Permit Writer	Edward Andrews
Email Address	Edward.s.andrews@wv.gov
Company Name	Carbide Corporation
Company ID	039-00005
Permit Number	R13-3346
Facility Name	Institute Plant
County	Kanawha County
Newspaper	The Charleston Gazette
Company Contact & Email	Sizemore, Freddie (FA) sizemofa2@dow.com
Consultant Email Address	N/A
Regional Office	N/A

Copy Todd Shrewsbury at Todd.H.Shrewsbury@wv.gov

Publish ~~Mon Dec 12~~ Tues Dec 13 2016
30 days ~~Wed Jan 11~~ Thurs Jan 12 2017

INTERNAL PERMITTING DOCUMENT TRACKING MANIFEST

Company Name UCC - (AKA Dow) Institute

Permitting Action Number R13-3346 Total Days 31 DAQ Days 5

Permitting Action:

- ❍ Permit Determination
- ❍ General Permit
- ❍ Administrative Update
- ❍ Temporary
- ❍ Relocation
- ☒ Construction
- ❍ Modification
- ❍ PSD (Rule 14)
- ❍ NNSR (Rule 19)

Documents Attached:

- ☒ Engineering Evaluation/Memo
- ☒ Draft Permit
- ☒ Notice
- ❍ Denial
- ❍ Final Permit/General Permit Registration
- ☒ Completed Database Sheet
- ❍ Withdrawal
- ❍ Letter
- ❍ Other *(specify)*

Date	From	To	Action Requested
11/21	Ed	Bev	Please Review for Public Notice
12/7	Bev	Ed	See comments - Address - Go to notice

NOTE: Retain a copy of this manifest for your records when transmitting your document(s).

Permit / Application Information Sheet
Division of Environmental Protection
West Virginia Office of Air Quality

Company:	Union Carbide Corporation			**Facility:**	Institute Plant
Region:	4	**Plant ID:**	039-00005	**Application #:**	13-3346
Engineer:	Andrews, Edward S.			**Category:**	Chemical
Physical Address:	Route 25 Institute WV 25112			**SIC:** [2865] CHEMICALS AND ALLIED PRODUCTS - CYCLIC CRUDES AND INTERMEDIATE **NAICS:** [325110] Petrochemical Manufacturing **SIC:** [9511] ADMIN. OF ENVIRONMENTAL, QUALITY & HOUSING PROGRAM - AIR, WATER & SOLID WASTE MANAGEMENT **NAICS:** [924110] Administration of Air and Water Resource and Solid Waste Management Programs	
County:	Kanawha			**SIC:** [2869] CHEMICALS AND ALLIED PRODUCTS - INDUSTRIAL ORGANIC CHEMICALS,NEC **NAICS:** [325199] All Other Basic Organic Chemical Manufacturing	
Other Parties:	ENV_CONT - SIZEMORE, MR. FRED 304-747-3713 ENV_MGR - Putnam, Jon 304-747-1165				

Information Needed for Database and AIRS
1. Need valid physical West Virginia address with zip

Regulated Pollutants

CO	Carbon Monoxide	40.000 TPY
PM10	Particulate Matter < 10 um	7.920 TPY
SO2	Sulfur Dioxide	0.630 TPY
VOC	Volatile Organic Compounds (Reactive organic gases)	5.840 TPY
THAP	Total HAP Pollutants	1.980 TPY
NOX	Nitrogen Oxides (including NO, NO2, NO3, N2O3, N2O4, and N2O5)	39.400 TPY
CO2E	Carbon Dioxide Equivalents	126899.800 TPY

Summary from this Permit 13-3346

Air Programs		**Applicable Regulations**
		02 10 16 60 D c 63 A
Fee Program	**Fee**	**Application Type**
	$2,000.00	CONSTRUCTION

Notes from Database
Permit Note: This application is for three 99.98 MMBtu/hr boilers. These units are equipped with low_NOx burners using FGR and oxygen trim system.

Activity Dates

APPLICATION RECIEVED	10/21/2016
APPLICATION FEE PAID	10/24/2016
ASSIGNED DATE	10/24/2016
APPLICANT PUBLISHED LEGAL AD	10/31/2016
APPLICATION DEEMED COMPLETE	11/16/2016

NON-CONFIDENTIAL

Please note, this information sheet is not a substitute for file research and is limited to data entered into the AIRTRAX database.

Company ID: 039-00005
Company: Union Carbide Corporation
Printed: 11/17/2016
Engineer: Andrews, Edward S.

West Virginia Department of Environmental Protection

Earl Ray Tomblin
Governor

Division of Air Quality

Randy C. Huffman
Cabinet Secretary

Permit to Construct

R13-3346

This permit is issued in accordance with the West Virginia Air Pollution Control Act (West Virginia Code §§22-5-1 et seq.) and 45 C.S.R. 13 – Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation. The permittee identified at the above-referenced facility is authorized to construct the stationary sources of air pollutants identified herein in accordance with all terms and conditions of this permit.

Issued to:
Union Carbide Corporation
Institute Plant
039-00005

William F. Durham
Director

Issued: DRAFT

Facility Location:	On State Route 25 Institute, Kanawha County, West Virginia
Mailing Address:	P.O. Box 8361 South Charleston, WV 25303
Facility Description:	Chemical Manufacturing Complex
NAICS Codes:	325199
UTM Coordinates:	432.189 km Easting • 4,248.754 km Northing • Zone 17
Permit Type:	Construction
Description of Change:	This action is for the installation of 3, 99.98 MMBtu/hr, natural gas fired boilers that are equipped with low-NO_x burners and flue gas recirculation.

Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §§22-5-14.

The source is subject to 45CSR30. Changes authorized by this permit must also be incorporated into the facility's Title V operating permit. Commencement date of any operation authorized by this permit shall be determined by the appropriate timing limitations associated with Title V permit revisions per 45CSR30.

Table of Contents

1.0. Emission Units

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity (MMBtu/hr)	Control Device
SAT-1	E-SAT1	Saturated Steam Boiler; Industrial Boiler with Economizer Natural Gas Fired Boiler with low-NO_x Burner & FGR	2016	99.98 MMBtu/hr	None
SH1	E-SH1	Superheated Steam Boiler; Industrial Boiler with Economizer Natural Gas Fired Boiler with low-NO_x Burner & FGR	2016	99.98 MMBtu/hr	None
SH2	E-SH2	Superheated Steam Boiler; Industrial Boiler with Economizer Natural Gas Fired Boiler with low-NO_x Burner & FGR	2016	99.98 MMBtu/hr	None

2.0. General Conditions

2.1. Definitions

2.1.1. All references to the "West Virginia Air Pollution Control Act" or the "Air Pollution Control Act" mean those provisions contained in W.Va. Code §§ 22-5-1 to 22-5-18.

2.1.2. The "Clean Air Act" means those provisions contained in 42 U.S.C. §§ 7401 to 7671q, and regulations promulgated thereunder.

2.1.3. "Secretary" means the Secretary of the Department of Environmental Protection or such other person to whom the Secretary has delegated authority or duties pursuant to W.Va. Code §§ 22-1-6 or 22-1-8 (45CSR§30-2.12.). The Director of the Division of Air Quality is the Secretary's designated representative for the purposes of this permit.

2.1.4. Unless otherwise specified in a permit condition or underlying rule or regulation, all references to "rolling yearly total" shall mean the sum of the monthly data, values or parameters being measured, monitored, or recorded, at any given time for the previous twelve (12) consecutive calendar months.

2.2. Acronyms

CAAA	Clean Air Act Amendments
CBI	Confidential Business Information
CEM	Continuous Emission Monitor
CES	Certified Emission Statement
C.F.R. *or* CFR	Code of Federal Regulations
CO	Carbon Monoxide
C.S.R. *or* CSR	Codes of State Rules
DAQ	Division of Air Quality
DEP	Department of Environmental Protection
dscm	Dry Standard Cubic Meter
FOIA	Freedom of Information Act
HAP	Hazardous Air Pollutant
HON	Hazardous Organic NESHAP
HP	Horsepower
lbs/hr	Pounds per Hour
LDAR	Leak Detection and Repair
M	Thousand
MACT	Maximum Achievable Control Technology
MDHI	Maximum Design Heat Input
MM	Million
MMBtu/hr *or* mmbtu/hr	Million British Thermal Units per Hour
MMCF/hr *or* mmcf/hr	Million Cubic Feet per Hour
NA	Not Applicable
NAAQS	National Ambient Air Quality Standards
NO_X	Nitrogen Oxides
NSPS	New Source Performance Standards
PM	Particulate Matter
$PM_{2.5}$	Particulate Matter less than 2.5 µm in diameter
PM_{10}	Particulate Matter less than 10µm in diameter
Ppb	Pounds per Batch
Pph	Pounds per Hour
Ppm	Parts per Million
Ppm_V or ppmv	Parts per Million by Volume
PSD	Prevention of Significant Deterioration
Psi	Pounds per Square Inch
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
TAP	Toxic Air Pollutant
TPY	Tons per Year
TRS	Total Reduced Sulfur
TSP	Total Suspended Particulate
USEPA	United States Environmental Protection Agency
UTM	Universal Transverse Mercator
VEE	Visual Emissions Evaluation
VOC	Volatile Organic Compounds
VOL	Volatile Organic Liquids

NESHAPS National Emissions Standards for Hazardous Air Pollutants

2.3. Authority

This permit is issued in accordance with West Virginia Air Pollution Control Act W.Va. Code §§ 22-5-1. et seq. and the following Legislative Rules promulgated thereunder:

2.3.1. 45CSR13 – *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation*;

2.3.2. 45CSR14 – *Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration;*

2.4. Term and Renewal

2.4.1. This Permit shall remain valid, continuous and in effect unless it is revised, suspended, revoked or otherwise changed under an applicable provision of 45CSR13 or any other applicable legislative rule;

2.5. Duty to Comply

2.5.1. The permitted facility shall be constructed and operated in accordance with the plans and specifications filed in Permit Application R13-3346, and any modifications, administrative updates, or amendments thereto. The Secretary may suspend or revoke a permit if the plans and specifications upon which the approval was based are not adhered to;
[45CSR§§13-5.11 and 10.3.]

2.5.2. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the West Virginia Code and the Clean Air Act and is grounds for enforcement action by the Secretary or USEPA;

2.5.3. Violations of any of the conditions contained in this permit, or incorporated herein by reference, may subject the permittee to civil and/or criminal penalties for each violation and further action or remedies as provided by West Virginia Code 22-5-6 and 22-5-7;

2.5.4. Approval of this permit does not relieve the permittee herein of the responsibility to apply for and obtain all other permits, licenses, and/or approvals from other agencies; i.e., local, state, and federal, which may have jurisdiction over the construction and/or operation of the source(s) and/or facility herein permitted.

2.6. Duty to Provide Information

The permittee shall furnish to the Secretary within a reasonable time any information the Secretary may request in writing to determine whether cause exists for administratively updating, modifying, revoking, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Secretary copies of records to be kept by the permittee. For information claimed to be confidential, the permittee shall furnish such records to the Secretary along with a claim of confidentiality in accordance with 45CSR31. If confidential information is to be sent

to USEPA, the permittee shall directly provide such information to USEPA along with a claim of confidentiality in accordance with 40 C.F.R. Part 2.

2.7. Duty to Supplement and Correct Information

Upon becoming aware of a failure to submit any relevant facts or a submittal of incorrect information in any permit application, the permittee shall promptly submit to the Secretary such supplemental facts or corrected information.

2.8. Administrative Update

The permittee may request an administrative update to this permit as defined in and according to the procedures specified in 45CSR13.
[45CSR§13-4.]

2.9. Permit Modification

The permittee may request a minor modification to this permit as defined in and according to the procedures specified in 45CSR13.
[45CSR§13-5.4.]

2.10 Major Permit Modification

The permittee may request a major modification as defined in and according to the procedures specified in 45CSR14 or 45CSR19, as appropriate.
[45CSR§13-5.1]

2.11. Inspection and Entry

The permittee shall allow any authorized representative of the Secretary, upon the presentation of credentials and other documents as may be required by law, to perform the following:

a. At all reasonable times (including all times in which the facility is in operation) enter upon the permittee's premises where a source is located or emissions related activity is conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times (including all times in which the facility is in operation) any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and

d. Sample or monitor at reasonable times substances or parameters to determine compliance with the permit or applicable requirements or ascertain the amounts and types of air pollutants discharged.

2.12. Emergency

2.12.1. An "emergency" means any situation arising from sudden and reasonable unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-

based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

2.12.2. Effect of any emergency. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the conditions of Section 2.12.3 are met.

