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

CERTIFIED MAIL # 7016 3010 0001 1170 9098
(Return Receipt Requested)

May 8, 2018

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

Dear Director Durham,

ATTN: Ms. Beverly McKeone, NSR Program Manager

Subject: Union Carbide Corporation – Institute Facility
Facility ID# 039-00005
Rule 13 Permit Application
Polyox™ Plant

Enclosed are one printed copy and two computer diskettes of an application to convert Rule 21 and Rule 27 consent order provisions into a Rule 13 permit. A check in the amount of $1,000 is included as provided by Rule 22.

A Class I legal advertisement is being placed in a local newspaper. An affidavit of publication will be provided when received from the publisher.

Should you require any additional information, please contact Jay Fedczak at (304) 747-1354 or via email at JPFedczak@dow.com or the undersigned at (304) 747-3713 via e-mail sizemofa2@dow.com.

.

Sincerely yours,

Freddie A. Sizemore

Freddie A Sizemore
EH&S Regulatory Affairs Specialist

Cc: Mr. Jon Putnam, WVO Responsible Care Leader (cover letter only)
Mr. J. P. Fedczak, WVO Senior Environmental Specialist (cover letter only)

Attachment

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

601 57th Street, SE
Charleston, WV 25304
(304) 926-0475
www.dep.wv.gov/daq

APPLICATION FOR NSR PERMIT AND TITLE V PERMIT REVISION (OPTIONAL)

PLEASE CHECK ALL THAT APPLY TO **NSR (45CSR13)** (IF KNOWN):

☐ **CONSTRUCTION** ☐ **MODIFICATION** ☐ **RELOCATION**
☐ **CLASS I ADMINISTRATIVE UPDATE** ☐ **TEMPORARY**
☐ **CLASS II ADMINISTRATIVE UPDATE** ☐ **AFTER-THE-FACT**

PLEASE CHECK TYPE OF **45CSR30 (TITLE V)** REVISION (IF ANY):

☐ **ADMINISTRATIVE AMENDMENT** ☐ **MINOR MODIFICATION**
☐ **SIGNIFICANT MODIFICATION**

IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS **ATTACHMENT S** TO THIS APPLICATION

FOR TITLE V FACILITIES ONLY: Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

Section I. General

1. Name of applicant *(as registered with the WV Secretary of State's Office):*
Union Carbide Corporation

2. Federal Employer ID No. ***(FEIN):***
13-142-1730

3. Name of facility *(if different from above):*
Institute Facility

4. The applicant is the:
☐ **OWNER** ☐ **OPERATOR**
☒ **BOTH**

5A. Applicant's mailing address:
P. O. Box 8361

South Charleston, WV 25303

5B. Facility's present physical address:
Route 25

Institute, WV

6. **West Virginia Business Registration.** Is the applicant a resident of the State of West Virginia? ☐ **YES** ☒ **NO**

- If **YES,** provide a copy of the **Certificate of Incorporation/Organization/Limited Partnership** (one page) including any name change amendments or other Business Registration Certificate as **Attachment A.**
- If **NO,** provide a copy of the **Certificate of Authority/Authority of L.L.C./Registration** (one page) including any name change amendments or other Business Certificate as **Attachment A.**

7. If applicant is a subsidiary corporation, please provide the name of parent corporation: The Dow Chemical Company

8. Does the applicant own, lease, have an option to buy or otherwise have control of the *proposed site?* ☒ **YES** ☐ **NO**

- If **YES,** please explain: Own

- If **NO,** you are not eligible for a permit for this source.

9. Type of plant or facility (stationary source) to be **constructed, modified, relocated, administratively updated** or **temporarily permitted** (e.g., coal preparation plant, primary crusher, etc.): Chemical Production (Polyox™) Plant

10. North American Industry Classification System **(NAICS)** code for the
325199

11A. DAQ Plant ID No. (for existing facilities only):
03900005

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):
R30-03900005-2017 (Group 5 of 8)

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

12A.

- For **Modifications, Administrative Updates** or **Temporary permits** at an existing facility, please provide directions to the *present location* of the facility from the nearest state road;
- For **Construction** or **Relocation permits,** please provide directions to the *proposed new site location* from the nearest state road. Include a **MAP** as **Attachment B.**

From Charleston, WV take I-64 West to Institute Exit. Turn right onto State Route 25. Proceed west approximately ½ mile. Facility is on left.

