

Fact Sheet



For Draft/Proposed Renewal Permitting Action Under 45CSR30 and Title V of the Clean Air Act

Permit Number: **R30-03900007-2016**
Application Received: **May 1, 2015**
Plant Identification Number: **03900007**
Permittee: **Bayer CropScience**
(Powerhouse/Maintenance/Laboratory)
(Group 1 of 8)
Facility Name: **Institute Site**
Mailing Address: **P.O. Box 1005**
Institute, WV 25112

Physical Location: Institute, Kanawha County, West Virginia
UTM Coordinates: 432.0 km Easting • 4,248.310 km Northing • Zone 17
Directions: The facility is located west of Institute, WV, adjacent to State Route 25
and West Virginia State University

Facility Description

Bayer CropScience is an agricultural chemical based company. The product produced at the Institute site is LARVIN brand thiodicarb. SIC Codes: 2879; 2869

Group Description

The facility was divided into 8 Title V Permits. They were broken down as follows:
Group 1 – Powerhouses, Maintenance, Wastewater Treatment Unit, Laboratories
Group 2 – Rhodimet (Title V Inactive on 12/23/2013)
Group 3 – Carbofuran Unit, Carbosulfan Unit (Title V Inactive on 12/23/2013)
Group 4 – Aldicarb, BPMC, Oxamyl (Title V Inactive on 12/23/2013)
Group 5 – Polymers (Note this process was closed in 2004 and no Title V Group 5 Permit was issued)
Group 6 – Larvin Unit
Group 7 – Naphthol Unit, PANA, Jet (Title V Inactive on 12/23/2013)
Group 8 – Phosgene, MIC, SEVIN (Title V Inactive on 12/23/2013)

Emissions Summary

Plantwide Emissions Summary [Tons per Year]		
Regulated Pollutants	Facility Wide Potential Emissions	2014 Facility Wide Actual Emissions
Carbon Monoxide (CO)	221.77	114
Nitrogen Oxides (NO _x)	3,802.60	1,114
Particulate Matter (PM _{2.5})	40.05	2.23
Particulate Matter (PM ₁₀)	91.01	5.0
Total Particulate Matter (TSP)	362.61	93.0
Sulfur Dioxide (SO ₂)	5,059.42	1,296
Volatile Organic Compounds (VOC)	18.95	10

PM₁₀ is a component of TSP.

Hazardous Air Pollutants	Facility Wide Potential Emissions	2014 Facility Wide Actual Emissions
Hydrogen Chloride	190	48.7
Total HAPs	242	57.2

Some of the above HAPs may be counted as PM or VOCs.

Title V Program Applicability Basis

This facility has the potential to emit over 100 TPY of CO, NO_x, and SO₂, as well as over 10 TPY of a single HAP and 25 TPY of total HAP's. Due to this facility's potential to emit over 100 tons per year of criteria pollutant, over 10 tons per year of a single HAP, and over 25 tons per year of aggregate HAPs, Bayer CropScience is required to have an operating permit pursuant to Title V of the Federal Clean Air Act as amended and 45CSR30.

Legal and Factual Basis for Permit Conditions

The State and Federally-enforceable conditions of the Title V Operating Permits are based upon the requirements of the State of West Virginia Operating Permit Rule 45CSR30 for the purposes of Title V of the Federal Clean Air Act and the underlying applicable requirements in other state and federal rules.

This facility has been found to be subject to the following applicable rules:

Federal and State:	45CSR2	Particulate Matter emissions
	45CSR6	Open burning prohibited.
	45CSR7	Particulate Matter emissions
	45CSR10	SO ₂ Air Emissions
	45CSR11	Standby plans for emergency episodes.
	45CSR13	Construction and Operating Permits
	45CSR16	Standards of Performance for New Stationary Sources.