2.12.3. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

a. An emergency occurred and that the permittee can identify the cause(s) of the emergency;

b. The permitted facility was at the time being properly operated;

c. During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and

d. The permittee submitted notice of the emergency to the Secretary within one (1) working day of the time when emission limitations were exceeded due to the emergency and made a request for variance, and as applicable rules provide. This notice must contain a detailed description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

2.12.4. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.

2.12.5 The provisions of this section are in addition to any emergency or upset provision contained in any applicable requirement.

2.13. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it should have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in determining penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continued operations.

2.14. Suspension of Activities

In the event the permittee should deem it necessary to suspend, for a period in excess of sixty (60) consecutive calendar days, the operations authorized by this permit, the permittee shall notify the Secretary, in writing, within two (2) calendar weeks of the passing of the sixtieth (60) day of the suspension period.

2.15. Property Rights

This permit does not convey any property rights of any sort or any exclusive privilege.

2.16. Severability

The provisions of this permit are severable and should any provision(s) be declared by a court of competent jurisdiction to be invalid or unenforceable, all other provisions shall remain in full force and effect.

2.17. Transferability

This permit is transferable in accordance with the requirements outlined in Section 10.1 of 45CSR13. **[45CSR§13-10.1.]**

2.18. Notification Requirements

The permittee shall notify the Secretary, in writing, no later than thirty (30) calendar days after the actual startup of the operations authorized under this permit.

2.19. Credible Evidence

Nothing in this permit shall alter or affect the ability of any person to establish compliance with, or a violation of, any applicable requirement through the use of credible evidence to the extent authorized by law. Nothing in this permit shall be construed to waive any defense otherwise available to the permittee including, but not limited to, any challenge to the credible evidence rule in the context of any future proceeding.

3.0. Facility-Wide Requirements

3.1. Limitations and Standards

3.1.1. **Open burning.** The open burning of refuse by any person, firm, corporation, association or public agency is prohibited except as noted in 45CSR§6-3.1.
[45CSR§6-3.1.]

3.1.2. **Open burning exemptions.** The exemptions listed in 45CSR§6-3.1 are subject to the following stipulation: Upon notification by the Secretary, no person shall cause, suffer, allow or permit any form of open burning during existing or predicted periods of atmospheric stagnation. Notification shall be made by such means as the Secretary may deem necessary and feasible.
[45CSR§6-3.2.]

3.1.3. **Asbestos.** The permittee is responsible for thoroughly inspecting the facility, or part of the facility, prior to commencement of demolition or renovation for the presence of asbestos and complying with 40 C.F.R. § 61.145, 40 C.F.R. § 61.148, and 40 C.F.R. § 61.150. The permittee, owner, or operator must notify the Secretary at least ten (10) working days prior to the commencement of any asbestos removal on the forms prescribed by the Secretary if the permittee is subject to the notification requirements of 40 C.F.R. § 61.145(b)(3)(i). The USEPA, the Division of Waste Management, and the Bureau for Public Health - Environmental Health require a copy of this notice to be sent to them.
[40CFR§61.145(b) and 45CSR§34]

3.1.4. **Odor.** No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.
[45CSR§4-3.1] ***[State Enforceable Only]***

3.1.5. **Permanent shutdown.** A source which has not operated at least 500 hours in one 12-month period within the previous five (5) year time period may be considered permanently shutdown, unless such source can provide to the Secretary, with reasonable specificity, information to the contrary. All permits may be modified or revoked and/or reapplication or application for new permits may be required for any source determined to be permanently shutdown.
[45CSR§13-10.5.]

3.1.6. **Standby plan for reducing emissions.** When requested by the Secretary, the permittee shall prepare standby plans for reducing the emissions of air pollutants in accordance with the objectives set forth in Tables I, II, and III of 45CSR11.
[45CSR§11-5.2.]

3.2. Monitoring Requirements

[Reserved]

3.3. Testing Requirements

3.3.1. **Stack testing.** As per provisions set forth in this permit or as otherwise required by the Secretary, in accordance with the West Virginia Code, underlying regulations, permits and orders, the permittee shall conduct test(s) to determine compliance with the emission limitations set forth in this permit and/or established or set forth in underlying documents. The Secretary, or his duly authorized representative, may at his option witness or conduct such test(s). Should the Secretary

exercise his option to conduct such test(s), the operator shall provide all necessary sampling connections and sampling ports to be located in such manner as the Secretary may require, power for test equipment and the required safety equipment, such as scaffolding, railings and ladders, to comply with generally accepted good safety practices. Such tests shall be conducted in accordance with the methods and procedures set forth in this permit or as otherwise approved or specified by the Secretary in accordance with the following:

a. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with 40 C.F.R. Parts 60, 61, and 63 in accordance with the Secretary's delegated authority and any established equivalency determination methods which are applicable. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.

b. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with applicable requirements which do not involve federal delegation. In specifying or approving such alternative testing to the test methods, the Secretary, to the extent possible, shall utilize the same equivalency criteria as would be used in approving such changes under Section 3.3.1.a. of this permit. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.

c. All periodic tests to determine mass emission limits from or air pollutant concentrations in discharge stacks and such other tests as specified in this permit shall be conducted in accordance with an approved test protocol. Unless previously approved, such protocols shall be submitted to the Secretary in writing at least thirty (30) days prior to any testing and shall contain the information set forth by the Secretary. In addition, the permittee shall notify the Secretary at least fifteen (15) days prior to any testing so the Secretary may have the opportunity to observe such tests. This notification shall include the actual date and time during which the test will be conducted and, if appropriate, verification that the tests will fully conform to a referenced protocol previously approved by the Secretary.

d. The permittee shall submit a report of the results of the stack test within sixty (60) days of completion of the test. The test report shall provide the information necessary to document the objectives of the test and to determine whether proper procedures were used to accomplish these objectives. The report shall include the following: the certification described in paragraph 3.5.1.; a statement of compliance status, also signed by a responsible official; and, a summary of conditions which form the basis for the compliance status evaluation. The summary of conditions shall include the following:

1. The permit or rule evaluated, with the citation number and language;
2. The result of the test for each permit or rule condition; and,
3. A statement of compliance or noncompliance with each permit or rule condition.

[WV Code § 22-5-4(a)(14-15) and 45CSR13]

3.4. Recordkeeping Requirements

3.4.1. **Retention of records.** The permittee shall maintain records of all information (including monitoring data, support information, reports, and notifications) required by this permit recorded

in a form suitable and readily available for expeditious inspection and review. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation. The files shall be maintained for at least five (5) years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent two (2) years of data shall be maintained on site. The remaining three (3) years of data may be maintained off site, but must remain accessible within a reasonable time. Where appropriate, the permittee may maintain records electronically (on a computer, on computer floppy disks, CDs, DVDs, or magnetic tape disks), on microfilm, or on microfiche.

3.4.2. **Odors.** For the purposes of 45CSR4, the permittee shall maintain a record of all odor complaints received, any investigation performed in response to such a complaint, and any responsive action(s) taken.
[45CSR§4. *State Enforceable Only.*]

3.5. Reporting Requirements

3.5.1. **Responsible official.** Any application form, report, or compliance certification required by this permit to be submitted to the DAQ and/or USEPA shall contain a certification by the responsible official that states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

3.5.2. **Confidential information.** A permittee may request confidential treatment for the submission of reporting required by this permit pursuant to the limitations and procedures of W.Va. Code § 22-5-10 and 45CSR31.

3.5.3. **Correspondence.** All notices, requests, demands, submissions and other communications required or permitted to be made to the Secretary of DEP and/or USEPA shall be made in writing and shall be deemed to have been duly given when delivered by hand, or mailed first class with postage prepaid to the address(es) set forth below or to such other person or address as the Secretary of the Department of Environmental Protection may designate:

If to the DAQ:
Director
WVDEP
Division of Air Quality
601 57th Street
Charleston, WV 25304-2345

If to the US EPA:
Associate Director
Office of Air Enforcement and Compliance Assistance (3AP20)
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

3.5.4. Operating Fee

3.5.4.1. In accordance with 45CSR30 – Operating Permit Program, the permittee shall submit a certified emissions statement and pay fees on an annual basis in accordance with the submittal requirements of the Division of Air Quality. A receipt for the appropriate fee shall be maintained on the premises for which the receipt has been issued, and shall be made immediately available for inspection by the Secretary or his/her duly authorized representative.

3.5.5. **Emission inventory.** At such time(s) as the Secretary may designate, the permittee herein shall prepare and submit an emission inventory for the previous year, addressing the emissions from the facility and/or process(es) authorized herein, in accordance with the emission inventory submittal requirements of the Division of Air Quality. After the initial submittal, the Secretary may, based upon the type and quantity of the pollutants emitted, establish a frequency other than on an annual basis.

4.0. Source-Specific Requirements

4.1. Limitations and Standards

4.1.1. The following conditions and requirements are specific to SAT1, SH1 and SH2:

a. CO emissions emitted to the atmosphere from each boiler shall not exceed 3.69 pounds per hour with an annual rate not to exceed 13.33 tpy. Compliance with this limit shall be satisfied by optimization of the CO concentration from the unit during the tune-up as required in Condition 4.1.2. and satisfying Condition 4.1.1.d.

b. NO_x emissions emitted to the atmosphere from each boiler shall not exceed 3.64 pounds per hour with an annual rate not to exceed of 13.13 tons per year. Compliance with this limit is satisfied by verifying the manufacturer's NOx emission setting and/or specification during the tune-up of the unit. Compliance with the annual limit is satisfied by complying with Condition 4.1.1.d.

c. Each boiler shall only be fired with pipeline quality natural gas. This condition satisfies compliance with the limitations of 45 CSR §2-3.1., 45 CSR §2-4.1.b., and 45 CSR §10-3.1.e.

d. The heat input to each boiler shall be limited to no greater than 99.98 MMBtu/hr and 722,470.8 MMBtu per 12 month rolling total. Compliance with this annual limit for each boiler shall satisfy the annual emission limits in items a. and b. of this condition. Compliance will be demonstrated through Condition 4.2.1.

e. Each boiler shall be equipped, maintained, operated with a continuous oxygen trim system that maintains an optimum air to fuel ratio for each unit. Such system shall be installed upon initial start-up of the unit.
[40 CFR §63.7575]

4.1.2. The permittee shall conduct the initial tune-up and subsequent tune-ups for the boilers in accordance with the following timing and tune-up requirements:

a. The initial tune up for SAT1, SH1, and SH2 boilers shall be completed no later than 61 months after initial start-up of each affected unit respectively.
[40 CFR §63.7510(g) & §63.7490(b)]

b. Subsequent tune-ups for SAT1, SH1, and SH2 boilers shall be completed no later than 61 months after the previous tune-up.
[40 CFR §63.7515(d) § 63.7540(a)(12)]

c. Each tune-up shall consist of the following:

i. As applicable, inspect the burner, and clean or replace any components of the burner as necessary (permittee may delay the burner inspection until the next scheduled unit shutdown). At units where entry into a piece of process equipment or into a storage vessel is required to complete the tune-up inspections, inspections are required only during planned entries into the storage vessel or process equipment;

ii. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available;

iii. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (you may delay the inspection until the next scheduled unit shutdown);

iv. Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, which includes the manufacturer's NO_x concentration specification of 30 ppm corrected to 3% oxygen with optimize CO concentration of no greater than 50 ppm corrected to 3% oxygen;

v. Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer.

[40 CFR §63.7500(a)(1), §63.7505(a), §§63.7510(g), §63.7515(d), §63.7540(a)(12), and Table 3 to Subpart DDDDD of Part 63—Work Practice Standards]

4.1.3. **Operation and Maintenance of Air Pollution Control Equipment.** The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.11.]

4.2. Monitoring Requirements

4.2.1. For each month, the permittee shall record the hours of operation and amount of natural gas consumed by each boiler, and shall calculate the rolling yearly total of natural gas consumed. The permittee shall sample(s) and analyze the fuel (natural gas) consumed by the boiler on a weekly basis to determine the higher heating value of fuel. In lieu of sampling and analyzing the fuel, the higher heating value may be obtained from the fuel supplier. The sample point shall be at a location that is representative sample of the fuel being consumed. Such analysis shall be performed using ASTM D1826-77 or equivalent method(s) to determine the calorific value. No later than 10 days after the end of each calendar month, the permittee shall determine the heat input for the corresponding month and the total heat input on 12 month rolling total basis for each boiler. For any missing fuel records greater than one hour, the missing data shall be replaced with the maximum fuel rate of the unit. Such records shall be maintained in accordance with Condition 3.4.1. of this permit.
[40 CFR §60.48c(g(2) and 45CSR§2A-7.1.a.1.]