12.B. New site address (if applicable):	12C. Nearest city or town: Institute	12D. County: Kanawha
12.E. UTM Northing (KM): 4,248.754	12F. UTM Easting (KM): 432.189	12G. UTM Zone: 17

13. Briefly describe the proposed change(s) at the facility:
Change in emission point for Tanks 4905, 4906, and 4907.

14A. Provide the date of anticipated installation or change: / / – If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: / /	14B. Date of anticipated Start-Up if a permit is granted: / /

14C. Provide a **Schedule** of the planned **Installation** of/**Change** to and **Start-Up** of each of the units proposed in this permit application as **Attachment C** (if more than one unit is involved).

15. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application:
Hours Per Day 24 Days Per Week 7 Weeks Per Year 52

16. Is demolition or physical renovation at an existing facility involved? ☐ **YES** ☒ **NO**

17. **Risk Management Plans.** If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see www.epa.gov/ceppo), submit your **Risk Management Plan (RMP)** to U. S. EPA Region III.

18. **Regulatory Discussion.** List all Federal and State air pollution control regulations that you believe are applicable to the proposed process *(if known).* A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance *(if known).* Provide this information as **Attachment D.**

Section II. Additional attachments and supporting documents.

19. Include a check payable to WVDEP – Division of Air Quality with the appropriate **application fee** (per 45CSR22 and 45CSR13).

20. Include a **Table of Contents** as the first page of your application package.

21. Provide a **Plot Plan,** e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as **Attachment E** (Refer to ***Plot Plan Guidance***) .

– Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).

22. Provide a **Detailed Process Flow Diagram(s)** showing each proposed or modified emissions unit, emission point and control device as **Attachment F.**

23. Provide a **Process Description** as **Attachment G.**

– Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

24. Provide **Material Safety Data Sheets (MSDS)** for all materials processed, used or produced as **Attachment H.**

– For chemical processes, provide a MSDS for each compound emitted to the air.

25. Fill out the **Emission Units Table** and provide it as **Attachment I.**

26. Fill out the **Emission Points Data Summary Sheet (Table 1 and Table 2)** and provide it as **Attachment J.**

27. Fill out the **Fugitive Emissions Data Summary Sheet** and provide it as **Attachment K.**

28. Check all applicable **Emissions Unit Data Sheets** listed below:

- ☐ Bulk Liquid Transfer Operations
- ☐ Chemical Processes
- ☐ Concrete Batch Plant
- ☐ Grey Iron and Steel Foundry
- ☐ General Emission Unit, specify
- ☐ Haul Road Emissions
- ☐ Hot Mix Asphalt Plant
- ☐ Incinerator
- ☐ Indirect Heat Exchanger
- ☐ Quarry
- ☐ Solid Materials Sizing, Handling and Storage Facilities
- ☐ Storage Tanks

Fill out and provide the **Emissions Unit Data Sheet(s)** as **Attachment L.**

29. Check all applicable **Air Pollution Control Device Sheets** listed below:

- ☐ Absorption Systems
- ☐ Adsorption Systems
- ☐ Afterburner
- ☐ Baghouse
- ☐ Condenser
- ☐ Electrostatic Precipitator
- ☐ Flare
- ☐ Mechanical Collector
- ☐ Wet Collecting System
- ☐ Other Collectors, specify

Fill out and provide the **Air Pollution Control Device Sheet(s)** as **Attachment M.**

30. Provide all **Supporting Emissions Calculations** as **Attachment N,** or attach the calculations directly to the forms listed in Items 28 through 31.

31. **Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as **Attachment O.**

➢ Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.

32. **Public Notice.** At the time that the application is submitted, place a **Class I Legal Advertisement** in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and ***Example Legal Advertisement*** for details). Please submit the **Affidavit of Publication** as **Attachment P** immediately upon receipt.

33. **Business Confidentiality Claims.** Does this application include confidential information (per 45CSR31)?

