

Fact Sheet



For Final 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.

45CSR40 – Control of Ozone Season Nitrogen Oxides Emissions

Regulation 40 currently includes references to the Clean Air Interstate Rule (CAIR). This federal rule has been vacated and replaced with the Cross-State Air Pollution Rule (CSAPR). The DAQ has proposed a revised Regulation 40 which removes CAIR language, but will still contain NO_x SIP call requirements for certain units which include non-electric generating units. If passed by the legislature, it will be submitted to EPA to be accepted as part of its State Implementation Plan (SIP). Boilers 10, 11, 12, 16, 17, and 18 are subject to 45CSR40, but are not subject to CSAPR as they are not electric generating units that sell electricity on the grid.

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(1)(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: January 13, 2016
Ending Date: February 12, 2016

Point of Contact

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

Mike Egnor
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone: 304/926-0499 ext. 1208 • Fax: 304/926-0478
michael.egnor@wv.gov

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)

Due to comments received by EPA, a paragraph was added to the fact sheet stating that CAIR has been vacated and replaced by CSAPR. Regulation 40 currently references CAIR, but is currently being amended to remove CAIR language. None of the boilers are subject to CSAPR.

Additional comments received by EPA on February 1, 2016:

EPA Comments on Bayer Crop Science Institute Site (Powerhouse/Maintenance/Laboratory) R30-03900007-2016 (1 of 8)

Comment 1

RE:

5.1.20. No person shall cause, suffer, allow or permit any source of fugitive particulate matter to operate that is not equipped with a fugitive particulate matter control system. This system shall be operated and maintained in such a manner as to minimize the emission of fugitive particulate matter. Sources of fugitive particulate matter associated with fuel burning units shall include, but not be limited to, the following:

.....

Comment: This applicable requirement is non-specific. There are no standards supplied here on which to judge whether this requirement is being carried out and therefore is not practically enforceable unless cites to all the applicable state laws and regulations are provided here. The citations below the requirement only provide authority for this requirement to comply, but there is no reference to the specific requirements that must be complied with. Therefore this requirement is not practically enforceable until the specific requirements are listed here. There must be language supplementing this requirement so as to provide specific information to which this requirement relies.

Response to Comment 1:

The intent of the fugitive particulate matter (PM) control requirement of the WV state rule 45CSR2§5.1 is to be a “catch-all” to minimize fugitive dust from facilities subject to this rule. It acts as a blanket to cover the whole facility in order to prevent episodes of high fugitive PM emissions from anywhere within the facility not covered by point source PM requirements (e.g., boiler stacks). Condition 5.1.20 specifically cites emission points 485P, 485Q, 485O, 485L, and 485N. 485L and 485N are coal storage bunker rooms that have control devices (Baghouse L-485 and N-485). These units have specific particulate matter limits given in Condition 5.1.3, opacity limits given in Conditions 5.1.8 and 5.1.9, and requirements that the facility may not allow emissions of smoke and/or particulate matter into the open air from these storage structures in Condition 5.1.10. Emission points 485P and 485Q are pneumatic conveyors with control devices (Baghouse D-900 and D-901). Emission point 485O is a flyash storage silo with a silo bin filter (D-905). Condition 5.1.5 specifically requires that these control devices be used at all times the flyash storage silo is in operation. These units have specific particulate matter limits given in Condition 5.1.6 and opacity limits given in Conditions 5.1.8 and 5.1.9. Therefore, specific requirements have been included in the Permit, so no change will be made as a result of this comment.

Comment 2

RE:

5.1.12. The owner or operator of a plant shall maintain particulate matter control of the plant premises, and plant owned, leased or controlled access roads, by paving, application of asphalt, chemical dust

suppressants or other suitable dust control measures. Good operating practices shall be implemented and when necessary particulate matter suppressants shall be applied in relation to stockpiling and general material handling to minimize particulate matter generation and atmospheric entrainment.
[45CSR§7-5.2., 45CSR13, Permit No. R13-2001 (Condition B.4.)]

Comment: This applicable requirement is non-specific. There is no standard on which to judge whether the owner is maintaining particulate control of the plan premises and requirement or when to apply particulate suppressants and therefore is not practically enforceable. The inclusion of this requirement in the permit is not sufficient to inform the owner what they must do to comply. This requirement needs to be supported by specific terms and standards: there is no definition of the term “good operating practices. The Permit should include a definition of this term so it is clear to the owner what they must do to comply and to the inspector whether or not the owner has complied with the requirement. EPA Comments on Bayer Crop Science Institute Site (Powerhouse/Maintenance/Laboratory) R30-03900007-2016 (1 of 8).

