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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-2857
Plant ID No.: 053-00004
Applicant: Felman Production, Inc.
Facility Name: Letart Facility
Location: Letart, Mason County
SIC Code: 3313, 3341
Application Type: Modification
Received Date: September 21, 2010
Engineer Assigned: Steven R. Pursley, PE
Fee Amount: \$4,500.00
Date Received: September 21, 2010
Complete Date: October 26, 2010
Due Date: January 24, 2010
Applicant Ad Date: September 30, 2010
Newspaper: *Point Pleasant Register*
UTM's: Easting: 419.05 km Northing: 4,312.02 km Zone: 17
Description: Modification to add a 400 TPH portable crusher, 6 TPH baghouse dust Pelletizer and 20 TPH extrusion system.

DESCRIPTION OF PROCESS

The proposed changes involve the following:

1. Addition of a 400 TPH portable crushing unit with associated grizzly feeder and conveyor belt system to process remelt, limestone or final product (SiMn).
2. Addition of separate 20 TPH Extruder Unit that produces briquettes.
3. Addition of a separate 6 TPH Pelletizer Unit that produces baghouse dust pellets.
4. Addition of two (2) "remelt" stockpiles, as well as one (1) briquette stockpile, and one (1) pellet stockpile, for a total of four (4) additional stockpiles.

The proposed changes involve the addition of three (3) independently operated units: a crusher, a pelletizer and an extruder. Each unit has its own inclusive process of transfers and stockpiles.

CRUSHING SYSTEM

The proposed crushing system begins with the input of remelt, which consists of slag and silica manganese, into the grizzly feeder (SC-1C). Periodically, limestone will be inputted into the crushing system and SiMn may also be sized on an emergency basis. However, each material is subject to the same aggregate throughput limitation. Material passing through the grizzly feeder will proceed to the crushing unit (CR-1C) where it is sized. Belt Conveyor (BC-2C) transfers the sized remelt from the crushing unit (CR-1C) into Open Stockpile (OS-2C) where it awaits removal via endloader to truck loadout. Any material that does not pass through grizzly feeder (SC-1C) is redirected to Belt Conveyor (BC-1C) which transfers the undersized material to Open Stockpile (OS-1C). Emissions from the crushing system are vented to the baghouse. The specifications for this crushing unit denote a production rate of 400 TPH.

EXTRUDER SYSTEM

Manganese Ore and Silica Manganese fines are transferred into the proposed Extruder Unit (EX-1) via endloader. The extrusion system itself is equipped with a system feeder which receives the material and feeds it into the extruder in specific proportions. Cement (5%)/water mix is fed into the extruder through the additive feed line, and is applied to the material as a binder. The material must then undergo additional mixing, which is necessary to blend the materials thoroughly and incorporate the binder. The prepped material is then pushed or drawn through a die of the desired cross-section which is considered the extrusion process. Finally, the extruder is equipped with a vacuum system. The exhaust from the vacuum pump is directed first into a vapor/liquid separator. The vapor is then directed through a coalescing vapor filter. This separates any mineral oil in vapor form from the water and air. The only gas that escapes the system is air and a very slight amount of pure water vapor. No other vapors or particulate solids will be released from the system. Briquettes are produced at a rate of about 20 TPH and stored in open stockpile (OS-1X).

PELLETIZER SYSTEM

Baghouse dust is fed into the drum center through the feeder from the rear via front endloader. Because the feed enters below already processed material in the drum, there should be no significant particulate emissions. Water is used as the binder in this process, and pellets are produced within the fully enclosed pelletization unit. The pellets are then discharged from the back end of the pelletizer into Open Stockpile (OS-1P). Pellets can be produced at a rate of about 6 tons per hour.

SITE INSPECTION

The facility was last 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. According to Mr. Robertson, none of the changes proposed in this permit should interfere with that effort.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

The increase in controlled emissions from the facility are described in the table below. It should be noted that an unknown fraction of the PM could be metal HAPs (mainly manganese compounds). Therefore in order to be conservative all PM is to be considered HAPs for the purposes of this permit.

	PM/Mn Compounds		PM ₁₀ /Mn Compounds	
	lb/hr	TPY	lb/hr	TPY
Crushing	21.8	2.45	10.31	1.16
Screening	21.8	2.45	10.31	1.16
Pelletizer	0.01	0.01	0.01	0.01
Extruder	0.39	0.10	0.18	0.05
Transfer Points	29.0	3.32	13.71	1.57
Stockpiles	3.36	0.61	1.59	0.29
Total	76.36	8.94	36.11	4.24

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 seen in the table below the sources meet this requirement.

	Permit Limit (lb/hr)	Rule 7 Limit (lb/hr)
Crusher (400 TPH)	21.8	79
Screen (400 TPH)	21.8	79
Pelletizer (6 TPH)	0.01	11.2
Extruder (20 TPH)	0.39	28

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 a baghouse, 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 subject to 45CSR13.

45CSR30 Requirements for Operating Permits

The facility is a major source under 45CSR30 with an existing Title V permit.

FEDERAL RULES

40 CFR 60 Subpart OOO Standards of Performance for Nonmetallic Mineral Processing Plants

The crusher, screen and associated conveyor belts are subject to Subpart OOO when processing limestone. The crusher and screen are subject to a limitation of 0.014 gr/dscf and must perform tests in accordance with §60.8 and §60.675 of the rule. The conveyor belts are

subject to the 7% opacity limit and must perform tests in accordance with §60.11 and §60.675 of the rule.

40 CFR 63 Subpart XXX

When not processing limestone, the crushing and screening equipment and associated fugitive dust sources are subject to 40 CFR 63 Subpart XXX. The crusher and screen are subject to a limitation of 0.022 gr/dscf.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

The only 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.

AIR QUALITY IMPACT ANALYSIS

Because this is a minor modification no modeling was performed.

MONITORING OF OPERATIONS

The permittee shall maintain certifiable monthly records of the following:

1. The throughput of remelt, limestone and silica manganese into the crusher (CR-1C).
2. The amount of manganese ore and silica manganese into the extruder (EX-1).
3. The amount of baghouse dust fed into the pelletizer system.
4. The pressure drop across the baghouse (daily).
5. Daily visible emissions checks per 40 CFR 63 Subpart XXX.

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 R13-2857 for the modification of a ferro alloy facility near Letart, Mason County, be granted to Felman Production, Inc.

Steven R. Pursley, PE
Engineer

Date