4.3. Testing Requirements

[Reserved]

4.4. Recordkeeping Requirements

4.4.1. **Record of Monitoring.** The permittee shall keep records of monitoring information that include the following:

a. The date, place as defined in this permit, and time of sampling or measurements;

b. The date(s) analyses were performed;

c. The company or entity that performed the analyses;

d. The analytical techniques or methods used;

e. The results of the analyses; and

f. The operating conditions existing at the time of sampling or measurement.

4.4.2. **Record of Maintenance of Air Pollution Control Equipment.** For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.

4.4.3. **Record of Malfunctions of Air Pollution Control Equipment.** For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

a. The equipment involved.

b. Steps taken to minimize emissions during the event.

c. The duration of the event.

d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

e. The cause of the malfunction.

f. Steps taken to correct the malfunction.

g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.

4.4.4. The permittee shall keep the following records in accordance with 40 CFR §63.7555. This includes but is not limited to the following information during the tune-up as required in Condition 4.1.2. and 40 CFR §63.7540:

a. The concentrations of CO in the effluent stream in parts per million by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler or process heater. During the tune-up, concentrations of NO_x of the unit shall be included; and

b. A description of any corrective actions taken as a part of the tune-up.
[40 CFR §§63.7540(a)(12), and 63.7555]

4.5. Reporting Requirements

4.5.1. The permittee shall submit a "Notification of Compliance Status" for SAT1, SH1, and SH2 boilers to the Director before the close of business on the sixtieth (60th) day after completion of the initial compliance demonstration as required in Condition 4.1.2. Such "Notification of Compliance

Status" shall be in accordance with 40 CFR §63.9(h)(2(ii) and contain the information specified in 40 CFR §§63.7545(e)(1), and (8).
[40CFR§63.7545(e)]

4.5.2. The permittee shall submit an "Initial Notification" to the Director of the initial start-up of SAT1, SH1, and SH2 boilers within 15 days after the actual date of start-up. This Initial Notification supersedes the notification requirements of Condition 2.18.
[40CFR§§63.7545(c)]

4.5.3. The permittee shall submit "5-year Compliance Reports" for the Boiler Nos. SAT1, SH1, SH2 electronically using CEDRI that is accessed through the EPA's Center Data Exchange (CDX) (www.epa.gov/cdx). However, if the reporting form for this report is not available in CEDRI at the time the report is due, the permittee shall submit the report to the Administrator and Director using the addresses listed in Condition 3.5.3. The first compliance report shall be submitted no later than five years after the initial start-up of the unit and the first date ending on January 31. Subsequent reports shall be submitted once every five years afterwards. Such reports shall contain the information specified in 40 CFR §§63.7550(c)(1) which are:

a. Permittee and facility name, and address;

b. Process unit information, emission limitations, and operating limitations;

c. Date of report and beginning and ending dates of the reporting period;

d. Include the date of the most recent tune-up for each boiler; and

e. Include the date of the most recent burner inspection if it was not done on a five-year frequency and was delayed until the next scheduled or unscheduled unit shutdown.

The permittee shall maintain records of such reports in accordance with Condition 3.4.1.
[40CFR §§63.7550(b), (b)(1), (c)(1), & (c)(5)(i) though (iv) and (xiv), and (h)(3)]

CERTIFICATION OF DATA ACCURACY

I, the undersigned, hereby certify that, based on information and belief formed after reasonable inquiry, all information contained in the attached _____, representing the period beginning _____ and ending _____, and any supporting documents appended hereto, is true, accurate, and complete.

Signature[1] (please use blue ink) _____ Responsible Official or Authorized Representative _____ Date

Name & Title (please print or type) _____ Name _____ Title

Telephone No. _____ Fax No. _____

---

[1] This form shall be signed by a "Responsible Official." "Responsible Official" means one of the following:

a. For a corporation: The president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:

   (i) the facilities employ more than 250 persons or have a gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), or

   (ii) the delegation of authority to such representative is approved in advance by the Director;

b. For a partnership or sole proprietorship: a general partner or the proprietor, respectively;

c. For a municipality, State, Federal, or other public entity: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of U.S. EPA); or

d. The designated representative delegated with such authority and approved in advance by the Director.

west virginia department of environmental protection

Division of Air Quality
601 57th Street, SE
Charleston, WV 25304-2345
Phone: 304-926-0475 Fax: 304-926-0479

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
dep.wv.gov

ENGINEERING EVALUATION/FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-3346
Plant ID No.:	039-00005
Applicant:	Union Carbide Corporation
Facility Name:	Institute Plant
Location:	Institute
NAICS Code:	325199
Application Type:	Construction
Received Date:	October 21, 2016
Engineer Assigned:	Edward S. Andrews, P.E.
Fee Amount:	$2000.00
Date Received:	October 24, 2016
Complete Date:	November 16, 2016
Due Date:	February 14, 2017
Applicant Ad Date:	October 31, 2016
Newspaper:	*The Charleston Gazette*
UTM's:	Easting: 432.189 km Northing: 4,248.754 km Zone: 17
Description:	This application is for the installation of three 99.98 MM Btu/hr, natural gas fired boilers as interim boilers for the replacement of Power House #2.

DESCRIPTION OF PROCESS

Union Carbine Corporation (UCC) operates several chemical manufacturing units located within the Institute Site (Plant) in Institute, West Virginia, which is a chemical manufacturing complex that has several different companies operating within the complex. Bayer CropScience LP (Bayer) owns and operates the Power House #2 at the Institute Plant. The plant is currently configured with one main steam plant (Power House No. 2). Power House No. 2 has three, 360 MMBtu/hr boilers with a steam output of about 225,000 pounds of steam per hour from each unit (Boilers 10, 11, and 12). This steam is needed to support the chemical manufacturing operation at the site. Due to downturns in the chemical manufacturing operation at the site, the demand for steam has seen a significant decrease over the past couple of years. In 2012, Bayer elected to permanently shut down Power House No. 1, which was configured with three, 180 MMBtu/hr

gas-fired boilers. Once Power House No. 1 was shutdown, the site lost its flexibility to adjust steam output on short notice based on demand.

To resolve the reliability issues with the boilers in Power House No. 2 and prepare to ensure compliance with the Boiler MACT (Subpart DDDDD of Part 63), Bayer had elected to replace the units in Power House No. 2 with three package style boilers (Boiler Nos. 16, 17, and 18) as part of a new steam plant in the Institute Plant. These new boilers will be rated with a heat input of 350 MMBtu/hr for each unit and a steam output of 252,000 pounds per hour at 400 psi and 700^0F. Each of these units will be fueled solely with natural gas and each one vented to a dedicated stack.

Boilers 16 and 17 were constructed and scheduled to start-up before the end of 2016. However, each boiler experienced a catastrophic failure during the static hydro test of each unit as part of the commission phase for these new boilers. Currently, the Institute Site is receiving its steam from Power House #2. Bayer has committed to shutting down Power House #2 by no later than January 31, 2017, as part of the Bayer's plan to achieve compliance with the Boiler MACT.

Union Carbine Corporation (UCC) currently operates several chemical manufacturing units at the Institute Plant a well. These units require a significant amount of heat energy to operate, which is in the form of steam. To avoid a shutdown of UCC's manufacturing units while Boilers 16 and 17 are being repaired or replaced after Power House #2 ceases operations, UCC has elected to install three 100 MMBtu/hr boilers (one saturated steam boiler and two superheated boilers).

The selected units are manufactured by Victory Energy. Each unit is equipped with a low-NOx burner with flue gas recirculation to minimize the formation of thermal oxides of nitrogen (NO_x) while improving combustion efficiency. To better maintain combustion efficiency while minimize the generation of carbon monoxide (CO), the boilers are equipped with oxygen trim systems that regulates the amount of combustion air that is introduced based on the oxygen level in the exhaust stream in the exhaust stack. To better improve the overall thermal efficiency of the boilers, each unit has an economizer, which is a heat exchanger in the exhaust stack that preheats the boiler feed water prior to been introduced into the boiler.

SITE INSPECTION

On November 3, 2016, Mr. Todd Shrewsberry, P.E., a Compliance and Enforcement Engineer, and the writer conducted an announced site visit of the Institute Site. The Bayer representatives were Ms. Linda Tennant, Site Environmental Specialist and Mr. Monty Buther, a Project Manager in the Engineering Department. Also, the writer requested UCC representatives to be on hand during this visit as well. UCC representative included Mr. Freddie Sizemore, EHS Regulatory Specialist, Mr. Toby Scholl, P.E. Engineer, and project managers overseeing the

installation of thses boilers. During this visit, the writer was briefed on the steam capacity and demand at the facility and status of these proposed boilers.

Currently, UCC are operating under Consent Order CO-R13-2016-22 to install and operate the proposed boilers. At the time of the visit, the saturated steam boiler (SAT1) was still been installed. SH1 and SH2 was in the process of being commissioned.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

The applicant used pollutant specific emission factors from Chapter 1.4 of AP-42 and manufacturer's data to estimate emissions from the replacement boilers. The writer reproduced the estimated emissions from one replacement boiler, which are presented in the following table:

Table No. 1 – Emission from One of the New Boilers using Natural Gas

Pollutant	Emission Factor	Hourly Rate (lb/hr)	Annual Rate[1] (tpy)
PM Filterable/Condensable Fractions	0.0073 lb/MMBtu	0.73	2.64
PM_{10} Filterable/Condensable Fractions	0.0073 lb/MMBtu	0.73	2.64
$PM_{2.5}$ Filterable/Condensable Fractions	0.0073 lb/MMBtu	0.73	2.64
Sulfur Dioxide (SO_2)	0.00058 lb/ MMBtu	0.058	0.21
Oxides of Nitrogen (NO_x)	0.0364 lb/MMBtu	3.64	13.15
Carbon Monoxide (CO)	0.0369 MMBtu	3.69	13.33
Volatile Organic Compounds (VOCs)	0.0054 lb/MMBtu	0.54	1.95
Total Hazardous Air Pollutants (HAPs)	0.0018 lb/MMcf	0.18	0.65
Carbon Dioxide Equivalent* (CO_2e)	117.098 lb/MMBtu	11,709.80	42,299.90

* Based on factors and global warming potentials from Tables A-1, C-1, and C-2 of Part 98 published on Federal Register on November 29, 2013.

1 - Annual Rate is based on 7224.7 hours of operation per year, which equates to 722,470.8 MMBtu/year.

Table No. 2 – Annual Emissions from the 3 Boilers	
Pollutant	**Annual Potential of 3 proposed boilers (tpy)**
PM	7.92
PM_{10}	7.92
$PM_{2.5}$	7.92
SO_2	0.63
NO_x	39.4
CO	40
VOCs	5.84
HAPs	1.98
CO_2e	126,899.8

The applicant estimated the potential fugitive emissions associated with the natural gas supply line to these boilers. Applicant identified the components involved with this line would be 31 valves, 148 flanges and 186 connectors. To estimate the emissions, the applicant used the emission factor for the component from the Oil and Gas Industry and the approximate composition of the natural gas by weight by pollutant (VOCs, Hexane (as HAP) and special pollutant - greenhouse gases). The total VOCs from the facility's natural gas supply line would be 860 pounds per year (0.43 tpy). Methane emissions from leaks would be 2,740 pounds (1.37 tpy). Methane emissions are classified as one the six greenhouse gases, which is defined in 40 CFR §86.1818-12(a). To determine the CO_2e of the methane emissions, the Global warming potential of methane from Table A-1 to Subpart A of Part 98, which is 25 times, is multiplied by the methane emissions. For this case, the supply pipeline has the potential to emit 34.25 tons of CO_2e per year. Hexane (HAP) emissions would be 0.02 tons per year.

Overall, the emissions represented by this project are presented in the following table.

Table No. 3 –Emissions from the New Powerhouse	
Pollutant	**Annual Potential (tpy)**
PM	7.92
PM_{10}	7.92
$PM_{2.5}$	7.92
SO_2	0.63
NO_x	39.4
CO	40
VOCs	6.27
HAPs	2.00
CO_2e	126,934.1

REGULATORY APPLICABLILITY

The Institute Plant is a major source under Title V (45CSR30) and currently possesses a valid Title V Operating Permit. Under this program, new emission units have 12 months upon start-up to be incorporated in the facility's operating permit. The facility is currently classified as a major source for $PM/PM_{10}/PM_{2.5}$, NO_x, SO_2, CO, and VOC under Prevention of Significant Deterioration (PSD), Title V and for HAPs.

