



west virginia department of environmental protection

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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-2857A
Plant ID No.: 053-00004
Applicant: Felman Production, Inc.
Facility Name: Letart Facility
Location: Mason County
SIC Code: 3313 & 3341
Application Type: Modification - Synthetic Minor for PSD
Received Date: December 1, 2011
Engineer Assigned: Steven R. Pursley, PE
Fee Amount: \$4,500
Date Received: December 5, 2011
Complete Date: December 29, 2011
Due Date: March 28, 2012
Applicant Ad Date: December 8, 2011
Newspaper: *Point Pleasant Register*
UTM's: Easting: 419.054 km Northing: 4,312.02 km Zone: 17
Description: Addition of four screening/crushing units with associated belts and one water jig.

DESCRIPTION OF PROCESS

Felman Production Inc., manufactures manganese and silicon based ferroalloys and consists of three electric submerged arc furnaces and associated sizing and handling equipment.

The proposed changes involve the following:

- Four (4) portable screening and/or crushing units with belts and associated transfer points.
- One (1) water jig with associated pre-screening and crushing devices with belts and associated transfer points.

All other equipment will remain the same as permitted under R30-05300004-2007.

MATERIAL HANDLING SYSTEM (BARGE LOAD-IN):

The proposed Barge Load-In Facility begins with the input of feedstock (which consists of coke, manganese ore, quartzite, and alloy) into a 15-ton hopper (B1). The feedstock is transferred from hopper (B1) via a 250 TPH belt conveyor (BC1A) to a flop gate at transfer point (T3A). An operator can manually manipulate the flop gate to direct the flow of feedstock to a 15-ton hopper (B2), where the feedstock is transferred to a haul truck. The secondary selection for the flop gate at (T3A) would move the feedstock to a 250 TPH belt conveyor (BC2A). (BC2A) leads to a 250 TPH screener (SC-01A) which separates the feedstock by size into one of two 15-ton hoppers (B3) or (B4). Haul trucks will be positioned under hoppers (B3) and (B4) to transfer the feedstock. Note that the Barge Load-In Facility will not operate while the Bivitech Screener Unit is operating. Material will be screened in one or the other unit, not simultaneously.

CRUSHER, SCREEN, WATER JIG:

The proposed Water Jig Facility begins when an in-loader transfers post-product waste to a 15-ton hopper (B1B). The waste material from hopper (B1B) is transferred via a 200 TPH belt conveyor (BC1B) to a 200 TPH screener (SC-01B), where material is separated by size. Smaller material is moved to the bottom of screener (SC-01B) to a 200 TPH belt conveyor (BC2B). Larger material is moved from screener (SC-01B) to a 200 TPH crusher (CR-01).

Initially the crusher and screener associated with the remelt pre-water jig treatment will be used specifically to screen and crush final product to facilitate the demand to provide product to a specific client. Eventually the screening and crushing unit will be put back into its intended long-term design purpose, which is to process remelt prior to entering the water jig system.

The crushed remelt is transferred to belt conveyor (BC2B) and enters the water jig at transfer point (T16A). A water separation process moves the material into three (3) different partially-enclosed stockpiles, (OCS1), (OCS2), or (OCS3).

BIVITECH SCREENER UNIT:

The proposed Bivitech Screener Unit begins with the input of feedstock from a 15-ton hopper (B1C). The feedstock is transferred from hopper (B1C) via a 150 TPH belt conveyor (BC1C) to a 150 TPH screener (BTSC-01). Screener (BTSC-01) separates feedstock. Sized material is transferred to belt conveyor (BC2C). Belt conveyor (BC2C) transfers material back to stockpiles. Note that the Bivitech Screener Unit will not operate while the

Barge Load-In Facility is operating. Material will be screened in one or the other unit, not simultaneously.

REBEL CRUSHER/SCREENER UNIT:

In-loaders will load feedstock to a 150 TPH input conveyor belt (BC1D). From BC1D, feedstock will enter a fully-enclosed operating building containing both screeners and a crusher. The feedstock will enter screener RBSC-01. Smaller material will exit the screener to a 150 TPH belt conveyor (BC2D); larger material will move to crusher (RBCR-01). Crushed material will enter screen (RCSC-02) and will be separated by size to a 150 TPH belt conveyor (BC2D), which will redistribute the material into existing stockpiles.

All existing haul roads will be used in order to support the above operations. There will be no increase in traffic.

SITE INSPECTION

The facility was inspected by the DAQ on September 15, 2010, by James Robertson of DAQ's enforcement section. The facility was determined to be significantly out of compliance and is currently working with the enforcement section to come back into compliance through a consent order. According to Mr. Robertson, none of the changes proposed in this permit should interfere with that effort.

