
Plant ID No.: 079-00182
Applicant: Parkline Inc.
Facility Name: Eleanor Facility
Location: Putnam County
NAICS Code: 332311 - Prefabricated Metal Building and Component Manufacturing
Application Type: Construction
Received Date: 04/01/14
Engineer Assigned: John Legg
Fee Amount: \$1,000.00
Date Received: April 02, 2014
Complete Date: April 10, 2014
Due Date: July 10, 2014
Applicant Ad Date: April 10, 2014
Newspaper: *The Putnam Standard*
UTM's: Easting: 417.65981 km Northing: 4,265.9764 km Zone: 17
Description: Parkline is installing/constructing an abrasive blaster machine and a paint booth to expand the production of their small pre-manufactured building systems having high-end/commercial/business application.

Parkline Inc. (Parkline) is located in Eleanor, Putnam County, WV. The company produces small pre-manufactured building systems. The company plans to insource the fabrication of floor systems which will require the use of a self-contained structural blast machine and paint booth which Parkline plans to purchase and install. The ability to fabricate, blast and paint essential components (structure steel/frame and doors) will enable Parkline to employ skilled workers in this new division to produce a safe, certified and quality controlled product.

DESCRIPTION OF PROCESS

- 1) Pre-blast area - Raw steel material will be received into the pre-blast area to be cut to length.
- 2) Structural Shot Blaster Machine - After saw cuts are made, material will enter the structural Shot Blaster machine to be blasted free of any rust and mill scale.
- 3) Fabrication Area - Material will then be off-loaded into the fabrication area. This area is to be used to weld and fabricate structural members, skids, and stock parts vital to the construction of the pre-erected steel buildings. (Doors and door jambs blasted in the structural blast machine will bypass the fabrication area and will be moved directly to the paint booth.)
- 4) Paint Booth - Completed structural members and skids will then be moved into the paint booth for coating. After a sufficient cure time, the coated structural members will then be moved out of the fabrication area to the pre-erect area.

Table 1: Emission Units

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
1S	1E	Paint Booth	2014	Charging Weigh 100 TPH	1C Arrestor Pads/ Exhaust Filters
2S	2E	Abrasive Blaster Machine	2014	Charging Weigh 3 TPH	2C Cartridge Filter Collector

Table 2: 1S - Paint Booth

Name	Merchant 1 Paint Booth
Model Number	PBTSDD241364- Industrial Side Down Draft w/Air Intake Box for Heat (This booth will be box style not Hip Panels)
Inside Dimensions	20' Wide X 12' Tall X 60' Deep
Outside Dimensions	24' Wide X 13' 5" Tall X 64" Long

Table 2: 1S - Paint Booth	
Construction	18 Gauge G-90 Galvanized Steel
Front Door Opening Dimensions	17' Wide X 12' Tall --Bi Fold Doors
Lighting	26 @ 4 Tube, 2' X 4' Fluorescent T-8 Fixtures with Glass
Exhaust System	Qty of (4) 24" Fans; 1.5 HP-3PHASE MOTOR; each fan producing 6,562 CFMs @ 1/2 S.P. for Total CFM of 26,248
Filtration	20" X 20" INTAKE & EXHAUST FILTER PADS
Manometer/Draft Gauge, Hardware and Sealants	Included
Duct Work Package	Four (4) sets of 24" D X 16' L duct, mounting rings, roof curbs and butterfly tops
Heat System	Banza Air Make Up Heat System consisting of: B-2000 w/20HP motor producing 22,000 CFM's, BTUH 2,376,000 w/natural gas, vertical outdoor system and BAMs Deluxe controls
Maximum Process Material Charged per hour	100 ton/hr
Maximum Material Produced per hour	100 ton/hr
Projected Operating Schedule	10 hours/day; 5 days/week; 52 weeks/yr

Table 3: 1C - Paint Booth Arrestor/Exhaust Filters	
Name/Type/Model of Source	22-Gram Hvy-Duty Yellow/White Exhaust Filters 22-Gram Yellow & White Fiberglass Paint Arrestor Pads
Filter Size	20" X 20"
Description	The progressively dense heavy-duty two-stage 22 media is 50% heavier than the 15 g counterpart thus providing additional service life and removal efficiency. As with the 115 g product, strands of glass fibers with a 2.5" loading area backed with a 100% fiberglass scrim backing. The 22g is compliant with current EPA standards as well as many local municipal regulations. The 22 g fiberglass construction provides excellent removal efficiency at an economic price. Air Enters White Side -- Air Exits Yellow Side.
Particulate Matter Removal Efficiency	99.03%

Table 3: Paint Booth Arrestor Pad Specifications

Filter Type	Average Efficiency	Capacity (lbs/ 20 X 20 Pad)	Initial Resistance (Water Column)
15-Gram	98.81 %	0.9	0.02
⁽¹⁾ 22-Gram	99.03%	1.0	0.02
18-Gram (PB)	99.79%	2.4	0.02
E-28 (3")	99+%	2.4	0.03

(1) The 22-Gram Filter is the filter that was selected to be used by Parkline.