	WV Code § 22-5-4 (a) (14)	The Secretary can request any pertinent information such as annual emission inventory reporting.
	45CSR30	Operating permit requirement.
	45CSR34	Emission Standards for Hazardous Air Pollutants
	45CSR40	Control of Ozone Season NOx
	40 C.F.R. Part 60 Subpart Db	Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units
	40 C.F.R. Part 60 Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units
	40 C.F.R. Part 61	Asbestos inspection and removal
	40 C.F.R. Part 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters
	40 C.F.R. Part 64	Compliance Assurance Monitoring
	40 C.F.R. Part 75 Subpart H	NOx Mass Emissions Provisions
State Only:	45CSR4	No objectionable odors.

Each State and Federally-enforceable condition of the Title V Operating Permit references the specific relevant requirements of 45CSR30 or the applicable requirement upon which it is based. Any condition of the Title V permit that is enforceable by the State but is not Federally-enforceable is identified in the Title V permit as such.

The Secretary's authority to require standards under 40 C.F.R. Part 60 (NSPS), 40 C.F.R. Part 61 (NESHAPs), and 40 C.F.R. Part 63 (NESHAPs MACT) is provided in West Virginia Code §§ 22-5-1 *et seq.*, 45CSR16, 45CSR34 and 45CSR30.

Active Permits/Consent Orders

Permit or Consent Order Number	Date of Issuance	Permit Determinations or Amendments That Affect the Permit (<i>if any</i>)
R13-0277	1/27/1977	
R13-2001B	1/26/2009	
R13-2190A	1/20/2000	
R13-3111B	9/15/2014	
CO-R40-C-2010-7	3/12/2010	

Conditions from this facility's Rule 13 permit(s) governing construction-related specifications and timing requirements will not be included in the Title V Operating Permit but will remain independently enforceable under the applicable Rule 13 permit(s). All other conditions from this facility's Rule 13 permit(s) governing the source's operation and compliance have been incorporated into this Title V permit in accordance with the "General Requirement Comparison Table," which may be downloaded from DAQ's website.

Determinations and Justifications

The following changes have been made to the most recent version of this Permit.

The Union Carbide Corporation's Institute Plant purchased assets owned by the Bayer CropScience Institute Plant (03900007) Group 1 of 8. The Bayer CropScience Group 1 of 8 plant was broken up into

Group 1 of 8 (Powerhouse/Maintenance/Laboratory), Group 1A of 8 (Emergency Services) (which was sold and transferred to UCC Institute and is now R30-03900005-2015 Group 6 of 7), and Group 1B of 8 (Infrastructure: Wastewater Treatment Unit and Maintenance Operations) (which was sold and transferred to UCC Institute and is now R30-03900005-2016 Group 7 of 7). Bayer CropScience submitted the renewal application for R30-03900007-2016 (Group 1 of 8) on May 1, 2015. The applicable units and requirements for emergency services, wastewater treatment and maintenance operations transferred to Union Carbide Corporation are being removed from this Title V Permit.

The equipment table has been revised to remove equipment sold and transferred to UCC Institute. R13-1033, R13-1248, G60-C023, and G60-C have been removed from the active R13, R14, and R19 Permits Table. Previous Section 6 has been removed since these requirements have been moved to R30-03900005-2016 (Group 7 of 7). Attachments D and E have been removed.

R13-3111B included three additional 350 MMBtu/hr natural gas boilers (Boilers 16, 17, and 18). This equipment has been added to the equipment table and applicable requirements are in new Section 6 of this Permit as further explained below.

Boiler 15 has been permanently removed. This unit has been removed from the equipment table and the applicable requirements have been removed from Section 4. Condition 4.4.5 required the Permittee to record the hours of operation and amount of natural gas consumed by Boilers 13, 14, and 15. Since Boiler 15 has been removed, the 12 month rolling total has been lowered to 1,384 MM cubic feet of natural gas from 1,618.5 MM cubic feet of natural gas.

