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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-1863E
Plant ID No.: 031-00010
Applicant: Pilgrim's Pride Corporation
Facility Name: Moorefield Prepared Foods Plant
Location: Hardy County
SIC/NAICS Code: 2015/311615
Application Type: Class II Administrative Update
Received Date: May 17, 2016
Engineer Assigned: Joe Kessler
Fee Amount: \$300
Date Received: May 17, 2016
Complete Date: June 14, 2016
Due Date: August 13, 2016
Applicant Ad Date: June 8, 2016
Newspaper: *The Moorefield Examiner*
UTM's: 675.7 km Easting • 4,325.0 km Northing • Zone 17
Latitude/Longitude: 39.05841°/-78.97191°
Description: Replacement of an existing 12.4 mmBtu/hr (26S) natural gas-fired boiler with a new natural gas-fired 14.29 mmBtu/hr boiler (36S).

On May 17, 2016, Pilgrim's Pride Corporation (PPC) submitted a permit application for a Class II Administrative Update for the Moorefield Prepared Foods Plant. The facility was originally constructed in 1953 by the Pierce Foods Corporation and was operated at least from 1995-2007 under the name of Hester Industries, Inc. At some point after 2007 the plant was purchased by PPC. The facility has been the subject of several previous permitting actions as described below:

- On December 6, 1996, Permit Number R13-1863 was issued to Hesters for the after-the-fact installation of four (4) Clayton Steam Generators and a new Hurst waste boiler;
- On April 6, 2000, Permit Number R13-1863A was issued to Hesters to add three (3) additional indirect heat exchangers. Two of the three units were Fulton units, and the units transfer heat using a heat transfer fluid (oil). The third unit was an additional Clayton Clayton Steam Generator;

- On August 30, 2000, Permit Number R13-1863B was issued to Hesters for the installation of an additional processing line. The processing line consisted of three (3) indirect heat exchangers. Two of the units were Fulton hot oil heaters (27S & 28S) and the third was an additional Clayton steam generator (26S);
- On January 4, 2005, Permit Number R13-1863C was issued to Hesters to replace an existing boiler (4S) with a new boiler of similar size (32S); and
- On January 16, 2007, Permit Number R13-1863D was issued to Hesters to replace two existing boilers (23S and 32S) with two new boilers of similar size (33S and 34S).

Additionally, several "no-permit needed" determinations (PD98-188, PD98-218, and PD99-072) have been issued for the facility for installation of space heating units and a painting booth for tractor-trailers.

DESCRIPTION OF PROCESS/MODIFICATIONS

Existing Facility Description

PPC's Moorefield Prepared Foods Plant is a chicken processing facility that cooks, marinates, packages, and freezes chicken for the commercial food service industry. The facility processes raw chicken by cutting, cooking, breading with flour, marinating, packaging, and freezing; thus generating more than three hundred different products for the commercial food service industry.

Proposed Modifications

PPC is now proposing to replace an existing 12.4 mmBtu/hr (26S) natural gas-fired boiler with a new natural gas-fired Clayton Steam Generator Model E-354 14.29 mmBtu/hr boiler (36S). The existing boiler has broken down and the facility is currently operating using a temporary boiler. The new boiler will supply steam to the existing steam manifolds for distribution throughout the facility. Steam is used to supply energy for cooking, space heating, and as a source of hot water.

SITE INSPECTION

Due to the nature of the proposed modification, the author did not perform a site inspection of the facility for this permitting action. The facility was last "Full On-Site" inspected by DAQ Compliance/ Enforcement (C/E) Inspector Joseph Kreger on June 4, 2015. This inspection found the facility be "Status 30 - In Compliance."

AIR EMISSIONS AND CALCULATION METHODOLOGIES

PPC included in Attachment N of the permit application the potential-to-emit (PTE) for the new natural gas-fired Clayton Steam Generator Model E-354 14.29 mmBtu/hr boiler (36S).

Emissions were based on emission factors provided by the boiler manufacturer. Hourly emissions were based on the boiler operating at the maximum design heat input (MDHI) of 14.29 mmBtu/hr and annual emissions were based on operating the boiler 8,760 hours/year. To determine the net increase in facility-wide PTE from the boiler replacement, the emissions of the existing boiler were based on the limits given for the boiler in Permit Number R13-1863D.