To avoid a major modification under 45 CSR 14, UCC has elected to limit the potential to emit (PTE) of oxides of nitrogen to 39.4 tons per year, which is just less than the significant threshold value for ozone and oxides of nitrogen. In UCC proposed PTE restriction, UCC proposed to limit the annual actual heat input to each boiler to 722,470.8 MMBtu per year. To monitor compliance with the actual heat input limit, UCC has proposed to install, operate, and maintain gas meters to measure and record the actual volume of natural gas consumed by each boiler. Plus, UCC plans on to sample and analyze to determine the actual higher heating value of the natural gas being consumed by the boilers.

With the proposed heat input limited the annual emissions from these three boilers, the proposed project does not represent a significant emission increase. Therefore, no further review of this proposed with respect to 45 CSR 14 is required.

Table No. 4 – Summary Emissions with Respect to the PSD Significance Threshold Values

Pollutant	Annual Potential of 3 proposed boilers (tpy)	PSD Significant Values (tpy)	Is the Project Significant (Yes/No)
PM	7.92	25	No
PM_{10}	7.92	15	No
$PM_{2.5}$	7.92	10	No
SO_2	0.63	40	No
NO_x	39.4	40	No
CO	40	100	No
VOCs	5.84	40	No

These units are not subject to the New Source Performance Standards of Subpart Db since each unit will have a design heat input rating of less than 100 MMBtu/hr. The units have a maximum design heat input of 99.98 MMBtu/hr, which is greater than 10 MMBtu/hr. Thus, the boilers are subject to Subpart Dc. Under Subpart Dc, natural gas fired units are not subject to any emission standards established in this regulation. Subpart Dc does require fuel records to be maintain, which will be incorporated into the permit.

The facility is currently classified as a major source of HAPs, which means the facility has the potential to emit 10 tons per year of a single HAP or 25 tpy of total HAPs. Within the

application, Bayer has not elected to determine if this project would change the facility's major source status for HAPs. Thus, the new boilers are subject to 40 CFR 63, Subpart DDDDD – National Emission Standard for Hazardous Air Pollutants (NESHAP) for Major Sources: Industrial Commercial, and Institutional Boilers and Process Heaters.

This regulation establishes work practices as a means to comply with the emission standards (see Item 3 of Table 3 to Subpart DDDDD of Part 63). Each of the proposed units will be equipped with oxygen trim systems to optimize the combustion air to minimize CO emissions. The rule recognizes this type of combustion control and defers the annual tune-up requirement to be performed once every five years in accordance with 40 CFR §63.7540. These boilers under Subpart DDDDD will be considered as new units. The one-time energy assessment is not required for new units. Therefore, the energy assessment is not applicable for these boilers and will not be included.

UCC prepared and submitted a complete application, paid the filing fee, and published a Class I Legal ad in *The Charleston Gazette* on October 31, 2016. This project requires Notice Level C of 45CSR§13-8.5 be executed because of the proposed restrictions to limit the PTE to avoid triggering permitting requirements under Rule 14, require. A sign must be posted at the facility and a commercial display ad published in conjunction with the Secretary's "notice of intent to approve".

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

The new replacement boilers will not emit any pollutants that aren't already being emitted by another emission source at the facility. Therefore, no information about the toxicity of the hazardous air pollutants (HAPs) is presented in this evaluation.

AIR QUALITY IMPACT ANALYSIS

An air dispersion modeling study or analysis was not required, because the proposed modification does not meet the definition of a major modification of a major source as defined in 45CSR14.

MONITORING OF OPERATIONS

Rules 2 and 10 only require recording of the amount of natural gas consumed each month for natural gas fired boilers. The writer recommends require the actual heat input of each boiler be determine on a monthly basis using the measured fuel rates and calorific values recorded during the corresponding month. UCC and agency agree to an hours of operation limit in Consent Order CO-R13-E-2016-22. The writer believes this limit is reductant and artificially restrictive. The hours of operation limits only count the time the actual unit is operating regards of load or the emissions been generator.

To ensure that the applicant maintain the flow monitor, that fuel meter any downtime greater that one hour shall be assumed the unit operate at maximum heat input over the corresponding time period that the monitor was down. The writer believes this provision would sever the same purpose of limiting the hours of operation in limiting the PTE for NO_x below the PSD significant threshold value.

As noted earlier, these units are subject to the Boiler MACT which requires annual tune-ups for each boiler. The permit will require conducting an initial performance test for CO and conducting a tune-up every 5 years to optimize CO emissions. The permit will require the installation of oxygen trim systems which will minimize CO emissions based on actual oxygen readings at the outlet and trimming the combustion air damper.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates the proposed construction at the facility will meet all the requirements of the applicable rules and regulations when operated in accordance with the permit application. The applicant has proposed these boilers to be temporary units. Under 45 CSR 13, a Temporary Permit only requires the applicant to place a legal ad. However, 45 CSR §13-8.5 requires Notice Level C for any permit to limit physical and operational limits below major source thresholds. To result this conflict, the writer recommends processing this application as a construction application which is allow for maximum opportunely for public participation that is required under 45 CSR 13 and to undergo Public Notice Level C. 45 CSR §13-13. Allows the Director to result this conflict. Therefore, the writer recommends granting Union Carbide Corporation a Rule 13 Construction Permit for their facility located in Institute, WV.

Edward S. Andrews, P.E.
Engineer

December 9, 2016
Date

Andrews, Edward S

From: Sizemore, Freddie (FA) <sizemofa2@dow.com>
Sent: Friday, December 9, 2016 10:30 AM
To: Andrews, Edward S
Subject: RE: Notice Level C for R13-3346 (Boilers @ Institute)

Ed,

The commercial display advertisement is scheduled for publication on Monday.

Change requested in draft permit Condition 4.4.4:

4.4.4. The permittee shall keep the following records in accordance with 40 CFR §63.7555. This includes but is not limited to the following information during the tune-up as required in Condition 4.1.2. and 40 CFR §63.7540:

a. The concentrations of CO in the effluent stream in parts per million by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler or process heater. During the tune-up, concentrations of NO_x ~~from the CEMS~~ of the unit shall be included; and

UCC requests that the phrase "from the CEMS" be deleted to allow use of other measurement techniques during tune-ups.

Suggested editorial changes to draft permit Condition 4.2.1:

4.2.1. For each month, the permittee shall record the hours of operation and amount of natural gas consumed by each boiler, and shall calculate the rolling yearly total of natural gas consumed. The permittee shall sample(s) and analyze the fuel (natural gas) consumed by the boiler on a weekly basis to determine the higher heating value of fuel. In lieu of sampling and analyzing the fuel, the higher heating value may be obtained from the fuel supplier. The sample point shall be at a location that is representative sample of the fuel being consumed. Such analysis **shall** be performed using ASTM D1826-77 or equivalent method(s) to determine the calorific value. No later than 10 days after the end of each calendar month, the permittee shall determine the heat input for the corresponding month and the total heat input on 12 month rolling total basis for each boiler. **For any**~~Any~~ missing fuel records greater than one hour, the missing data shall be replaced with the maximum fuel rate of the unit. Such records shall be maintained in accordance with Condition 3.4.1. of this permit.
[40 CFR §60.48c(g)(2) and 45CSR§2A-7.1.a.1.]

BTW: on Page 2 of the engineering evaluation, BCS coal fired boiler shut down date should be changed to no later than January 31, 2017.

Boilers 16 and 17 were constructed and scheduled to start-up before the end of 2016. However, each boiler experienced a catastrophic failure during the static hydro test of each unit as part of the commission phase for these new boilers. Currently, the Institute Site is receiving its steam from Power House #2. Bayer has committed to shutting down Power House #2 by no later than January 31, ~~2016~~2017, as part of the Bayer's plan to achieve compliance with the Boiler MACT.

Let me know if any questions.

Thanks,
Freddie

From: Andrews, Edward S [mailto:Edward.S.Andrews@wv.gov]
Sent: Thursday, December 08, 2016 2:28 PM
To: Sizemore, Freddie (FA) <sizemofa2@dow.com>
Subject: RE: Notice Level C for R13-3346 (Boilers @ Institute)

Freddie,

Are you able to meet the Monday publication date?
Ed

From: Sizemore, Freddie (FA) [mailto:sizemofa2@dow.com]
Sent: Wednesday, December 7, 2016 4:02 PM
To: Andrews, Edward S <Edward.S.Andrews@wv.gov>
Subject: RE: Notice Level C for R13-3346 (Boilers @ Institute)

Ed,

I will contact the Charleston Newspapers tomorrow to confirm that the ad can be published on Monday.

Can you send me the draft permit and engineering evaluation?

Thanks for your assistance.

Freddie

Freddie A. Sizemore
EHS Regulatory Affairs Specialist
Union Carbide Corporation
A Subsidiary of The Dow Chemical Company
P. O. Box 8361
South Charleston, WV 25303
email: sizemofa2@dow.com
phone: (304) 747-3713
fax: (304) 747-3147

From: Andrews, Edward S [mailto:Edward.S.Andrews@wv.gov]
Sent: Wednesday, December 07, 2016 3:12 PM
To: Sizemore, Freddie (FA) <sizemofa2@dow.com>
Subject: Notice Level C for R13-3346 (Boilers @ Institute)
Importance: High

Freddie:

Bev has finish her review and given her approved to get your draft out for public comment. Given the consent order deadline, I would like to have both ads (DAQ legal ad & UCC commercial ad) to be publish on Monday, December 12, 2016 to be able to meet the termination date of the consent order. Please let me know if you would need addition time or would like to try to get it published this Friday.

Thanks,

Ed

Edward S. Andrews, P.E.
Engineer
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
304.926.0499 ext. 1214

Andrews, Edward S

From: Sizemore, Freddie (FA) <sizemofa2@dow.com>
Sent: Wednesday, November 23, 2016 9:06 AM
To: Andrews, Edward S
Subject: RE: Pre-draft of R13-3346 for the boilers at Institute

Ed,

When you have a few minutes, please give me a call.

Freddie
747-3713

From: Andrews, Edward S [mailto:Edward.S.Andrews@wv.gov]
Sent: Monday, November 21, 2016 9:13 AM
To: Sizemore, Freddie (FA) <sizemofa2@dow.com>
Cc: Shrewsbury, Todd H <Todd.H.Shrewsbury@wv.gov>
Subject: Pre-draft of R13-3346 for the boilers at Institute

Freddie:

I have attached a pre-draft of the permit. Because, we are on a fixed time schedule, I will notify once Bev has finished her review of my work and give you a day or two to get your suggestion back to me.

We do have to go through public notice level since UCC has requested to operational restrictions to avoid 45 CSR 14.

This required UCC to post a sign at the entrance and publish a commercial ad in conjunction with the agency's legal ad (See 45 CSR 13-8.5.). The Charleston Papers have been requiring at least 5 day lead time on publishing our legal adds. So, please be ready.

Should you have any questions about this please contact me.

ID # 35-5
Reg R13-3346
Company UCC
Facility Institute Initials

Sincerely,

Edward S. Andrews, P.E.
Engineer
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
304.926.0499 ext. 1214

Entire Document
NON-CONFIDENTIAL

West Virginia Department of Environmental Protection

Earl Ray Tomblin
Governor

Division of Air Quality

Randy C. Huffman
Cabinet Secretary

Permit to Construct~~ion~~

Commented [SF(1]: Editorial suggested change

R13-3346

This permit is issued in accordance with the West Virginia Air Pollution Control Act (West Virginia Code §§22-5-1 et seq.) and 45 C.S.R. 13 – Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation. The permittee identified at the above-referenced facility is authorized to construct the stationary sources of air pollutants identified herein in accordance with all terms and conditions of this permit.

Issued to:

Union ~~Carbine~~Carbide Corporation
Institute Plant
039-00005

Commented [SF(2]: Correction of typographical error requested

_____

William F. Durham
Director

Issued: DRAFT

Facility Location:	On State Route 25 Institute, Kanawha County, West Virginia
Mailing Address:	P.O. Box 8361 South Charleston, WV 25303
Facility Description:	Chemical Manufacturing Complex
NAICS Codes:	325199
UTM Coordinates:	432.189 km Easting • 4,248.754 km Northing • Zone 17
Permit Type:	Construction
Description of Change:	This action is for the installation of 3, 99.98 MMBtu/hr, natural gas fired boilers that are equipped with low-NO_x burners and flue gas recirculation.

Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §§22-5-14.

The source is subject to 45CSR30. Changes authorized by this permit must also be incorporated into the facility's Title V operating permit. Commencement date of any operation authorized by this permit shall be determined by the appropriate timing limitations associated with Title V permit revisions per 45CSR30.