Table 4: 2S - Structural Shot Blaster Machine

Name/Type/Model of Source	LS Industries STRB6024Structural Blaster
Maximum Process Material Charged per hour	3 ton/hr
Maximum Material Produced per hour	3 ton/hr
Projected Operating Schedule	10 hours/day; 5 days/week; 52 weeks/yr
Airless steel shot blasting system with opening size 60" wide X 24" tall.	
Main blast cabinet construction: 1/2" AR plate.	
Blast liner: 12" X 12" X 1/2" heat-treated chrome-moly ship lapped plates in blast cabinet.	
Four (4) LS SureShot blast wheel motors are 20 HP, premium efficiency Baldor TEFC.	
Each blast wheel can be individually controlled with an ABB variable frequency drive.	
Each LS SureShot blast wheel has eight blades, case chrome-moly heat treated blades.	
Abrasive feed system includes augers, collection hopper, bucket elevator and air wash. Control circuit for automatic abrasive on/off.	
Four (4) abrasive control valves. Each is individually controlled by a pneumatic cylinder, individual adjustment, rubber feed hose to wheel spout. On/off switch for individual wheel shot shut off.	
Elevator: 1/4" steel plate construction, 7.5 HP motor. 8" X 5" cast iron buckets. Multiple ply elevator belt.	
Entrance and exit vestibules construction: 1/4" steel plate. Auger V-try and auger extends from the entrance and exit of the blaster Lowcross auger to return abrasive to the bucket elevaotr: 3HP	
Entrance3 auger: 2 HP, Exit return auger: 2 HP	
Chain driven liver roller conveyor with rollers on 21" centers, pass height is 54".	
1.5 HP variable speed DC motor, 700 lb/linear ft capacity.	
20 HP high volume sonic blow off with manifold and adjustable air cannons.	

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Table 4: 2S - Structural Shot Blaster Machine
Maintenance door to allow operator access to the interior of the blaster.
Maintenance and inspection panels on augers and elevator.
Electrical box located on blast cabinet.
Single point electrical connection.
Power: 480 volt 4 phase power 60 cycle. Approximately 176-amp draw.
NEMA 12 electrical enclosure.
Schneider IEC high voltage components, combo motor starters with adjustable overloads; UL and CSA registered components.
Amp meter to monitor abrasive load on each LS SureShot impeller wheel.
Model DC-15 reverse jet air pulse cartridge collector (ducting not included, quoted on request)
6,000 CFM, replaceable cartridges. Filters are 99.9% efficient down to 0.3 micron.
12-15 CFM @ 90 PSI required to operate dust collector pulse.
Lifting hooks integrated into the blast cabinet.
Initial charge: steel shot/grit abrasive provided for startup S-230 & G-50 mixture.

LS Industries Pass Through Structural Blaster

The blaster is designed to blast clean the surfaces of a continuous flow of structural steel using steel shot as an abrasive media for cleaning. Opening 60" X 24" tall. System is setup with variable frequency drives on each blast wheel. This will allow for adjustment of shot speed for customer's parts.

Dust Collection System

All LS blasters require a dust collector system. The dust collector MUST be used when the machine is operating. This system includes one 15 HP dust collector, capable of 6,000 CFM. The dust collector filters air pulled from the blast cabinet through a series of 8 cartridges to remove particulate of contamination and spent shot. The filter is efficient on 99.9% on 0.3 micron. Legs are provided which accommodate the use of a 55-gallon drum for dust containment.

Following a successful test run at LS Industries' facility, Parkline is responsible for dust control after accepting the structural blaster.

SITE INSPECTION

On May 27, 2014, the writer inspected the facility with Gene Coccari of the DAQ's Small Business Group. The location of the facility was deemed to be acceptable for the proposed construction, i.e., Parkline is located in an industrial park relatively remote from residential dwellings (> 300 feet). Upon issuance of this permit, the facility will be added to the Airtrax Database and DAQ's Enforcement inspection list.

Directions as given in the application:

Teays Valley to Winfield - cross Winfield Bridge. Left to Eleanor - go through Eleanor - turn Left into Eleanor Industrial Park, 0.3 miles on the Right.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Parkline's emissions were estimated by Gene Coccari of DAQ's Small Business Group and are found in Attachment N to the permit application. The writer reviewed the emissions and found them to be reasonable.

Potential emissions (controlled) for the facility, as advertised in Parkline's April 10, 2014 legal advertisement (*The Putnam Standard*), are given below in Table 5.