Based on the PTE calculations as described above, the change in the facility-wide PTE as a result of the boiler replacement is given in the following table:

Table 1: Net Change in Facility-Wide PTE

Pollutant	Existing Boiler		New Boiler		Change	
	PPH	TPY	PPH	TPY	PPH	TPY
CO	0.43	1.90	0.52	2.28	0.09	0.38
NO _x	1.74	7.60	1.45	6.33	(0.29)	(1.27)
PM _{2.5} /PM ₁₀ /PM ⁽¹⁾	0.17	0.74	0.11	0.48	(0.06)	(0.27)
SO ₂	0.01	0.03	0.01	0.04	0.00	0.01
VOC	0.03	0.15	0.08	0.34	0.04	0.19

(1) Includes condensables.

Based on emission limits in the draft permit, the post-modification facility-wide PTE was calculated to be that given in the following table:

Table 2: Facility-Wide PTE

Pollutant	tons/year
NO _x	78.02
CO	57.46
PM _{2.5} /PM ₁₀ /PM	22.05
SO ₂	3.69
VOC	3.77

REGULATORY APPLICABILITY

The following will discuss each rule applicable or potentially applicable to only the modifications evaluated herein.

45CSR2: To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers

Pursuant to the definition of “fuel burning unit” under 45CSR2 (“producing heat or power by indirect heat transfer”), 45CSR2 will apply to the new 14.29 mmBtu/hr natural gas-fired boiler and

is, therefore, subject to the applicable requirements therein. Each substantive 45CSR2 requirement is discussed below.

45CSR2 Opacity Standard - Section 3.1

Pursuant to 45CSR2, Section 3.1, the boiler is subject to an opacity limit of 10%. Proper maintenance and operation of the boiler (and the use of natural gas as fuel) should keep the opacity of the unit well below 10% during normal operations.

45CSR2 Weight Emission Standard - Section 4.1.b

The allowable particulate matter (non-condensable total particulate matter) emission rate for the boiler (as part of a facility-wide 45CSR2 fuel burning allowable emission rate), identified as a Type "b" fuel burning unit, per 45CSR2, Section 4.1(a), is the product of 0.09 and the total design heat input of the boiler in million Btu per hour. The maximum aggregate design heat input (short-term) of the boiler will be 14.29 mmBtu/hr. Using the above equation, the 45CSR2 particulate matter emission limit of the boiler will be 1.29 lb/hr. The maximum potential hourly PM emissions (including condensables) from the boiler is estimated to be 0.11 lb/hr. This emission rate is 8.53% of the 45CSR2 limit.

45CSR2 Testing, Monitoring, Record-keeping, & Reporting (TMR&R) - Section 8

Section 8 of Rule 2 requires testing for initial compliance with the limits therein, monitoring for continued compliance, and keeping records of that compliance. The TMR&R requirements are clarified under 45CSR2A and discussed below.

45CSR2A Applicability - Section 3

Pursuant to §45-2A-3, as an individual applicable "fuel burning unit" under 45CSR2 with an MDHI less than 100 mmBtu/hr, the boiler is not subject to the Testing and MRR Requirements under 45CSR2A.

45CSR10: To Prevent and Control Air Pollution from the Emission of Sulfur Oxides

45CSR10 has requirements limiting SO₂ emissions from "fuel burning units," limiting in-stack SO₂ concentrations of "manufacturing processes," and limiting H₂S concentrations in process gas streams. The proposed new boiler is defined as a "fuel burning unit" and subject to the applicable requirements discussed below.

45CSR10 Fuel Burning Units - Section 3

The allowable SO₂ emission rate for the new boiler (located in Region III), identified as a Type "b" fuel burning unit, per 45CSR10, Section 3.3(f), is the product of 3.2 and the total design heat input of the boiler in million Btu per hour. The maximum aggregate design heat input (short-term) of the boiler will be 14.29 mmBtu/hr. Using the above equation, the 45CSR10 SO₂ emission limit of the boiler will be 45.73 lb/hr. The maximum potential hourly SO₂ emissions from the boiler is estimated to be 0.01 lb/hr. This emission rate is only a trace of the 45CSR10 limit.

45CSR10 Testing, Monitoring, Record-keeping, & Reporting (TMR&R) - Section 8

Section 8 of Rule 10 requires to test for initial compliance with the limits therein, monitor for continued compliance, and keep records of that compliance. The TMR&R requirements are clarified under 45CSR10A and discussed below.

45CSR10A Applicability - Section 3

Pursuant to §45-10A-3.1(b), as the boiler combusts “natural gas, wood or distillate oil, alone or in combination,” the boiler is not subject to the Testing and MRR Requirements under 45CSR10A.

