



west virginia department of environmental protection

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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-0614D
Plant ID No.: 039-00007
Applicant: Bayer CropScience
Facility Name: Institute Site
Location: Institute, Kanawha County
NAICS Code: 325320
Application Type: Modification
Received Date: March 28, 2013
Engineer Assigned: Mike Egnor
Fee Amount: \$1,000.00
Date Received: March 28, 2013
Complete Date: April 16, 2013
Due Date: April 29, 2013
Applicant Ad Date: April 1, 2013
Newspaper: *Charleston Gazette*
UTM's: Easting: 432.0 km Northing: 4,248.3 km Zone: 17
Description: Bayer CropScience has removed their No. 1 Powerhouse. This Powerhouse contained Boiler E480, which had served as a control device for many of the emission sources in the Larvin Unit. These emission units were permitted to vent to Boiler E480, PTO/Scrubber (B332/C332), and/or Flare (B330(7c)). Since the Boiler E480 has been removed, these sources are only able to vent to the PTO/Scrubber or Flare.

The equipment table of Section 1.0 has been revised to remove Boiler E480 as a Control Device. This unit, as well as all references to it, have been removed from this section.

Condition 4.1.1 has been revised to show the increased emissions from the Larvin area due to the fact that these emissions are no longer permitted to vent to the Boiler E480.

INTRODUCTION

On March 28, 2013, Bayer CropScience submitted a modification for the proposed revisions to process equipment located at the Institute Site, currently covered under permit R13-0641C.

On April 16, 2013, Bayer CropScience submitted an affidavit of publication indicating that the required legal notice was run in the Charleston Gazette on April 1, 2013, initiating the 30-day public notice period. Bayer CropScience also submitted the application fee of \$1,000 to meet the requirements associated with the Application for Modification Permit.

DESCRIPTION OF PROCESS

Historically, a process vent stream from the Larvin® Unit solvent recovery process containing predominately methanol was condensed, stored in Tank T-35, and pumped to the No. 1 Powerhouse boilers where it was burned for energy recovery. With the No. 1 Powerhouse boilers shutting down, the material collected in Tank T-35 has been transported off-site for disposal where the stream is also used for energy recovery in the disposal company's combustion equipment. Emissions from Tank T-35 are routed to the unit's process thermal oxidizer (PTO) as allowed by permit R13-0641C.

With this modification, Bayer proposes to route the process vent stream directly to the PTO for additional energy recovery and steam production. Condensing this stream and routing it to Tank T-35 will only occur when needed. When the tank is used, emissions from the tank will still be vented to the PTO. The PTO has sufficient capacity to burn this additional vent stream. As permitted, the unit's flare (B330 (7c)) continues to be used as the PTO's back-up control device and the unit scrubber (B332) is used to treat the off gases from the PTO.

A new section of vent header will be installed to route the vent stream to the PTO. No additional permitted equipment changes will be required to implement this proposal.

SITE INSPECTION

No site inspection was performed by the permitting engineer for this modification as the facility is well known to the DAQ and is frequently inspected by members of the DAQ Enforcement Section.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

- Revised Emission Calculations

Condition 4.1.1 has been revised to show the increased emissions from the Larvin area due to the fact that these emissions are no longer permitted to vent to the Boiler E480.

Previous emissions for Table 4.1.1:

Emission Point	Pollutant	Emission Limit	
		lbs/hr	tpy
330B (15e)	NOx	6.67	10.3
	SOx	58.0	34.8
	PM10	2.23	1.83
	Total VOC	2.49	1.81
	Total HAPs	3.30	1.98
332C	NOx	8.68	37.98
	SOx	0.58	2.56
	PM10	0.07	0.29
	PM2.5	0.07	0.29
	Total VOC	0.51	2.23
	Total HAPs	0.26	1.14

Modified emissions for Table 4.1.1:

Emission Point	Pollutant	Emission Limit	
		lbs/hr	tpy
330B (15e)	NOx	7.79	11.0
	SOx	106.6	64.0
	PM10	2.95	2.26
	Total VOC	5.91	3.86
	Total HAPs	7.44	4.47
332C	NOx	9.24	40.4
	SOx	1.07	4.69
	PM10	0.08	0.32

	PM2.5	0.08	0.32
	Total VOC	1.19	5.23
	Total HAPs	0.95	4.17

Emissions Summary

The proposed changes addressed in permit application R13-0641D shall result in the affected emission points undergoing a net emissions rate change as shown in the following Table 2 - Net Emissions Summary.

Table 2 - Net Emissions Summary

Pollutant	lbs/hr	tpy
NOx	1.68	3.12
SOx	49.09	31.33
PM10	0.73	0.46
PM2.5	0.01	0.03
Total VOC	4.10	5.05
Total HAPs	4.83	5.52

REGULATORY APPLICABILITY

The following State and Federal regulations were considered for applicability to the subject facility:

45CSR13 “Permits for Construction, Modification, Relocation, and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits, and Procedures for Evaluation”

The proposed changes to the existing permit, R13-0641C, result in emissions be rerouted from the closed Powerhouse #1 to the Process Thermal Oxidizer. The resulting net emissions change in one criteria pollutants and HAP emissions are greater than the modification thresholds of 6 pounds per hour and 10 tons per year of criteria pollutants, and 2

pounds per hour or 5 tons per year of hazardous air pollutants. The application was submitted as a modification permit per this rule.

45CSR14 "Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration (PSD)"

The proposed change of any single pollutant does not meet the definition of "significant increase" per 45CSR14-2.46. and therefore, is not applicable to the requirements of this rule.

45CSR30 "Requirements for Operation Permits"

The facility in which the subject emission unit resides is subject to 45CSR30. The Company shall update their Title V permit to reflect the changes incorporated by proposed permit modification R13-0641D.

45CSR34 "Emission Standards for Hazardous Air Pollutants Pursuant to 40 CFR Part 63"

The facility is subject to 40CFR63, Subpart MMM (PAI MACT). There will be no changes to the PAI MACT as a result of this modification.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

No new chemicals will be introduced to the Plant as a result of this modification.

AIR QUALITY IMPACT ANALYSIS

There are no overall facility wide increase of emissions due to this modification. The modification only reroutes the emissions.

MONITORING OF OPERATIONS

There have been no proposed changes associated with the monitoring and record keeping requirements currently required and practiced under existing permit R13-0641C.

Changes to R13-0641D include:

1. Boiler E480 will no longer be used as an option as a control device for the process vent stream from the Larvin® Unit. The stream will exclusively use control devices PTO/Scrubber (B332/C332), and/or Flare (B330(7c)).
2. Condition 4.1.1 has been revised to show the increased emissions from the Larvin area due to the fact that these emissions are no longer permitted to vent to the Boiler E480.
3. The equipment table of Section 1.0 has been revised to remove Boiler E480 as a potential Control Device. The unit, and all references to it, have been removed from the Permit.
4. Increase in ODC emissions from various units as a result of new assumptions.
5. A new section of vent header will be installed to directly route the vent stream to the PTO.

SITE INSPECTION

No site inspection was performed by the permitting engineer for this modification as the facility is well known to the DAQ and is frequently inspected by members of the DAQ Enforcement Section.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Condition 4.1.1 has been revised to show the increased emissions from the Larvin area due to the fact that these emissions are no longer permitted to vent to the Boiler E480.

RECOMMENDATION TO DIRECTOR

Permit application, R13-0614D, submitted by Bayer CropScience, for the modification of the Larvin Unit located at the Institute Plant in Institute, Kanwha County, WV, has been reviewed and determined to meet all applicable requirements, and is therefore, recommended for approval.

Mike Egnor
Engineer

Fact Sheet R13-0641D
Bayer CropScience
Institute Site

Date