



west virginia department of environmental protection

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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-3244T
Plant ID No.: 053-00004
Applicant: Felman Production, Inc.
Facility Name: Letart Facility
Location: Mason County
NAICS Code: 331110/331492
Application Type: Temporary
Received Date: April 10, 2015
Engineer Assigned: Steven R. Pursley, PE
Fee Amount: \$1,000
Date Received: April 16, 2015
Complete Date: May 14, 2015
Due Date: June 26, 2015
Applicant Ad Date: April 14, 2015
Newspaper: *Point Pleasant Register*
UTM's: Easting: 419.759 km Northing: 4,312.490 km Zone: 17
Description: Temporary installation of an Inductotherm Induction Furnace.

DESCRIPTION OF PROCESS

Felman Production LLC proposes to install an induction furnace for the purposes of a trial run to recover metal from MnSi fines. If the trial is successful, Felman will then apply for a permanent permit.

The existing process at felman produces "fines" (<1/4"). These fines will be transferred by front end loader to a hopper. From the hopper the fines will be conveyed to the electric induction furnace at a maximum rate of 3.75 tons per hour. Once the fines are melted, the molten metal will be poured into either a crucible or ingot tray. Finally, the ingots are transported to shipping for processing and loading.

SITE INSPECTION

No site inspection was performed for this permit. However, the writer is familiar with the facility having visited it several times previously. 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

In their application Felman states that since this is an induction furnace with no combustion taking place, particulate matter is the only pollutant created. This statement seems to be supported by EPA's Background Report for AP-42 Section 12.10 which states "Because induction furnaces emit negligible amounts of hydrocarbon and carbon monoxide emissions and relatively little particulate, they are typically uncontrolled, except during charging and pouring operations." Additionally, the Background Report for AP-42 Section 12.4 states "...induction furnaces are not discussed because they have few emissions and are not widely used."

The furnace was purchased from the Ormet facility in Ohio. The PM emission factor of 0.4 pounds per ton comes directly from Ohio's Title V permit which included this furnace. PM₁₀ emissions were assumed to be 47% to PM emissions. An overall control efficiency of 96% was then applied to account for the baghouse.

Particulate emissions from transfer points were based on AP-42 Section 13.2.4.

It should be noted that although this is a temporary permit that will expire 6 months from the date of issuance, "annual emissions" are based on 8,760 hours per year since the permit may be renewed for up to an additional year.

Source	PM		PM ₁₀		PM _{2.5}	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Furnace	0.06	0.26	0.03	0.12	0.01	0.04
Transfer Points	2.27	9.93	1.07	4.70	0.34	1.48
Total	2.33	10.19	1.1	4.82	0.35	1.52

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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 furnace meets this requirement.

	Permit Limit (lb/hr)	Rule 7 Limit (lb/hr)
Furnace	0.06	7.5

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 bag house 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 would exceed 6 pounds per hour and 10 tons per year of PM the facility is required to submit a modification permit under 45CSR13. The applicant chose to submit an application for a temporary permit. Therefore, the applicant was required to place a class I legal ad per 45CSR§13-11.2.a. The ad ran in the *Point Pleasant Register* on April 14, 2015.

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45CSR30 Requirements for Operating Permits

The facility is an existing 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.

FEDERAL RULES *(None Applicable)*

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

The facility is already subject to 40 CFR 63 Subpart XXX. However, since the new furnace is an induction furnace and not an "Open submerged arc furnace" it is not subject to Subpart XXX.

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 to limit emissions of these compounds.

AIR QUALITY IMPACT ANALYSIS

Because this is a minor modification as defined in 45CSR14 no modeling was performed.

MONITORING OF OPERATIONS

The permittee shall monitor and record the following:

- * The throughput of fines to the furnace on at least a monthly basis.
- * Additionally, the baghouse must be inspected on at least a monthly basis.

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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 R13-3244T for the temporary modification of a ferro alloy facility near Letart, Mason County, be granted to Felman Production, Inc.



Steven R. Pursley, PE
Engineer

6-8-15

June 8, 2015

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