Additionally, a site inspection of the facility was performed by the writer along with Mr. Robertson and Joe Kessler of DAQ's permitting section on February 28, 2012. We were accompanied by Rich Lunn of Felman and Nate Lanham of SLR (Felman's consultant). The purpose of the inspection was to identify the particular screens which are already on site and included in the application and differentiate them from screens on site which are not permitted (NOV has been issued by Mr. Robertson) and screens which are proposed in the application but not yet on site. The facility is located in New Haven, West Virginia, in an area that is a mix of residential, commercial and industrial. To get to the facility from Charleston take I-77 north to Ripley (exit 138). At the stop light at the bottom of the off ramp turn left on State Route 62 (old Route 33) and proceed approximately 8.8 miles to the intersection of State Route 2. Then, turn left and proceed on State Route 2/62 approximately 3.1 miles. At the top of the hill veer right on State Route 62. Proceed approximately 9.6 miles and the facility is on the left (offices and parking on the right).

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

All emissions are based on AP-42. Crushing and screening emissions are based on Table 11.24-2 (emission factors for metallic minerals processing) since no emission factors for crushing and screening are given in the ferroalloy section (12.4). Emissions for fuel oil

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combustion in the engines are based on table 3.3-1 and 3.3-2. Hazardous Air Pollutants are not given below because based on AP-42 and the applicant stated annual usage of 16,800 gal/yr of fuel oil (700 hours per year), total HAP emissions are less than 9 pounds per year.

Since the Bivitech Screener Unit will not operate while the Barge Load-In Facility is operating, the barge screen was used to calculate maximum hourly emissions since it has the larger hourly capacity. Annual emissions and capacities are the same.

PARTICULATE EMISSIONS

	PM		PM ₁₀		PM _{2.5}	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Screens	65	17.2	30.73	8.14	9.67	2.57
Crushers	25	4.1	11.82	1.94	3.72	0.62
Transfer Points	5.24	1.93	2.48	0.91	0.78	0.29
Stock Piles	1.13	0.21	0.53	0.10	0.01	0.01
Scr. & Crush. Engines	1.02	0.36	1.02	0.36	1.02	0.36
Total	97.39	23.8	46.58	11.45	15.2	3.85

GASEOUS EMISSIONS

Emissions based on a maximum combustion of 8 gallons of fuel oil per hour and an applicant stated maximum of 5,600 gallons per year (700 hours of operation).

Engine	SO ₂		NO _x		CO		VOC	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Rebel Engine	0.32	0.11	4.83	1.69	1.04	0.36	0.38	0.13
Bivitec Engine	0.32	0.11	4.83	1.69	1.04	0.36	0.38	0.13
Barge Screen Eng.	0.32	0.11	4.83	1.69	1.04	0.36	0.38	0.13
Total	0.96	0.33	14.49	5.07	3.12	1.08	1.14	0.39

REGULATORY APPLICABILITY

The following state and federal regulations apply to the facility:

STATE RULES

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

The main requirement of 45CSR7 is the process weight rate based PM stack emission rate in section 4 of the rule. As can be see in the table below the sources meet this requirement. In order to be overly conservative (and simplistic) all screens and crushers are considered duplicate sources for the purposes of the table below (although since some size feedstock and some size product they are arguably different).

	Permit Limit (lb/hr)	Rule 7 Limit (lb/hr)
Screens (combined)	80	176
Crushers (combined)	25	71

The facility is also subject to a twenty (20) percent opacity limit on all process source operations and must have a plan to minimize fugitive emissions. Felman proposes to meet these requirements through the use of water sprays and enclosures.

The facility is also subject to the fugitive particulate matter control systems requirement of section 5.1 of 45CSR7.

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).

Because uncontrolled PM emissions from the modification exceed 6 pounds per hour and 10 tons per year of PM the facility is required to submit a modification permit under 45CSR13. Because this permit is a synthetic minor for PSD "notice level C" is required.

45CSR30 Requirements for Operating Permits

The facility is a major source under 45CSR30 with an existing Title V permit. Changes authorized by the permit must also be incorporated into the facility's Title V operating permit.

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FEDERAL RULES

40 CFR 60 Subpart Y Standards of Performance for Coal Preparation and Processing Plants.

Feedstock into the plant may include coal. Therefore the screens, crushers and belts that handle feedstock are subject to Subpart Y. These units include:

Conveyors	Screens	Crushers
BC1A	SC-01A	PTCR-01
BC2A	BTSC-01	
BC1C	PTSC-01	
BC2C	PTSC-02	
BC1D		
BC2D		

The facility should be in compliance with Section 254(b) (less than 10% opacity for coal processing and conveying equipment, coal storage system, or coal transfer and loading system processing coal constructed, re-constructed or modified after April 28, 2008) when the particulate matter control methods and devices proposed are in operation.