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 proposed changes to the Moorefield Prepared Foods Plant will increase the PTE of a regulated pollutant (see Table 1 above). However, all increases in PTE are below six (6) lbs/hour and ten (10) TPY of any regulated pollutant that would, pursuant to §45-13-2.17, define the installation as a “modification” under 45CSR13. Therefore, pursuant to §45-13-4.2(b)(1), PPC is requesting a Class II Administrative Update to make a “[c]hange in a permit condition as necessary to allow changes in operating parameters, emission points, control equipment or any other aspect of a source which results in an increase . . . of any existing regulated air pollutant . . . “

As required under §45-13-8.3 (“Notice Level A”), PPC placed a Class I legal advertisement in a “newspaper of *general circulation* in the area where the source is . . . located.” The ad ran on June 8, 2016 in the *The Moorefield Examiner* and the affidavit of publication for this legal advertisement was submitted on June 14, 2016.

45CSR30: Requirements for Operating Permits

45CSR30 provides for the establishment of a comprehensive air quality permitting system consistent with the requirements of Title V of the Clean Air Act. The modified Moorefield Prepared Foods Plant does not meet the definition of a “major source under §112 of the Clean Air Act” as outlined under §45-30-2.26 and clarified (fugitive policy) under 45CSR30b. The post-modification facility-wide PTE (see Table 2 above) does not exceed 100 TPY of any regulated pollutant and does not exceed 10 TPY of any individual HAP or 25 TPY of aggregate HAPs.

However, as the facility is subject to a New Source Performance Standard (NSPS) - 40 CFR 60, Subpart Dc that does not contain a Title V permitting exemption, the facility is subject to Title V as a non-major source. Non-major sources subject to Title V, pursuant to DAQ policy, are deferred from having to submit a Title V application.

TOXICITY ANALYSIS OF NON-CRITERIA REGULATED POLLUTANTS

This section provides an analysis for those regulated pollutants that may be emitted from the proposed modification and that are not classified as “criteria pollutants.” Criteria pollutants are defined as Carbon Monoxide (CO), Lead (Pb), Oxides of Nitrogen (NO_x), Ozone, Particulate Matter (PM), Particulate Matter less than 10 microns (PM₁₀), Particulate Matter less than 2.5 microns (PM_{2.5}), and Sulfur Dioxide (SO₂). These pollutants have National Ambient Air Quality Standards (NAAQS) set for each that are designed to protect the public health and welfare. Other pollutants of concern, although designated as non-criteria and without national concentration standards, are regulated through various federal and programs designed to limit their emissions and public exposure. These programs include federal source-specific Hazardous Air Pollutants (HAPs) limits promulgated under 40 CFR 61 (NESHAPS) and 40 CFR 63 (MACT). Any potential applicability to these programs were discussed above under REGULPPCRY APPLICABILITY.

There is no substantive increases in, or changes of, non-criteria regulated pollutants as a result of the proposed modifications.

AIR QUALITY IMPACT ANALYSIS

The proposed modification does not meet the definition of a “major modification” pursuant to 45CSR14 and, therefore, an air quality impact (computer modeling) analysis was not required. Additionally, based on the nature of the proposed modification, modeling was not required under 45CSR13, Section 7.

MONITORING, COMPLIANCE DEMONSTRATIONS, RECORD-KEEPING, AND REPORTING REQUIREMENTS

No substantive changes are being made in the monitoring, compliance demonstrations, record-keeping, and reporting requirements in the draft permit.

TESTING OF OPERATIONS

No substantive changes are being made to the performance testing requirements in the draft permit.

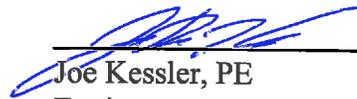
CHANGES TO PERMIT R13-1863D

The substantive changes made to R13-1863D were limited to:

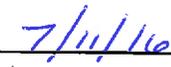
- Removal of all references in the draft permit to the replaced boiler 26S; and
- Addition of emission and operating limits for the new boiler 36S under SPECIFIC REQUIREMENTS A.22.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates that compliance with all applicable state and federal air quality regulations will be achieved. Therefore, I recommend to the Director the issuance of Permit Number R13-1863E to Pilgrim's Pride Corporation for the above discussed changes to the Moorefield Prepared Foods Plant located in Moorefield, Hardy County, WV.



Joe Kessler, PE
Engineer



Date