Table of Contents

1.0. Emission Units

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity (MMBtu/hr)	Control Device
SAT-1	E-SAT1	Saturated Steam Boiler; Industrial Boiler with Economizer Natural Gas Fired Boiler with low-NO_x Burner & FGR	2016	99.98 MMBtu/hr	None
SH1	E-SH1	Superheated ~~Heater~~ Steam Boiler; Industrial Boiler with Economizer Natural Gas Fired Boiler with low-NO_x Burner & FGR	2016	99.98 MMBtu/hr	None
SH2	E-SH2	Superheated ~~Heater~~ Steam Boiler; Industrial Boiler with Economizer Natural Gas Fired Boiler with low-NO_x Burner & FGR	2016	99.98 MMBtu/hr	None

Commented [SF(3]: Request change in emission unit description for consistency with permit application

Commented [SF(4]: Same comment as above

2.0. General Conditions

2.1. Definitions

2.1.1. All references to the "West Virginia Air Pollution Control Act" or the "Air Pollution Control Act" mean those provisions contained in W.Va. Code §§ 22-5-1 to 22-5-18.

2.1.2. The "Clean Air Act" means those provisions contained in 42 U.S.C. §§ 7401 to 7671q, and regulations promulgated thereunder.

2.1.3. "Secretary" means the Secretary of the Department of Environmental Protection or such other person to whom the Secretary has delegated authority or duties pursuant to W.Va. Code §§ 22-1-6 or 22-1-8 (45CSR§30-2.12.). The Director of the Division of Air Quality is the Secretary's designated representative for the purposes of this permit.

2.1.4. Unless otherwise specified in a permit condition or underlying rule or regulation, all references to "rolling yearly total" shall mean the sum of the monthly data, values or parameters being measured, monitored, or recorded, at any given time for the previous twelve (12) consecutive calendar months.

2.2. Acronyms

CAAA	Clean Air Act Amendments
CBI	Confidential Business Information
CEM	Continuous Emission Monitor
CES	Certified Emission Statement
C.F.R. *or* CFR	Code of Federal Regulations
CO	Carbon Monoxide
C.S.R. *or* CSR	Codes of State Rules
DAQ	Division of Air Quality
DEP	Department of Environmental Protection
dscm	Dry Standard Cubic Meter
FOIA	Freedom of Information Act
HAP	Hazardous Air Pollutant
HON	Hazardous Organic NESHAP
HP	Horsepower
lbs/hr	Pounds per Hour
LDAR	Leak Detection and Repair
M	Thousand
MACT	Maximum Achievable Control Technology
MDHI	Maximum Design Heat Input
MM	Million
MMBtu/hr *or* mmbtu/hr	Million British Thermal Units per Hour
MMCF/hr *or* mmcf/hr	Million Cubic Feet per Hour
NA	Not Applicable
NAAQS	National Ambient Air Quality Standards
NOx	Nitrogen Oxides
NSPS	New Source Performance Standards
PM	Particulate Matter
$PM_{2.5}$	Particulate Matter less than 2.5 µm in diameter
PM_{10}	Particulate Matter less than 10µm in diameter
Ppb	Pounds per Batch
Pph	Pounds per Hour
Ppm	Parts per Million
Ppmv or ppmv	Parts per Million by Volume
PSD	Prevention of Significant Deterioration
Psi	Pounds per Square Inch
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
TAP	Toxic Air Pollutant
TPY	Tons per Year
TRS	Total Reduced Sulfur
TSP	Total Suspended Particulate
USEPA	United States Environmental Protection Agency
UTM	Universal Transverse Mercator
VEE	Visual Emissions Evaluation
VOC	Volatile Organic Compounds
VOL	Volatile Organic Liquids

NESHAPS National Emissions Standards for Hazardous Air Pollutants

2.3. Authority

This permit is issued in accordance with West Virginia Air Pollution Control Act W.Va. Code §§ 22-5-1. et seq. and the following Legislative Rules promulgated thereunder:

2.3.1. 45CSR13 – *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation*;

2.3.2. 45CSR14 – *Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration;*

2.4. Term and Renewal

2.4.1. This Permit shall remain valid, continuous and in effect unless it is revised, suspended, revoked or otherwise changed under an applicable provision of 45CSR13 or any other applicable legislative rule;

2.5. Duty to Comply

2.5.1. The permitted facility shall be constructed and operated in accordance with the plans and specifications filed in Permit Application R13-3346, and any modifications, administrative updates, or amendments thereto. The Secretary may suspend or revoke a permit if the plans and specifications upon which the approval was based are not adhered to;
[45CSR§§13-5.11 and 10.3.]

2.5.2. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the West Virginia Code and the Clean Air Act and is grounds for enforcement action by the Secretary or USEPA;

2.5.3. Violations of any of the conditions contained in this permit, or incorporated herein by reference, may subject the permittee to civil and/or criminal penalties for each violation and further action or remedies as provided by West Virginia Code 22-5-6 and 22-5-7;

2.5.4. Approval of this permit does not relieve the permittee herein of the responsibility to apply for and obtain all other permits, licenses, and/or approvals from other agencies; i.e., local, state, and federal, which may have jurisdiction over the construction and/or operation of the source(s) and/or facility herein permitted.

2.6. Duty to Provide Information

The permittee shall furnish to the Secretary within a reasonable time any information the Secretary may request in writing to determine whether cause exists for administratively updating, modifying, revoking, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Secretary copies of records to be kept by the permittee. For information claimed to be confidential, the permittee shall furnish such records to the Secretary along with a claim of confidentiality in accordance with 45CSR31. If confidential information is to be sent

to USEPA, the permittee shall directly provide such information to USEPA along with a claim of confidentiality in accordance with 40 C.F.R. Part 2.

2.7. Duty to Supplement and Correct Information

Upon becoming aware of a failure to submit any relevant facts or a submittal of incorrect information in any permit application, the permittee shall promptly submit to the Secretary such supplemental facts or corrected information.

2.8. Administrative Update

The permittee may request an administrative update to this permit as defined in and according to the procedures specified in 45CSR13.
[45CSR§13-4.]

2.9. Permit Modification

The permittee may request a minor modification to this permit as defined in and according to the procedures specified in 45CSR13.
[45CSR§13-5.4.]

2.10 Major Permit Modification

The permittee may request a major modification as defined in and according to the procedures specified in 45CSR14 or 45CSR19, as appropriate.
[45CSR§13-5.1]

2.11. Inspection and Entry

The permittee shall allow any authorized representative of the Secretary, upon the presentation of credentials and other documents as may be required by law, to perform the following:

a. At all reasonable times (including all times in which the facility is in operation) enter upon the permittee's premises where a source is located or emissions related activity is conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times (including all times in which the facility is in operation) any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and

d. Sample or monitor at reasonable times substances or parameters to determine compliance with the permit or applicable requirements or ascertain the amounts and types of air pollutants discharged.

2.12. Emergency

2.12.1. An "emergency" means any situation arising from sudden and reasonable unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-

based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

2.12.2. Effect of any emergency. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the conditions of Section 2.12.3 are met.

2.12.3. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

a. An emergency occurred and that the permittee can identify the cause(s) of the emergency;

b. The permitted facility was at the time being properly operated;

c. During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and

d. The permittee submitted notice of the emergency to the Secretary within one (1) working day of the time when emission limitations were exceeded due to the emergency and made a request for variance, and as applicable rules provide. This notice must contain a detailed description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

2.12.4. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.

2.12.5 The provisions of this section are in addition to any emergency or upset provision contained in any applicable requirement.

2.13. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it should have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in determining penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continued operations.

2.14. Suspension of Activities

In the event the permittee should deem it necessary to suspend, for a period in excess of sixty (60) consecutive calendar days, the operations authorized by this permit, the permittee shall notify the Secretary, in writing, within two (2) calendar weeks of the passing of the sixtieth (60) day of the suspension period.

2.15. Property Rights

This permit does not convey any property rights of any sort or any exclusive privilege.

2.16. Severability

The provisions of this permit are severable and should any provision(s) be declared by a court of competent jurisdiction to be invalid or unenforceable, all other provisions shall remain in full force and effect.

2.17. Transferability

This permit is transferable in accordance with the requirements outlined in Section 10.1 of 45CSR13. **[45CSR§13-10.1.]**

2.18. Notification Requirements

The permittee shall notify the Secretary, in writing, no later than thirty (30) calendar days after the actual startup of the operations authorized under this permit.

2.19. Credible Evidence

Nothing in this permit shall alter or affect the ability of any person to establish compliance with, or a violation of, any applicable requirement through the use of credible evidence to the extent authorized by law. Nothing in this permit shall be construed to waive any defense otherwise available to the permittee including, but not limited to, any challenge to the credible evidence rule in the context of any future proceeding.

3.0. Facility-Wide Requirements

3.1. Limitations and Standards

3.1.1. **Open burning.** The open burning of refuse by any person, firm, corporation, association or public agency is prohibited except as noted in 45CSR§6-3.1.
[45CSR§6-3.1.]

3.1.2. **Open burning exemptions.** The exemptions listed in 45CSR§6-3.1 are subject to the following stipulation: Upon notification by the Secretary, no person shall cause, suffer, allow or permit any form of open burning during existing or predicted periods of atmospheric stagnation. Notification shall be made by such means as the Secretary may deem necessary and feasible.
[45CSR§6-3.2.]

3.1.3. **Asbestos.** The permittee is responsible for thoroughly inspecting the facility, or part of the facility, prior to commencement of demolition or renovation for the presence of asbestos and complying with 40 C.F.R. § 61.145, 40 C.F.R. § 61.148, and 40 C.F.R. § 61.150. The permittee, owner, or operator must notify the Secretary at least ten (10) working days prior to the commencement of any asbestos removal on the forms prescribed by the Secretary if the permittee is subject to the notification requirements of 40 C.F.R. § 61.145(b)(3)(i). The USEPA, the Division of Waste Management, and the Bureau for Public Health - Environmental Health require a copy of this notice to be sent to them.
[40CFR§61.145(b) and 45CSR§34]

3.1.4. **Odor.** No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.
[45CSR§4-3.1] ***[State Enforceable Only]***

3.1.5. **Permanent shutdown.** A source which has not operated at least 500 hours in one 12-month period within the previous five (5) year time period may be considered permanently shutdown, unless such source can provide to the Secretary, with reasonable specificity, information to the contrary. All permits may be modified or revoked and/or reapplication or application for new permits may be required for any source determined to be permanently shutdown.
[45CSR§13-10.5.]

3.1.6. **Standby plan for reducing emissions.** When requested by the Secretary, the permittee shall prepare standby plans for reducing the emissions of air pollutants in accordance with the objectives set forth in Tables I, II, and III of 45CSR11.
[45CSR§11-5.2.]

3.2. Monitoring Requirements

[Reserved]

3.3. Testing Requirements

3.3.1. **Stack testing.** As per provisions set forth in this permit or as otherwise required by the Secretary, in accordance with the West Virginia Code, underlying regulations, permits and orders, the permittee shall conduct test(s) to determine compliance with the emission limitations set forth in this permit and/or established or set forth in underlying documents. The Secretary, or his duly authorized representative, may at his option witness or conduct such test(s). Should the Secretary

exercise his option to conduct such test(s), the operator shall provide all necessary sampling connections and sampling ports to be located in such manner as the Secretary may require, power for test equipment and the required safety equipment, such as scaffolding, railings and ladders, to comply with generally accepted good safety practices. Such tests shall be conducted in accordance with the methods and procedures set forth in this permit or as otherwise approved or specified by the Secretary in accordance with the following:

a. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with 40 C.F.R. Parts 60, 61, and 63 in accordance with the Secretary's delegated authority and any established equivalency determination methods which are applicable. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.

b. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with applicable requirements which do not involve federal delegation. In specifying or approving such alternative testing to the test methods, the Secretary, to the extent possible, shall utilize the same equivalency criteria as would be used in approving such changes under Section 3.3.1.a. of this permit. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.

c. All periodic tests to determine mass emission limits from or air pollutant concentrations in discharge stacks and such other tests as specified in this permit shall be conducted in accordance with an approved test protocol. Unless previously approved, such protocols shall be submitted to the Secretary in writing at least thirty (30) days prior to any testing and shall contain the information set forth by the Secretary. In addition, the permittee shall notify the Secretary at least fifteen (15) days prior to any testing so the Secretary may have the opportunity to observe such tests. This notification shall include the actual date and time during which the test will be conducted and, if appropriate, verification that the tests will fully conform to a referenced protocol previously approved by the Secretary.

d. The permittee shall submit a report of the results of the stack test within sixty (60) days of completion of the test. The test report shall provide the information necessary to document the objectives of the test and to determine whether proper procedures were used to accomplish these objectives. The report shall include the following: the certification described in paragraph 3.5.1.; a statement of compliance status, also signed by a responsible official; and, a summary of conditions which form the basis for the compliance status evaluation. The summary of conditions shall include the following:

1. The permit or rule evaluated, with the citation number and language;
2. The result of the test for each permit or rule condition; and,
3. A statement of compliance or noncompliance with each permit or rule condition.