Response to Comment 2:

The No.2 Powerhouse area is paved with asphalt, concrete, and gravel. There is also a speed limit of 20 miles per hour. The transfer of coal to the boilers are in enclosed conveyors. Renumbered Condition 5.1.12 has been revised as follows:

5.1.12. The owner or operator of a plant shall maintain particulate matter control of the plant premises, and plant owned, leased or controlled access roads, by paving, application of asphalt, chemical dust suppressants or other suitable dust control measures. Good operating practices shall be implemented and when necessary particulate matter suppressants shall be applied in relation to stockpiling and general material handling to minimize particulate matter generation and atmospheric entrainment.
[45CSR§7-5.2., 45CSR13, Permit No. R13-2001 (Condition B.4.)]

To demonstrate compliance with this Condition, the Permittee shall maintain particulate matter control of the No.2 Powerhouse plant area by using concrete, gravel, or paving of plant controlled access roads.
[45CSR§30-12.7]

Comment 3

RE: 5.2.3.

At least monthly, visual emission checks of each emission point subject to an opacity limit shall be conducted. These checks shall be conducted during periods of normal facility operation for a sufficient time interval to determine if the unit has visible emissions using procedures outlined in 40 CFR 60, Appendix A, Method 22.

Comment: This requirement needs to be supplemented by establishing a site specified time interval so as to inform the owner as to how long they must carry out each visual opacity check, otherwise there is no way to judge whether or not these visual checks have been sufficient to assure compliance.

RE : 5.2.3.....A 45CSR§7A-2.1.a,b evaluation shall not be required if the visible emission condition is corrected in a timely manner and the units are operated at normal operating conditions.

Comment: This requirement needs to be supplemented by establishing a site specified time interval that corresponds to the term: “timely manner” so as to inform the owner as to how long they have to correct a visible condition.

Response to Comment 3:

This condition has been revised as follows to require one minute intervals for visual emission checks and 24 hours to allow for a correction of normal operating conditions:

- 5.2.1. At least monthly, visual emission checks of each emission point subject to an opacity limit shall be conducted. For units emitting directly into the open air from points other than a stack outlet, visible emissions are to include visible fugitive dust emissions that leave the plant site boundaries. These checks shall be conducted during periods of normal facility operation ~~for a sufficient time~~ **at one minute** intervals to determine if the unit has visible emissions using procedures outlined in 40 CFR 60, Appendix A, Method 22. If sources of visible emissions are identified during the survey, or at any other time, the permittee shall conduct an evaluation as outlined in 45CSR§7A-2.1.a,b within twenty-four (24) hours. However, a 45CSR§7A-2.1.a,b evaluation shall not be required more than once per month per emission unit. A 45CSR§7A-2.1.a,b evaluation shall not be required if the visible emission condition is corrected **within 24 hours** ~~in a timely manner~~ and the units are operated at normal operating conditions. A record of each visible emission check required above shall be maintained on site for a period of no less than five (5) years. Said record shall include, but not be limited to, the date, time, name of emission unit, the applicable visible emissions requirement, the results of the check, what action(s), if any, was/were taken, and the name of the observer.
[45CSR§30-5.1.c (485L, 485M, 485N, 485R, 485O, 485P, 485Q, 480I)]

Comment 4

RE: 5.45 Except as provided in 40CFR§§75.73(d) or (f), a monitoring plan shall contain sufficient information on the continuous emission monitoring systems, excepted methodology under 40CFR§75.19, or excepted Title V Operating Permit R30-03900007-2016 Page 37 of 77 Bayer CropScience Institute Site (Group 1 of 8) monitoring systems under 40CFR Appendix Comment: There is no standard provided on which to judge whether or not the monitoring plan contains sufficient information standard on which to base a determination that there is sufficient information on the CEMS. The agency should provide / or reference criteria that in the agency's opinion assures sufficiency.

Response to Comment 4:

Condition 5.4.5 states 40CFR§75.73(c) verbatim and therefore is the standard provided by the continuous emission monitoring of 40CFR75. Therefore, no change will be made.

Additionally, as a response to all of the above comments, Powerhouse No.2, which contains the only coal fired boilers at this facility, is required to stop operating by January 31, 2017 per Condition 5.1.31. Therefore, most of the requirements referenced in the comments will no longer apply once the boilers and fuel handling systems are shut down.