45CSR2 – *To Prevent and Control Particulate Air Pollution From Combustion of Fuel in Indirect Heat Exchangers and 45CSR10* – *To Prevent and Control Air Pollution From the Emission of Sulfur Oxides*

Boilers 16, 17, and 18 are subject to Rules 2 & 10 (WV State Rules on PM and SO₂). The requirements from these rules and regulations are very minimal for natural gas fired boilers to comply with the applicable emission standards. These units will only be capable of consuming natural gas. It is understood that sources burning this fuel are significantly below the applicable allowable limitations in Rule 2 and Rule 10, which are the State of West Virginia's rules addressing particulate matter (PM) and sulfur dioxide (SO₂) from boilers, regardless of the size of the unit. This understanding is confirmed with the provisions in Rules 2A and 10A, which exempts such sources from conducting periodic testing and monitoring for the purpose of demonstrating compliance with the limitations under these rules. The permit will restrict the fuel type for these units to natural gas which would ensure compliance with the applicable emission standards of these rules. This is given in Condition 6.1.1.c. Condition 6.1.1.e limits annual consumption of natural gas to 2,942.4 MM cubic feet, measured as a 12 month rolling average. Condition 6.4.6 requires records of the amount of natural gas consumed by the boilers.

Boilers 13 and 14 are subject to the particulate matter emission standards of 45CSR§2-4.1.a. Each boiler has a capacity of 80 MM Btu/hr. The calculation to determine the particulate matter emission limits for Type 'b' fuel burning units is given below:

$$80 \text{ MM Btu/hr} * 0.09 = 7.2 \text{ lbs/hr}$$

Condition 4.1.7 has been added to include these limits. As pipeline quality natural gas is a clean burning fuel, compliance with the requirements to only use natural gas given in Condition 4.1.1.c will show compliance with Condition 4.1.7.

Boilers 13 and 14 are subject to the sulfur dioxide emission standards of 45CSR§10-3.2.c. Each boiler has a capacity of 80 MM Btu/hr. The calculation to determine the sulfur dioxide emission limits for Type 'b' fuel burning units is given below:

$$80 \text{ MM Btu/hr} * 1.6 = 128 \text{ lbs/hr}$$

Condition 4.1.8 has been added to include these limits. As pipeline quality natural gas is a clean burning fuel, compliance with the requirements to only use pipeline quality natural gas given in Condition 4.1.1.c will show compliance with Condition 4.1.8.

Boilers 16, 17, and 18 are subject to the opacity standards of 45CSR§2-3.1 (Condition 6.1.4 has been added) and particulate matter emission standards of 45CSR§2-4.1.b. Each boiler has a capacity of 360 MM Btu/hr. The calculation to determine the particulate matter emission limits for Type 'b' fuel burning units is given below:

$$350 \text{ MM Btu/hr} * 0.09 = 31.5 \text{ lbs/hr}$$

Condition 6.1.5 has been added to include these limits. As pipeline quality natural gas is a clean burning fuel, compliance with the requirement to only use pipeline quality natural gas given in Condition 6.1.1.c will show compliance with Condition 6.1.5.

Boilers 16, 17, and 18 are subject to the sulfur dioxide emission standards of 45CSR§10-3.2.c. Each boiler has a capacity of 350 MM Btu/hr. The calculation to determine the sulfur dioxide emission limits for Type 'b' fuel burning units is given below:

$$350 \text{ MM Btu/hr} * 1.6 = 570 \text{ lbs/hr}$$

Condition 6.1.6 has been added to include these limits. As pipeline quality natural gas is a clean burning fuel, compliance with the requirement to only use pipeline quality natural gas given in Condition 6.1.1.c will show compliance with Condition 6.1.6.

40CFR60, Subpart Db - *Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units*

Boilers 16, 17, and 18 are subject to the New Source Performance Standards of Subpart Db since each unit will have a design heat input rating of greater than 100 MMBtu/hr. Subpart Db establishes performance standards by pollutant and fuel type (i.e. coal, oil, and natural gas). For natural gas fired units, the subpart only establishes a performance standard for NO_x emissions. These units will be constructed after July 9, 1997 and have a heat input capacity greater than 250 MM Btu/hr, which makes the limit in 40 CFR §60.44b(l)(1) of 0.20 lb of NO_x (expressed as NO₂) per MMBtu applicable. These units will be equipped with low-NO_x burners with a maximum NO_x rate of 0.036 lb/MMBtu. This is given in Condition 6.1.1.b. At this NO_x rating, these units would have a margin of compliance of 18% of the applicable NO_x limit.