[WV Code § 22-5-4(a)(14-15) and 45CSR13]

3.4. Recordkeeping Requirements

3.4.1. **Retention of records.** The permittee shall maintain records of all information (including monitoring data, support information, reports, and notifications) required by this permit recorded

in a form suitable and readily available for expeditious inspection and review. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation. The files shall be maintained for at least five (5) years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent two (2) years of data shall be maintained on site. The remaining three (3) years of data may be maintained off site, but must remain accessible within a reasonable time. Where appropriate, the permittee may maintain records electronically (on a computer, on computer floppy disks, CDs, DVDs, or magnetic tape disks), on microfilm, or on microfiche.

3.4.2. **Odors.** For the purposes of 45CSR4, the permittee shall maintain a record of all odor complaints received, any investigation performed in response to such a complaint, and any responsive action(s) taken.
[45CSR§4. *State Enforceable Only.*]

3.5. Reporting Requirements

3.5.1. **Responsible official.** Any application form, report, or compliance certification required by this permit to be submitted to the DAQ and/or USEPA shall contain a certification by the responsible official that states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

3.5.2. **Confidential information.** A permittee may request confidential treatment for the submission of reporting required by this permit pursuant to the limitations and procedures of W.Va. Code § 22-5-10 and 45CSR31.

3.5.3. **Correspondence.** All notices, requests, demands, submissions and other communications required or permitted to be made to the Secretary of DEP and/or USEPA shall be made in writing and shall be deemed to have been duly given when delivered by hand, or mailed first class with postage prepaid to the address(es) set forth below or to such other person or address as the Secretary of the Department of Environmental Protection may designate:

If to the DAQ:	**If to the US EPA:**
Director	Associate Director
WVDEP	Office of Air Enforcement and Compliance Assistance
Division of Air Quality	(3AP20)
601 57th Street	U.S. Environmental Protection Agency
Charleston, WV 25304-2345	Region III
	1650 Arch Street
	Philadelphia, PA 19103-2029

3.5.4. Operating Fee

3.5.4.1. In accordance with 45CSR30 – Operating Permit Program, the permittee shall submit a certified emissions statement and pay fees on an annual basis in accordance with the submittal requirements of the Division of Air Quality. A receipt for the appropriate fee shall be maintained on the premises for which the receipt has been issued, and shall be made immediately available for inspection by the Secretary or his/her duly authorized representative.

3.5.5. **Emission inventory.** At such time(s) as the Secretary may designate, the permittee herein shall prepare and submit an emission inventory for the previous year, addressing the emissions from the facility and/or process(es) authorized herein, in accordance with the emission inventory submittal requirements of the Division of Air Quality. After the initial submittal, the Secretary may, based upon the type and quantity of the pollutants emitted, establish a frequency other than on an annual basis.

4.0. Source-Specific Requirements

4.1. Limitations and Standards

4.1.1. The following conditions and requirements are specific to SAT1, SH1 and SH2:

a. CO emissions emitted to the atmosphere from each boiler shall not exceed 3.69 pounds per hour with an annual rate not to exceed 13.33 tpy. Compliance with this limit shall be satisfied by optimization of the CO concentration from the unit during the tune-up as required in Condition **4.1.2.**~~4.1.d.~~ and satisfying Condition 4.1.1.d.

b. NO_x emissions emitted to the atmosphere from each boiler shall not exceed 3.64 pounds per hour with an annual rate not to exceed of 13.13 tons per year. Compliance with this limit is satisfied by verifying the manufacturer's NOx emission setting and/or specification during the tune-up of the unit. Compliance with the annual limit is satisfied by complying with Condition 4.1.1.d.

c. Each boiler shall only be fired with pipeline quality natural gas. This condition satisfies compliance with the limitations of 45CSR§2-3.1., 45CSR§2-4.1.b., and 45CSR§10-3.1.e.

d. The heat input to each boiler shall be limited to no greater than 99.98 MMBtu/hr and 722,470.8 MMBtu per 12 month rolling total. Compliance with this annual limit for each boiler shall satisfy the annual emission limits in items a. and b. of this condition. Compliance will be demonstrated through Condition 4.2.1.
~~**[45CSR§2A-3.1.a., 45CSR§10-10.3., and 45CSR§10A-3.1.b.]**~~

e. Each boiler shall be equipped, maintained, operated with **a continuous** ~~an~~ oxygen trim system that maintains an optimum air to fuel ratio for each unit. Such system shall be installed upon initial start-up of the unit.
[40 CFR §63.7575]

4.1.2. The permittee shall conduct the initial tune-up and subsequent tune-ups for the boilers in accordance with the following timing and tune-up requirements:

a. The initial tune up for SAT1, SH1, and SH2 boilers shall be completed no later than 61 months after initial start-up of each affected unit respectively.
[40 CFR §63.7510(g) & §63.7490(b)]

b. Subsequent tune-ups for SAT1, SH1, and SH2 boilers shall be completed no later than 61 months after the previous tune-up.
[40 CFR §63.7515(d) § 63.7540(a)(12)]

c. Each tune-up shall consist of the following:

i. As applicable, inspect the burner, and clean or replace any components of the burner as necessary (permittee may delay the burner inspection until the next scheduled unit shutdown). At units where entry into a piece of process equipment or into a storage vessel is required to complete the tune-up inspections, inspections are required only during planned entries into the storage vessel or process equipment;

ii. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available;

Commented [SF(5]: Believe that the reference needs to be changed to "4.1.2".

Commented [SF(6]: Deleted extra "period".

Commented [SF(7]: Believe reference can be deleted since the limit is proposed in the permit application.

Commented [SF(8]: Suggest that the words "a continuous" be inserted. A continuous oxygen trim system is needed for 5-year tune-up frequency.

iii. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (you may delay the inspection until the next scheduled unit shutdown);

iv. Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, which includes the manufacturer's NO_x concentration specification of 30 ppm corrected to 3% oxygen with optimize CO concentration of no greater than 50 ppm corrected to 3% oxygen;

v. Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer.

[40 CFR §63.7500(a)(1), §63.7505(a), §§63.7510(~~e) &~~ (g), §63.7515(d), ~~§63.7540(a)(10),~~ §63.7540(a)(12), and Table 3 to Subpart DDDDD of Part 63—Work Practice Standards]

Commented [SF(9]: Request that the reference to paragraph "(a)" be deleted which covers existing sources

Commented [SF(10]: Request that reference "63 7540(a)(10)" be deleted The requirement is covered by 63 7450(a)(12)

4.1.3. **Operation and Maintenance of Air Pollution Control Equipment.** The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.11.]

4.2. Monitoring Requirements

4.2.1. For each month, the permittee shall record the hours of operation and amount of natural gas consumed by each boiler, and shall calculate the rolling yearly total of natural gas consumed. The permittee shall sample(s) and analyze the fuel (natural gas) consumed by the boiler on a weekly basis to determine the higher heating value of fuel. **In lieu of sampling and analyzing the fuel, the higher heating value may be obtained from the supplier.** The sample point shall be at a location that is representative sample of the fuel being consumed. Such analysis be performed using ASTM D1826-77 or equivalent method(s) to determine the calorific value. No later than 10 days after the end of each calendar month, the permittee shall determine the heat input for the corresponding month and the total heat input on 12 month rolling total basis for each boiler. Any missing fuel records greater than one hour, the missing data shall be replaced with the maximum fuel rate of the unit. Such records shall be maintained in accordance with Condition 3.4.1. of this permit.
[40 CFR §60.48c(g(2) and 45CSR§2A-7.1.a.1.]

Commented [SF(11]: Request change to allow information from supplier

4.3. Testing Requirements

[Reserved]

4.4. Recordkeeping Requirements

4.4.1. **Record of Monitoring.** The permittee shall keep records of monitoring information that include the following:

a. The date, place as defined in this permit, and time of sampling or measurements;

b. The date(s) analyses were performed;

c. The company or entity that performed the analyses;

d. The analytical techniques or methods used;

e. The results of the analyses; and

f. The operating conditions existing at the time of sampling or measurement.

4.4.2. **Record of Maintenance of Air Pollution Control Equipment.** For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.

4.4.3. **Record of Malfunctions of Air Pollution Control Equipment.** For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

a. The equipment involved.

b. Steps taken to minimize emissions during the event.

c. The duration of the event.

d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

e. The cause of the malfunction.

f. Steps taken to correct the malfunction.

g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.

4.4.4. The permittee shall keep the following records in accordance with 40CFR§63.7555. This includes but is not limited to the following information during the tune-up as required in Condition **4.1.2** ~~4.1.4~~ and 40 CFR §63.7540:

a. The concentrations of CO in the effluent stream in parts per million by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler or process heater. During the tune-up, concentrations of NO_x from the CEMS of the unit shall be included; and

b. A description of any corrective actions taken as a part of the tune-up.
[40 CFR §§63.7540~~(a)(10)(vi) &~~ (a)(12), and 63.7555]

Commented [SF(12]: Believe the correct reference is "4 1 2 "

Commented [SF(13]: Request that reference to "(a)(10)(vi) be deleted The requirements are covered by "(a)(12)".

4.5. Reporting Requirements

4.5.1. The permittee shall submit a "Notification of Compliance Status" for SAT1, SH1, and SH2 boilers to the Director before the close of business on the sixtieth (60th) day after completion of the initial compliance demonstration as required in **4.1.2.** ~~40 CFR §63.7530(e).~~ Such "Notification of

Commented [SF(14]: Believe the reference should be "4 1 2." 65 7530(e) covers completion of energy assessment – not applicable to a new unit.

Compliance Status" shall be in accordance with 40 CFR §63.9(h)(2(ii) and contain the information specified in 40 CFR §§63.7545(e)(1), and (8).
[40CFR§63.7545(e), ~~§63.7530(e)~~]

4.5.2. The permittee shall submit an "Initial Notification" to the Director of the initial start-up of SAT1, SH1, and SH2 boilers within 15 days after the actual date of start-up. This Initial Notification supersedes the notification requirements of Condition 2.18.
[40CFR§§63.7545(c)]

4.5.3. The permittee shall submit "5-year Compliance Reports" for the Boiler Nos. **SAT1, SH1, and SH2**~~16, 17, and~~ ~~18~~ electronically using CEDRI that is accessed through the EPA's Center Data Exchange (CDX) (www.epa.gov/cdx). However, if the reporting form for this report is not available in CEDRI at the time the report is due, the permittee shall submit the report to the Administrator and Director using the addresses listed in Condition 3.5.3. The first compliance report shall be submitted no later than five years after the initial start-up of the unit and the first date ending on January 31. Subsequent reports shall be submitted once every five years afterwards. Such reports shall contain the information specified in 40 CFR §§63.**7550(c)(1)**~~7550(c)(5) (i) through (iv) and (xiv)~~ which are:

a. Permittee and facility name, and address;

b. Process unit information, emission limitations, and operating limitations;

c. Date of report and beginning and ending dates of the reporting period;

d. The total operating time during the reporting period of each affected unit;

e. Include the date of the most recent tune-up for each boiler; and

f. Include the date of the most recent burner inspection if it was not done **on a five year frequency** ~~annually~~ and was delayed until the next scheduled or unscheduled unit shutdown.

The permittee shall maintain records of such reports in accordance with Condition 3.4.1.
[40CFR §§63.7550(b), (b)(1), (c)(1), & (c)(5)(i) though (iv) and (xiv), and (h)(3)]

Commented [SF(15]: Request change to SAT1, SH1, and SH2

Commented [SF(16]: Believe the reference should be "63.7550(c)(1)

Commented [SF(17]: Added "space"

Commented [SF(18]: Request change to be consistent with required tune-up frequency

CERTIFICATION OF DATA ACCURACY

I, the undersigned, hereby certify that, based on information and belief formed after reasonable inquiry, all information contained in the attached _____, representing the period beginning _____ and ending _____, and any supporting documents appended hereto, is true, accurate, and complete.

Signature[1] (please use blue ink) _____ Responsible Official or Authorized Representative _____ Date

Name & Title (please print or type) _____ Name _____ Title

Telephone No. _____ Fax No. _____

---

[1] This form shall be signed by a "Responsible Official." "Responsible Official" means one of the following:

a. For a corporation: The president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:

   (i) the facilities employ more than 250 persons or have a gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), or

   (ii) the delegation of authority to such representative is approved in advance by the Director;

b. For a partnership or sole proprietorship: a general partner or the proprietor, respectively;

c. For a municipality, State, Federal, or other public entity: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of U.S. EPA); or

d. The designated representative delegated with such authority and approved in advance by the Director.