The owner or operator of an open storage pile, which includes the equipment used in the loading, unloading, and conveying operations of the affected facility, constructed, reconstructed, or modified after May 27, 2009, must prepare and operate in accordance with a submitted fugitive coal dust emissions control plan that is appropriate for the site conditions. The fugitive coal dust emissions control plan must identify and describe the control measures the owner or operator will use to minimize fugitive coal dust emissions from each open storage pile. The plan must be submitted to the Director prior to startup of the new, reconstructed, or modified open storage pile.

40 CFR 60 Subpart IIII Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

Both the Bivitech and Barge screener engines were manufactured before July 11, 2005 and are therefore exempt from the rule. The rebel

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engine was manufactured in 2006. Specifically, it is a Deutz BF 6 M 2012 C. Because this is a non emergency pre 2007 engine with a per cylinder displacement of less than 10 Liters with a maximum power of between 75 and 130 kw, the main requirement of the rule is that the engine meet a NO_x emission limit of 6.9 g/hp-hr.

§60.4211(b)(1) allows the owner to demonstrate compliance with this emission limit by using an engine certified according to 40 CFR 89. Deutz's website contains a copy of USEPA's certification letter for this family of engine. A copy of said letter is attached to this document or can be found at:

<http://www.deutzamericas.com/deutznew/products/emissions/2006/6DZXL05.7033.pdf>.

The rule also requires the operator to use diesel fuel which meets the requirements of 40 CFR 80.510(b).

40 CFR 63 Subpart XXX National Emission Standards for Hazardous Air Pollutants for Ferroalloys Production: Ferromanganese and Silicomanganese

The crushing and screening equipment and associated fugitive dust sources are subject to 40 CFR 63 Subpart XXX. The crushers and screens are subject to a limitation of 0.022 gr/dscf. In order to determine compliance with the particulate matter concentration limit, the permittee must perform testing using Method 5 or 5D, as applicable as outlined in §63.1656.

40 CFR 63 Subpart ZZZZ National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.

The Bivitech and barge screener engines were manufactured in 1993 and have a horse power rating of 250 hp. Therefore, in Subpart ZZZZ they are classified as existing compression ignition engines between 100 and 300 hp. The main requirement of the rule applicable to these engines is the limit of CO in the exhaust to less than or equal to 230 ppmvd at 15% O₂. In order to determine compliance with this requirement the permittee must perform an initial compliance test in accordance with §63.6612.

The Rebel engine has not been purchased yet but will be 200 hp and have a manufacture date between 2010 and 2012. Therefore it is classified as a new engine less than 500 hp. In order to comply with the rule the engine simply must meet the standards of 40 CFR 60 Subpart IIII (see above).

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NON-APPLICABILITY DETERMINATIONS

These particular screens/crushers/conveyors are not subject to 40 CFR 60 Subpart OOO because they do not process any "nonmetallic mineral" as defined in §60.671.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

The main pollutant covered by this permit is particulate matter. However, some portion of that particulate matter may consist of manganese compounds. Since the facility is already a major source of HAPs subject to 40 CFR 63 Subpart XXX requirements are already in place (as can be seen under the "Regulatory Applicability" section of this document) to limit emissions of these compounds.

Other than particulate matter the only non criteria regulated pollutants that are addressed by this permit are the small amount (less than 9 pounds per year) of Hazardous Air Pollutants that are the normal byproduct of oil combustion.

AIR QUALITY IMPACT ANALYSIS

Because this is a minor modification no modeling was performed.

MONITORING OF OPERATIONS

The permittee shall monitor and record the following:

- * The amount of feedstock or product processed through each crusher and screen.
- * The amount of fuel burned in the crusher and screen engines.
- * Record the times the Bivitech and Barge load in screens are in operation to ensure that they are not operated at the same time.

CHANGES TO PERMIT R13-2857

The following changes were made to permit R13-2857:

- * Table 1.0 was updated to add the new equipment.
- * Table 4.1 was modified to distinguish it from the equipment permitted with this application.
- * Conditions 4.1.18 through 4.1.26 were added.

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- * Conditions 4.2.3 and 4.2.4 were added.
- * Conditions 4.3.9 through 4.3.15.
- * Condition 4.4.3 was added.

RECOMMENDATION TO DIRECTOR

Information supplied in the application indicates that compliance with all applicable regulations will be achieved. Therefore it is the recommendation of the writer that permit R13-2857A for the modification of a ferro alloy facility near Letart, Mason County, be granted to Felman Production, Inc.

Steven R. Pursley, PE
Permit Writer

March 1, 2012

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