Subpart Db requires affected sources to demonstrate compliance with the NO_x limit on a 30 day rolling average. This subpart will require the use of a NO_x continuous emission monitoring system (NO_x CEMS) with a means to measure either O₂ or CO₂ in the exhaust for demonstrating compliance with the NO_x emission standard. This is given in Condition 6.1.1.b. The application states that NO_x CEMS will be installed to meet the Part 75 monitoring requirements, which is acceptable under 40 CFR §60.48b(b)(2).

Condition 6.4.6 requires records of the amount of natural gas consumed by the boilers. Condition 6.2.1 requires a continuous emission monitoring system (CEMS) for measuring NO_x, and diluent gas (CO₂ or O₂). Condition 6.3.2 requires a performance test for the Boilers to determine initial compliance with the emission limits for NO_x required under Condition 6.1.1.b. Additional recordkeeping and reporting requirements under 40 CFR 60 Subpart Db are included as Conditions 6.4.5, 6.5.1, 6.5.3, and 6.5.4.

40CFR63, Subpart DDDDD - *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters*

Bayer CropScience plans on retiring Boilers 10, 11, 12, 13, and 14 and replacing them with Boilers 16, 17, and 18. Boilers 10, 11, 12, 13 and 14 were given a compliance extension for this MACT by the DAQ Secretary on June 11, 2015. This extension also requires that these boilers must be permanently shut down by January 31, 2017, or within 180 days after initial start-up of Boilers 16, 17, and 18, or no later than after

the first 90 consecutive operating days of any one of the Boilers 16, 17, and 18. This is given in Conditions 4.1.6 and 5.1.31.

Boilers 13 and 14

Previous Condition 4.1.6 has been revised and renumbered as new Condition 4.1.2 regarding initial tune-ups as well as subsequent tune-ups.

Boilers 16, 17, and 18

Condition 6.1.1.d requires that these boilers be equipped, maintained, and operated with an oxygen trim system. Conditions 6.1.2.a and b require an initial tune up for the boilers to be completed no later than 61 months after initial startup of each boiler, and subsequent tune-ups no later than 61 months after the previous tune-up. Condition 6.1.2.c specifies the requirements of the tune-ups. Condition 6.4.4 requires records of the concentrations of CO in the effluent stream in ppm as well as any corrective action taken as a part of a tune-up. Additional reporting requirements for 40 CFR 63, Subpart DDDDD are included as Conditions 6.5.1 and 6.5.2.

Non-Applicability Determinations

The following requirements have been determined not to be applicable to the subject facility due to the following:

40 C.F.R. Part 64 - Compliance Assurance Monitoring

Boilers 16, 17, and 18 do not have any control devices. According to 40CFR§64.2(a)(2), CAM does not apply if the unit does not use a control device to achieve compliance with any emission limitation or standard. There are no other new emission units at this facility.

Request for Variances or Alternatives

None

Insignificant Activities

Insignificant emission unit(s) and activities are identified in the Title V application.

Comment Period

Beginning Date: Wednesday, January 13, 2016
Ending Date: Friday, February 12, 2016

Point of Contact

All written comments should be addressed to the following individual and office:

Mike Egnor
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Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone: 304/926-0499 ext. 1208 • Fax: 304/926-0478
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Procedure for Requesting Public Hearing

During the public comment period, any interested person may submit written comments on the draft permit and may request a public hearing, if no public hearing has already been scheduled. A request for public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. The Secretary shall grant such a request for a hearing if he/she concludes that a public hearing is appropriate. Any public hearing shall be held in the general area in which the facility is located.

Response to Comments (Statement of Basis)

(Choose) Not applicable.

OR

Describe response to comments that are received and/or document any changes to the final permit from the draft/proposed permit.