Table 5: Controlled Emissions as Listed in Parkline's Legal Advertisement for Their Eleanor, Putnam County WV Facility.

Pollutant	Controlled Emission (ton/yr)
PM	2 ⁽¹⁾
PM ₁₀	1 ⁽²⁾
VOC	17.5 ⁽³⁾
⁽⁴⁾ Combined HAPs	17.5
⁽⁵⁾ Xylene	8.4
⁽⁵⁾ Hexamethylene Diisocyanate	4.2
⁽⁵⁾ Ethyl Benzene	3.45

- (1) See Table 6 below for further explanation.
- (2) $PM_{10} = PM / 2.1 \approx 1$ ton/yr.
- (3) This annual VOC emission rate was used to calculate the maximum amount of complying coating (8,440 gal/yr) that could be used at Parkline's Eleanor facility. See the note given below for section 5.1.4. of R13-3180.
- (4) Assumes all VOCs emitted from facility are HAPs. This is worst case, and is an over-estimation.
- (5) In R13-3180, individual specied HAPs must not exceed 10 TPY for the facility to remain a non-major source.

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Table 6: Parkline's Estimated PM Emissions.

Emission Unit ID	Emission Unit Description	Control Device	Controlled Emission Rate
			(ton/yr)
1S	Paint Booth	1C - Arrestor Pads/ Exhaust Filters (90% PM Control)	0.521
2S	Structural Shot Blaster Machine	2C - Cartridge Dust Collector (99.9% PM Control)	1.0 ⁽¹⁾
Total			1.5 (rounded up to 2.0 in Legal Ad)
(1) Based on operating the abrasive blaster machine 2,080 hr/yr of operation.			

VOC emissions from the facility are limited to 17.5 ton/yr (see below) by the proposed permit. Record keeping requirements do not allow emissions for any single HAP to exceed 10 ton/yr.

Calculation for Maximum Compliant Coating Usage Rate for Parkline's Eleanor Facility

5.1.4. The maximum gallons of compliant coatings (VOC content of 3.5 lb/gal or less) the facility can apply is 8,440 gal/yr.

Note: The facility is to use Rule 21 compliant coatings having a VOC content (for air drying) of 3.5 lb/gallon, minus water and exempt compounds, as applied.

Taking the VOC emission limit advertised in the newspaper: 17.5 ton/yr, multiplying by 2,000 lb/ton and dividing by 3.5 lb/gallon of VOC per gallon of compliant coating yields: 10,000 gal/yr of compliant coatings.

The facility will also use thinner(s) for cleanup in addition to the VOCs emitted from the compliant coatings.

Rule 21 allowed a maximum of 15 lb/day due to evaporative losses.

Assuming evaporative losses are entirely from using thinner for cleanup, and that the losses occur 365 day/yr, then total evaporative losses/thinner usage would equal:

$$15 \text{ lb/day} \times 365 \text{ day/yr} = 5,475 \text{ lb/yr of VOC from thinners}$$

Assuming thinner weighs about 7.2 lb/gal, the total number of gallons of thinner that can be used is:

$$5,475 \text{ lb/hr} \div 7.2 \text{ lb/gal} = 760 \text{ gal/yr}$$

Thinner usage is approximately equal to the following gallons of compliant coating:

$$5,475 \text{ lb/hr} \div 3.5 \text{ lb/gal} = 1,560 \text{ gal/yr of compliant coating}$$

Subtracting 1,560 gal/yr from the 10,000 gal/yr allowance for compliant coatings reduces the gal/yr usage rate of compliant coatings to approximately 8,440 gal/yr.

REGULATORY APPLICABILITY

Parkline's Eleanor, 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 booth (1S) and the structural shot blaster machine (2S) are subject to the emissions standards of 45CSR7.

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 arrestor/exhaust pad filters and the structural shot blaster machine has a cartridge dust collector.

45CSR§7-8.1. - Director may required PM stack testing.

45CSR§7-8.2. - Director or his representative may conduct tests to evaluate emissions.

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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**

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

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

- The paint booth (1S) and the structural shot blaster machine (2S) are subject to the PM emission standards of 45CSR7.
- The paint booth (1S) is subject to the VOC emission standards of 45CSR21.

45CSR21 - **Regulation to Prevent and Control Air Pollution from the Emission of Volatile Organic Compounds**

It is the intent of the Director through 45CSR21 (Rule 21) that all persons engaged in the manufacture, mixing, storage, use, or application of volatile organic compounds control the emission of volatile organic compounds through the application of reasonably available control technology.

Rule 21 applies to sources located in Putnam County, Kanawha County, Cabell County, Wayne County, and Wood County.

Parkline mixes, stores, uses/sprays/applies VOC coatings at their Eleanor facility located in Putnam County, WV to produce their small pre-fabricated building systems.