Andrews, Edward S

From: Sizemore, Freddie (FA) <sizemofa2@dow.com>
Sent: Friday, December 2, 2016 9:48 AM
To: Andrews, Edward S
Subject: RE: Pre-draft of R13-3346 for the boilers at Institute
Attachments: Comments 039-00005_PERM_R13-3346DRAFT.doc

Categories: Red Category

Ed,

See attached for suggested revisions. Thanks for your consideration.

Freddie
747-3713

From: Andrews, Edward S [mailto:Edward.S.Andrews@wv.gov]
Sent: Monday, November 21, 2016 9:13 AM
To: Sizemore, Freddie (FA) <sizemofa2@dow.com>
Cc: Shrewsbury, Todd H <Todd.H.Shrewsbury@wv.gov>
Subject: Pre-draft of R13-3346 for the boilers at Institute

Freddie:

I have attached a pre-draft of the permit. Because, we are on a fixed time schedule, I will notify once Bev has finished her review of my work and give you a day or two to get your suggestion back to me.

We do have to go through public notice level since UCC has requested to operational restrictions to avoid 45 CSR 14.

This required UCC to post a sign at the entrance and publish a commercial ad in conjunction with the agency's legal ad (See 45 CSR 13-8.5.). The Charleston Papers have been requiring at least 5 day lead time on publishing our legal adds. So, please be ready.

Should you have any questions about this please contact me.

Sincerely,

Edward S. Andrews, P.E.
Engineer
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
304.926.0499 ext. 1214

Andrews, Edward S

From: Sizemore, Freddie (FA) <sizemofa2@dow.com>
Sent: Wednesday, November 23, 2016 9:06 AM
To: Andrews, Edward S
Subject: RE: Pre-draft of R13-3346 for the boilers at Institute

Ed,

When you have a few minutes, please give me a call.

Freddie
747-3713

From: Andrews, Edward S [mailto:Edward.S.Andrews@wv.gov]
Sent: Monday, November 21, 2016 9:13 AM
To: Sizemore, Freddie (FA) <sizemofa2@dow.com>
Cc: Shrewsbury, Todd H <Todd.H.Shrewsbury@wv.gov>
Subject: Pre-draft of R13-3346 for the boilers at Institute

Freddie:

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Should you have any questions about this please contact me.

Sincerely,

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Engineer
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
304.926.0499 ext. 1214

Andrews, Edward S

From: Andrews, Edward S
Sent: Monday, November 21, 2016 9:13 AM
To: 'Sizemore, Freddie (FA)'
Cc: Shrewsbury, Todd H
Subject: Pre-draft of R13-3346 for the boilers at Institute
Attachments: 039-00005_PERM_R13-3346DRAFT.doc

Freddie:

I have attached a pre-draft of the permit. Because, we are on a fixed time schedule, I will notify once Bev has finished her review of my work and give you a day or two to get your suggestion back to me.

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Should you have any questions about this please contact me.

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Edward S. Andrews, P.E.
Engineer
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
304.926.0499 ext. 1214

ID # 39-5
Reg R13-3346
Company UCC
Facility Institute Plant Initials

Entire Document
NON-CONFIDENTIAL

Andrews, Edward S

From: Andrews, Edward S
Sent: Monday, November 21, 2016 8:51 AM
To: Putnam, Jon (J)
Cc: 'Sizemore, Freddie (FA)'
Subject: WV DAQ NSR Permit Application Complete for Union Carbine Corporation - Institute Plant

RE: Application Status: Complete
Union Carbine Corporation
Permit Application R13-3346
Plant ID No. 039-00005

Mr. Putnam:

Your application for a construction permit for a three industrial boilers was received by this Division on October 21, 2016 and assigned to the writer for review. Upon review of said application, it has been determined that the application is complete and, therefore, the statutory review period commenced on November 16, 2016.

This determination of completeness shall not relieve the permit applicant of the requirement to subsequently submit, in a timely manner, any additional or corrected information deemed necessary for a final permit determination.

Should you have any questions, please contact Ed Andrews at (304) 926-0499 ext. 1214 or reply to this email.

Sincerely,

Edward S. Andrews, P.E.
Engineer
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
304.926.0499 ext. 1214

Certified Mail
#7012 2920 0000 2036 5342

Union Carbide Corporation
A Subsidiary of The Dow Chemical Company
PO Box 8361
437 MacCorkle Avenue SW
South Charleston, WV 25303
USA

November 10, 2016

Mr. William F. Durham, Director
WV Department of Environmental Protection
Division of Air Quality
601 57th Street SE
Charleston, WV 25304

Dear Director Durham,

Attention: Mr. Ed Andrews
Engineer

RE: Union Carbide Corporation (UCC) Institute Operations
Facility ID# 039-00005
Application for Regulation 13 Permit: Temporary Boilers R13-3316

Attached is the original affidavit of publication of the legal advertisement for construction of three temporary boilers at the UCC Institute Site

If there are any questions regarding the attached permit application, please call me at (304) 747-3713 or via email at sizemofa2@dow.com.

Sincerely yours,

Freddie A. Sizemore

Freddie A. Sizemore
EHS Regulatory Affairs Specialist

Attachments

Entire Document
NON-CONFIDENTIAL

CHARLESTON NEWSPAPERS
P.O. Box 2993
Charleston, West Virginia 25330
Billing 348-4898
Classified 348-4848
1-800-WVA-NEWS

LEGAL ADVERTISING INVOICE

INVOICE DATE	10/31/16
ACCOUNT NBR	052170005
SALES REP ID	0067
INVOICE NBR	015275001

M

BILLED TO

DOW CHEMICAL COMPANY
KATE OWEN
P O BOX 8361
SOUTH CHARLESTON WV 25303 USA

NOV 16 2016

AIR QUALITY PERMIT NOTICE
Notice of Application

Notice is given that Union Carbide Corporation has applied to the West Virginia Department of Environmental Protection, Division of Air Quality (WVDAQ), for a permit to construct and operate three small natural gas fueled steam generating boilers at the Institute Facility located on State Route 25, at Institute, in Kanawha County, West Virginia. The latitude and longitude coordinates are: 38.384 and -81.776, respectively.

The boilers have the potential to discharge the following regulated air pollutants in tons per year. Carbon monoxide - 40, Nitrogen oxides - 39.5, Particulate matter - 6.7, Sulfur dioxide - 0.6, and Volatile Organic Compounds 5.8. The boilers commenced operation the second week of October 2016.

Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding the permit application should be directed to the DAQ at (304) 926-0499, extension 1227, during normal business hours.

Dated this the 21st day of October, 2016.

By: _____

Union Carbide Corporation
Jon W. Putnam
WVO Responsible Care Leader
P.O. Box 8361
South Charleston, WV 25303
(643459)

CHARLESTON NEWSPAPERS
P.O. Box 2993
Charleston, West Virginia 25330
Billing 348-4898
Classified 348-4848
1-800-WVA-NEWS
FEIN 55-0676079

INVOICE DATE	10/31/16
ACCOUNT NBR	052170005
SALES REP ID	0067
INVOICE NBR	015275001

Legal pricing is based upon 65 words per column inch.
Each successive insertion is discounted by 25% of the first insertion rate.
The Charleston Gazette Mail rate is $.14 per word.

ISSUE DATE	AD TYPE	PUB	DESCRIPTION REFERENCE NBR PURCHASE ORDER #	AD NUMBER	AD SIZE TOTAL RUN	RATE	GROSS AMOUNT	NET AMOUNT
10/31	LEG	GZ	Air Quality 015275001	0643459	1X0575 5.75	9.10	52.33	52.33
			TOTAL INVOICE AMOUNT					52.33

State of West Virginia,

AFFIDAVIT OF PUBLICATION

I, _____ of

CHARLESTON GAZETTE MAIL,

do solemnly swear that the legal notice of:

Air Quality

was duly published in said newspaper(s) at the stated price for the respective newspaper(s) and during the dates listed below:

10/31/16-10/31/16

Subscribed and sworn to before me this 1 day of November.

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
SARAH J WITHROW
120 LITHA LANE
SOUTH CHARLESTON, WV 25309
My commission expires October 24, 2023

_____
Notary Public of Kanawha County, West Virginia

Andrews, Edward S

From: Sizemore, Freddie (FA) <sizemofa2@dow.com>
Sent: Wednesday, November 9, 2016 4:26 PM
To: Andrews, Edward S
Subject: UCC Institute Temporary Boiler Legal Ad Attached
Attachments: UCC Inst Temp Blr Legal Add.pdf

Ed,

I will send the original affidavit by mail.

Let me know if any questions regarding the application.

Freddie

Freddie A. Sizemore
EHS Regulatory Affairs Specialist
Union Carbide Corporation
A Subsidiary of The Dow Chemical Company
P. O. Box 8361
South Charleston, WV 25303
email: sizemofa2@dow.com
phone: (304) 747-3713
fax: (304) 747-3147

ID # 35-5
Reg R13-3346
Company UCC
Facility Institute Initials

CHARLESTON NEWSPAPERS
P.O. Box 2993
Charleston, West Virginia 25330
Billing 348-4898
Classified 348-4848
1-800-WVA-NEWS

LEGAL ADVERTISING INVOICE

INVOICE DATE	10/31/16
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INVOICE NBR	015275001

M

BILLED TO

DOW CHEMICAL COMPANY
KATE OWEN
P O BOX 8361
SOUTH CHARLESTON WV 25303 USA

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Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding the permit application should be directed to the DAQ at (304) 926-0499 extension 1227 during normal business hours.

Dated this the 21st day of October 2016.

By: Union Carbide Corporation
Jon W. Putnam
WVO Responsible Care Leader
P.O. Box 8361
South Charleston, WV 25303
(643459)

CHARLESTON NEWSPAPERS
P.O. Box 2993
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			TOTAL INVOICE AMOUNT					52.33

State of West Virginia,

AFFIDAVIT OF PUBLICATION

I, M Gill of

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do solemnly swear that the legal notice of:

Air Quality

was duly published in said newspaper(s) at the stated price for the respective newspaper(s) and during the dates listed below:

10/31/16 10/31/16

Subscribed and sworn to before me this 1 day of November.

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
SARAH J WITHROW
120 LITHA LANE
SOUTH CHARLESTON, WV 25309
My commission expires October 24, 2023

Notary Public of Kanawha County, West Virginia

Andrews, Edward S

From: Sizemore, Freddie (FA) <sizemofa2@dow.com>
Sent: Monday, October 24, 2016 3:13 PM
To: Andrews, Edward S
Subject: RE: WV DAQ Permit Application Status for Union Carbide Corporation; Institute Plant

Ed,
Thanks for the update. If any questions regarding the application let me know. Our response will receive the highest priority.
Freddie

Freddie A. Sizemore
EHS Regulatory Affairs Specialist
Union Carbide Corporation
A Subsidiary of The Dow Chemical Company
P. O. Box 8361
South Charleston, WV 25303
email: sizemofa2@dow.com
phone: (304) 747-3713
fax: (304) 747-3147

ID # 39-5
Reg R13-3366
Company UCC
Facility Institute Initials

From: Andrews, Edward S [mailto:Edward.S.Andrews@wv.gov]
Sent: Monday, October 24, 2016 3:09 PM
To: Sizemore, Freddie (FA) <sizemofa2@dow.com>
Cc: Jon P Webster (jpwebster@aep.com) <jpwebster@aep.com>; Keatley, Robert L <Robert.L.Keatley@wv.gov>; McKeone, Beverly D <Beverly.D.Mckeone@wv.gov>
Subject: FW: WV DAQ Permit Application Status for Union Carbide Corporation; Institute Plant

Freddie:

I have discuss your application with Bev. We are going to treat your application as "construction" application because this is a synthetic minor for PSD. Therefore, your original ad is acceptable as listed in the application. Thus, your application is only missing the affidavit of publication.

Sincerely,

Edward S. Andrews, P.E.
Engineer
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
304.926.0499 ext. 1214

Entire Document
NON-CONFIDENTIAL

From: Adkins, Sandra K
Sent: Monday, October 24, 2016 2:10 PM
To: jputnam@dow.com; sizemofa2@dow.com
Cc: McKeone, Beverly D <Beverly.D.Mckeone@wv.gov>; Andrews, Edward S <Edward.S.Andrews@wv.gov>
Subject: WV DAQ Permit Application Status for Union Carbide Corporation; Institute Plant

RE: Application Status
Union Carbide Corporation
Institute Plant
Facility ID No. 039-00005
Application No. R13-3346T

Mr. Putnam,

Your application for a temporary permit for the Institute Plant was received by this Division on October 21, 2016, and was assigned to Ed Andrews. The following item was not included in the initial application submittal:

Original affidavit for Class I legal advertisement not submitted.
Please use telephone extension 1250 in legal advertisements.
Must republish ad for Temporary Permit – not Construction

This item is necessary for the assigned permit writer to continue the 30-day completeness review.

Within 30 days, you should receive a letter from Ed stating the status of the permit application and, if complete, given an estimated time frame for the agency's final action on the permit.

Any determination of completeness shall not relieve the permit applicant of the requirement to subsequently submit, in a timely manner, any additional or corrected information deemed necessary for a final permit decision.

Should you have any questions, please contact the assigned engineer, Ed Andrews, at 304-926-0499, extension 1214.

Adkins, Sandra K

From: Adkins, Sandra K
Sent: Monday, October 24, 2016 2:10 PM
To: 'jputnam@dow.com'; 'sizemofa2@dow.com'
Cc: McKeone, Beverly D; Andrews, Edward S
Subject: WV DAQ Permit Application Status for Union Carbide Corporation; Institute Plant

RE: Application Status
Union Carbide Corporation
Institute Plant
Facility ID No. 039-00005
Application No. R13-3346T

Mr. Putnam,

Your application for a temporary permit for the Institute Plant was received by this Division on October 21, 2016, and was assigned to Ed Andrews. The following item was not included in the initial application submittal:

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Should you have any questions, please contact the assigned engineer, Ed Andrews, at 304-926-0499, extension 1214.

ID # _____
Reg _____
Company _____
Facility _____ Initials _____

Entire Document
NON-CONFIDENTIAL

Andrews, Edward S

From: Ward, Beth A
Sent: Monday, October 24, 2016 4:47 PM
To: Andrews, Edward S
Subject: UNION CARBIDE CORPORATION PERMIT APPLICATION FEE

This is the receipt for payment received from:

UNION CARBIDE CORPORATION, INSTITUTE PLANT, CHECK NUMBER 2200358072, CHECK DATE 09/22/2016, $2,000.00
R13-3346T ID# 039-00005

OASIS Deposit CR 1700044552

Thank You!

Beth Ward

WV DEPARTMENT OF ENVIRONMENTAL PROTECTION
BTO FISCAL
601 57TH STREET SE
CHARLESTON, WV 25304
(304) 926-0499 EXT 1846
beth.a.ward@wv.gov

west virginia department of environmental protection

Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
Phone: (304) 926-0475
Fax: (304) 926-0479

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

CONSENT ORDER
ISSUED UNDER THE
AIR POLLUTION CONTROL ACT
WEST VIRGINIA CODE, CHAPTER 22, ARTICLE 5, SECTION 4

TO: Mr. Jon W. Putnam
WVO Responsible Care Leader
Union Carbide Corporation
PO Box 8361
South Charleston, WV 25303

DATE: OCT 16 2016
ORDER NO.: CO-R13-E-2016-22
FACILITY ID: 039-00005

INTRODUCTION

This Consent Order is issued by the Director of the Division of Air Quality (hereinafter, "Director"), under the authority of West Virginia Code, Chapter 22, Article 5, Section 1 et seq. to Union Carbide Corporation (hereinafter, "UCC" or "Company").

FINDINGS OF FACT

In support of this Order, the Director hereby finds the following:

1. UCC owns and operates chemical production units located at the Institute Site in Institute, Kanawha County, West Virginia. The UCC units are co-located with a Bayer CropScience ("Bayer") chemical production unit within the Institute Site.

2. Bayer provides process steam to UCC at the Institute Site from Powerhouse 2, which is comprised of three (3) 360 MMBtu per hour coal-fired boilers known as Boiler 10, Boiler 11, and Boiler 12 ("Coal Boilers"). The Coal Boilers are subject to the provisions of 40CFR63, Subpart DDDDD ("Boiler MACT"), which has a compliance date of January 31, 2016 for existing sources. However, Bayer applied to the Director for a one-year extension for compliance with the Boiler MACT for the Coal Boilers on April 13, 2015. This request was approved by the Director on June 11, 2015 and it extended the Boiler MACT compliance date for the Coal Boilers to January 31, 2017. In lieu of compliance with the Boiler MACT, Bayer has opted to permanently cease operation of the Coal Boilers by the compliance date extension of January 31, 2017.

3. On September 15, 2014 the Director issued construction and operating permit 45CSR13-3111B to Bayer, which allows for the installation and operation of three (3) three-hundred fifty million British thermal units per hour ("350 MMBtu per hour") natural gas fired boilers known as Boiler 16, Boiler 17, and Boiler 18 ("Natural Gas Boilers"). The Natural Gas Boilers were scheduled to be constructed and operational to replace the Coal Boilers by the end of the scheduled shutdown of January 31, 2017. Once commissioned and operational, Bayer plans to transfer ownership and control of the Natural Gas Boilers and permit 45CSR13-3111B to UCC for operation and management.

4. In August of 2016, two installed Natural Gas Boilers were being prepared for routine operation during testing and commissioning activities when leaks were discovered in the steam tubes, effectively rendering the Natural Gas Boilers inoperable and unusable until proper repairs can be implemented. Installation of the third 350 MMBtu per hour natural gas fired boiler may be considered for future operation.

5. Activities to repair the Natural Gas Boilers tubes prior to the scheduled shutdown of the Coal Boilers (no later than January 31, 2017) has commenced. However, the Natural Gas Boilers may not be operational before this date. With the impending shutdown of the Coal Boilers and to allow time to resolve operational issues with the new Natural Gas Boilers, an alternative site steam supply source is needed.

6. UCC has leased three (3) one-hundred million British thermal units per hour ("100 MMBtu per hour") natural gas fired temporary boilers ("Temporary Boilers") to provide steam to UCC and Bayer until the Natural Gas Boilers tubes can be replaced and the repaired Natural Gas Boilers are subsequently tested and commissioned for permanent operation. The Temporary Boilers have been delivered to the Institute Site. One or more Temporary Boilers will be operated until reliable operation of the two new Natural Gas Boilers authorized by permit 45CSR13-3111B has been demonstrated.

ORDER FOR COMPLIANCE

Now therefore, in accordance with Chapter 22, Article 5, Section 1 et seq. of the West Virginia Code, it is hereby agreed between the parties, and ORDERED by the Director:

1. UCC shall within fifteen (15) days of the effective date of this Order submit an administratively and technically complete application for a construction and operating permit per the provisions of 45CSR13 ("Rule 13 Permit") for the Temporary Boilers.

2. UCC shall expeditiously correct any deficiencies and errors found in the Rule 13 Permit application providing necessary, omitted, or supplemental information identified to the Company by the director or his authorized representative. UCC shall submit a written and certified mail response to any written Notice of Deficiency (NOD) forwarded by the Director or his authorized representative within fifteen (15) calendar days of receipt of the NOD. If UCC does not respond within fifteen (15) calendar days, then the Company may be subject to stipulated penalties.

3. Upon signature of this Consent Order by both parties, UCC is immediately authorized to operate the Temporary Boilers. UCC shall maintain and operate the Temporary Boilers in a safe manner consistent with the requirements of the Rule 13 Permit Application and in a manner consistent with the Temporary Boilers manufacturer's recommended operational and maintenance practices.

4. UCC agrees that actual annual emissions from all Temporary Boilers combined shall not exceed the Prevention of Significant Deterioration ("PSD") emissions thresholds defined in 45CSR14 ("Rule 14") for all applicable pollutants.

5. UCC shall install certified fuel meters on each Temporary Boiler prior to startup of each Temporary Boiler. UCC shall utilize fuel usage data to calculate actual pollutant emissions from each Temporary Boiler. UCC shall maintain records of these calculations to demonstrate compliance by not exceeding the PSD pollutant emissions thresholds.

6. Total Temporary Boilers operation may not exceed 21,674 hours at the maximum heat input rate of 100 MMBtu per hour per boiler, provided each Temporary Boiler may not exceed 722,470 MMBtu heat input total per twelve (12) month rolling basis. In order to accurately measure total heat input limit of the Temporary Boilers, UCC must measure the natural gas higher heating value ("HHV") of a representative sample weekly.

7. Should UCC fail to timely complete any of the requirements contained in this Order to the satisfaction of the Director or within the time limits set forth herein, the Company agrees to pay a stipulated penalty of one thousand dollars ($1,000.00) per day to the Air Pollution Education and Environment Fund for each day that the action remains incomplete. The Director shall first notify the Company in writing that the facility is in violation of the terms of conditions of the Order, and the stipulated penalty shall then become immediately due and payable. Payments made pursuant to this paragraph are not tax-deductible expenditures for purposes of State or federal law.

OTHER PROVISIONS

1. UCC hereby waives its right to appeal this Order under the provisions of Chapter 22, Article 5, Section 1 of the Code of West Virginia. Under this Order, UCC agrees to take all actions required by the terms and conditions of this Order and consents to and will not contest the Director's jurisdiction regarding this Order. However, UCC does not admit to any factual and legal determinations made by the Director and reserves all rights and defenses available regarding liability or responsibility in any proceedings regarding UCC other than proceedings, administrative or civil, to enforce this Order.

2. The Director reserves the right to take further action if compliance with the terms and conditions of this Order does not adequately address the violations noted herein and reserves all rights and defenses which he or she may have pursuant to any legal authority, as well as the right to raise, as a basis for supporting such legal authority or defenses, facts other than those contained in the Findings of Fact.

3. If any event occurs which causes delay in the achievement of the requirements of this Order, UCC shall have the burden of proving that the delay was caused by circumstances beyond its reasonable control which could not have been overcome by due diligence (i.e., force majeure). Force majeure shall not include delays caused or contributed to by the lack of sufficient funding. Within three (3) working days after UCC becomes aware of such a delay, notification shall be provided to the Director and UCC shall, within ten (10) working days of initial notification, submit a detailed written explanation of the anticipated length and cause of the delay, the measures taken and/or to be taken to prevent or minimize the delay, and a timetable by which UCC intends to implement these measures. If the Director agrees that the delay has been or will be caused by circumstances beyond the reasonable control of UCC (i.e., force majeure), the time for performance hereunder shall be extended for a period of time equal to the delay resulting from such circumstances. A force majeure amendment granted by the Director shall be considered a binding extension of this Order and of the requirements herein. The determination of the Director shall be final and not subject to appeal.

4. Compliance with the terms and conditions of this Order shall not in any way be construed as relieving UCC of the obligation to comply with any applicable law, permit, other order, or any other requirement otherwise applicable. Violations of the terms and conditions of this Order may subject UCC to additional penalties and injunctive relief in accordance with the applicable law.

5. The provisions of this Order are severable and should a court or board of competent jurisdiction declare any provisions to be invalid or unenforceable, all other provisions shall remain in full force and effect.

6. This Order is binding on UCC, its successors and assigns.

7. This Order shall become effective immediately upon signing by both parties.

8. This Order shall terminate ninety (90) days from the effective date of this Order.

Jon W. Putnam, WVO Responsible Care Leader
Union Carbide Corporation

10/16/2016
Date

William F. Durham, Director
Division of Air Quality

10-11-2016
Date

Union Carbide Corporation
A Subsidiary of The Dow Chemical Company
PO Box 8361
437 MacCorkle Avenue SW
South Charleston, WV 25303
USA

Certified Mail Return Receipt Requested
#7012 2920 0000 2036 5113

October 17, 2016

Mr. William F. Durham, Director
WV Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304

Dear Director Durham:

Attention: Mr. Robert Keatley

Re: Union Carbide Corporation Institute Facility
Plant ID No.: 03900005
Temporary Boiler Consent Order #CO-R13-E-2016-22

Attached is the signed Consent Order.

If you there are any questions, please contact me by phone at (304) 747-3713 or via email at sizemofa2@dow.com.

Sincerely yours,

Freddie A. Sizemore

Freddie A. Sizemore
UCC Regulatory Affairs Specialist

Cc: Mr. Jon W. Putnam (cover letter only)
UCC WVO Responsible Care Leader

Bcc: A. Altman*
S. Callahan*
C. Dedrickson
J. Fedczak*
F. Sizemore*
T. Scholl*
C. Staley*
P. Stephens*
EHS Central Files: PP/AQ/Inst. Reg 13 Permit R13-NumberTBD – Temporary Boilers & Consent Order #CO-R13-E-2016-22

*electronic copy