Parkline's paint booth (1S) is subject to section 19 of Rule 21 entitled, "Coating of Miscellaneous Metal Parts."

Parkline's coatings are applied in the paint booth (1S) and are air-dried. Rule 21, section 19.3.a. limits the VOC content of coating to 3.5 lb/gal, minus water and exempt compounds, as applied.

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Parkline will use only complying coating (3.5 lb/gal VOC or less, as applied) to comply with the certification, recordkeeping, and reporting requirements of Rule 21, section 4.3.

Parkline submitted a permit application under Rule 13 and in doing so meets the certification requires of Rule 21, section 4.3.a.

Under Rule 21, section 4.3.b., entitled, "Recordkeeping," Parkline shall collect and record all the following information each day for the paint booth operation and maintain the information at the facility for a period of 3 years:

- 1) The name and identification number of each coating, as applied, and
- 2) The mass of VOC per volume of each coating (minus water and exempt compounds, as applied) used each day.

Under Rule 21, section 4.3.c., entitled, "Reporting," Parkline shall notify the Director if any record showing use of any non-complying coatings by sending a copy of such record to the Director within 30 days following that use.

If Parkline should change the method of compliance from use of complying coatings to daily-weighted averaging or control devices, the company would have to apply for a modification to the permit under review in this evaluation, i.e., permit R13-3180.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

The following MSDSs were submitted in Attachment H to the application. HAPs are listed after name of the MSDS.

No.	Name of Coating/ Thinner/EQPT Cleaner	Reference No.	HAP		
			CAS	Name	Max %
1	Intercure 4500 Base Light Part A	AGA011	98-82-8	Cumene	0.1
2	Intercure 4500 Part B	AGA046	822-06-0	Hexamethylene-1,6-diisocyanate	0.1
3	Intercure 99 Base Light Part A	QNA011	1330-20-7	Xylenes	0.1
4	Intercure 99 Part B	QNA046	822-06-0	Hexamethylene-1,6-diisocyanate	0.1
5	Devtar 5A Black Part A	DC221B9988	100-41-4	Ethylbenzene	10
			1330-20-7	Xylenes	25

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No.	Name of Coating/ Thinner/EQPT Cleaner	Reference No.	HAP		
			CAS	Name	Max %
6	Devtar 5A Part B	NDA550	100-41-4	Ethylbenzene	10
			1330-20-7	Xylenes	25
7	Devcryl 1440 White	DC1440S1000		---	--
8	Devprime 1401 Grey	DC1401S6110	100-41-4	Ethylbenzene	10
				Xylenes	25
9	Intergard 345 Grey Part A	AAA010	98-82-8	Cumene	0.1
			100-41-4	Ethylbenzene	10
			1330-20-7	Xylenes	10
10	Intergard 345 Part B	AAA046	98-82-8	Cumene	0.1
11	Devprime 1405 Red	DC1405S7821		---	--
12	Interseal 1079 Grey	EGA979		---	--
13	Devoe T10 Thinner	DC010T0000	100-41-4	Ethylbenzene	25
			108-10-1	Methylisobutyl Ketone	25
			1330-20-7	Xylenes	50
14	International Thinner/EQPT Cleaner	GTA415	100-41-4	Ethylbenzene	25
			1330-20-7	Xylenes	75
15	International Thinner/EQPT Cleaner	GTA056	1330-20-7	Xylenes	10

AIR QUALITY IMPACT ANALYSIS

Parkline's Eleanor, 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) and the Abrasive Blast Machine (2S). See permit section 5.1.11. **[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 complying coating applied; the mass of VOC per volume of each coating (minus water and exempt compounds, as applied).

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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§21-19.3.a.3.]

Permit

Section 5.4.2.

Records of monthly visible emission checks (and/or opacity monitoring) of the Paint Booth (1S) and the Abrasive Blast Machine (2S) are to be kept for three years. An example record is given in Appendix A. See permit section 5.1.11. **[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 5.1.10.

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 5.1.5.

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 section 5.1.5.

Permit

Section 5.4.6.

Permittee to record when the Arrestor Pads/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.

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.

Permit

Section 5.5.2.

Permittee is to notify DAQ/Director in writing of the use of any non-complying coating(s) [VOC content > 3.5 lb/gal, as applied] by sending a copy of such record to the DAQ within thirty days. See permit section 5.1.5. **[45CSR§21-4.3.c.1.]**

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RECOMMENDATION TO DIRECTOR

Parkline's request for a construction permit for an abrasive blasting and coating operation for the manufacture of small pre-fabricated building systems at their Eleanor, Putnam County, WV facility meets the requirements of all applicable rules and therefore should be granted said construction permit (R13-3180).

John Legg
Permit Writer

June 12, 2014

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