☐ YES ☒ NO

➢ If **YES,** identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's ***"Precautionary Notice – Claims of Confidentiality"*** guidance found in the ***General Instructions*** as **Attachment Q.**

Section III. Certification of Information

34. **Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable **Authority Form** below:

- ☒ Authority of Corporation or Other Business Entity
- ☐ Authority of Partnership
- ☐ Authority of Governmental Agency
- ☐ Authority of Limited Partnership

Submit completed and signed **Authority Form** as **Attachment R.**

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

Certification of Truth, Accuracy, and Completeness

I, the undersigned **Responsible Official,** hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

Compliance Certification

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

SIGNATURE Jon W. Putnam *(Please use blue ink)* DATE: 05/08/2018 *(Please use blue ink)*

35B. Printed name of signee: Jon W. Putnam		35C. Title: WVO Responsible Care Leader
35D. E-mail: JPutnam@Dow.com	36E. Phone: (304) 747-1165	36F. FAX: (304) 747-3147
36A. Printed name of contact person (if different from above): Jay Fedczak		36B. Title: EHS Senior Environmental Specialist
36C. E-mail: JPFedczak@dow.com	36D. Phone: (304) 747-1354	36E. FAX: (304) 747-3147

PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:

- ☒ **Attachment A: Business Certificate**
- ☒ **Attachment B: Map(s)**
- ☐ **Attachment C: Installation and Start Up Schedule**
- ☒ **Attachment D: Regulatory Discussion**
- ☐ **Attachment E: Plot Plan**
- ☒ **Attachment F: Detailed Process Flow Diagram(s)**
- ☒ **Attachment G: Process Description**
- ☐ **Attachment H: Material Safety Data Sheets (MSDS)**
- ☒ **Attachment I: Emission Units Table**
- ☐ **Attachment J: Emission Points Data Summary Sheet**
- ☐ **Attachment K: Fugitive Emissions Data Summary Sheet**
- ☐ **Attachment L: Emissions Unit Data Sheet(s)**
- ☐ **Attachment M: Air Pollution Control Device Sheet(s)**
- ☐ **Attachment N: Supporting Emissions Calculations**
- ☐ **Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans**
- ☒ **Attachment P: Public Notice**
- ☐ **Attachment Q: Business Confidential Claims**
- ☒ **Attachment R: Authority Forms**
- ☐ **Attachment S: Title V Permit Revision Information**
- ☒ **Application Fee**

Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this application. Please DO NOT fax permit applications.

FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:

- ☐ *Forward 1 copy of the application to the Title V Permitting Group and:*
- ☐ *For Title V Administrative Amendments:*
  - ☐ *NSR permit writer should notify Title V permit writer of draft permit,*
- ☐ *For Title V Minor Modifications:*
  - ☐ *Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,*
  - ☐ *NSR permit writer should notify Title V permit writer of draft permit.*
- ☐ *For Title V Significant Modifications processed in parallel with NSR Permit revision:*
  - ☐ *NSR permit writer should notify a Title V permit writer of draft permit,*
  - ☐ *Public notice should reference both 45CSR13 and Title V permits,*
  - ☐ *EPA has 45 day review period of a draft permit.*

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

UNION CARBIDE CORPORATION - INSTITUTE FACILITY
POLYOX™ PLANT

REGULATION 13
PERMIT MODIFICATION APPLICATION

TABLE OF CONTENTS

- Cover letter and Application Fee
- Permit Application Form
- Table of Contents

ATTACHMENT	DESCRIPTION
A	Business Certificate
B	Map
C	Installation and Start-up Schedule – Not applicable
D	Regulatory Discussion
E	Plot Plan – Not applicable
F	Detailed Process Flow Diagram
G	Process Description
H	Material Safety Data Sheets (MSDS) – Not applicable
I	Emission Units Table
J	Emission Points Data Summary Sheet – Not applicable
K	Fugitive Emissions Data Summary Sheet – Not applicable
L	Emissions Unit Data Sheets – Not applicable
M	Air Pollution Control Device Sheets – Not applicable
N	Supporting Emissions Calculations – Not applicable
O	Monitoring, Recordkeeping, Reporting, and Testing Plans – Not applicable
P	Public Notice
Q	Business Confidential Claims – Not applicable
R	Authority Form/Delegation of Authority for Corporation
S	Title V Permit Revision Information – Not applicable
T	Confidential Business Information – Not applicable

WEST VIRGINIA
STATE TAX DEPARTMENT
BUSINESS REGISTRATION
CERTIFICATE

ISSUED TO:
UNION CARBIDE CORPORATION
ROUTE 25
INSTITUTE, WV 25112-0000

BUSINESS REGISTRATION ACCOUNT NUMBER: **1007-4230**

This certificate is issued on: 07/7/2011

This certificate is issued by the West Virginia State Tax Commissioner in accordance with Chapter 11, Article 12, of the West Virginia Code.

The person or organization identified on this certificate is registered to conduct business in the State of West Virginia at the location above.

This certificate is not transferrable and must be displayed at the location for which issued.

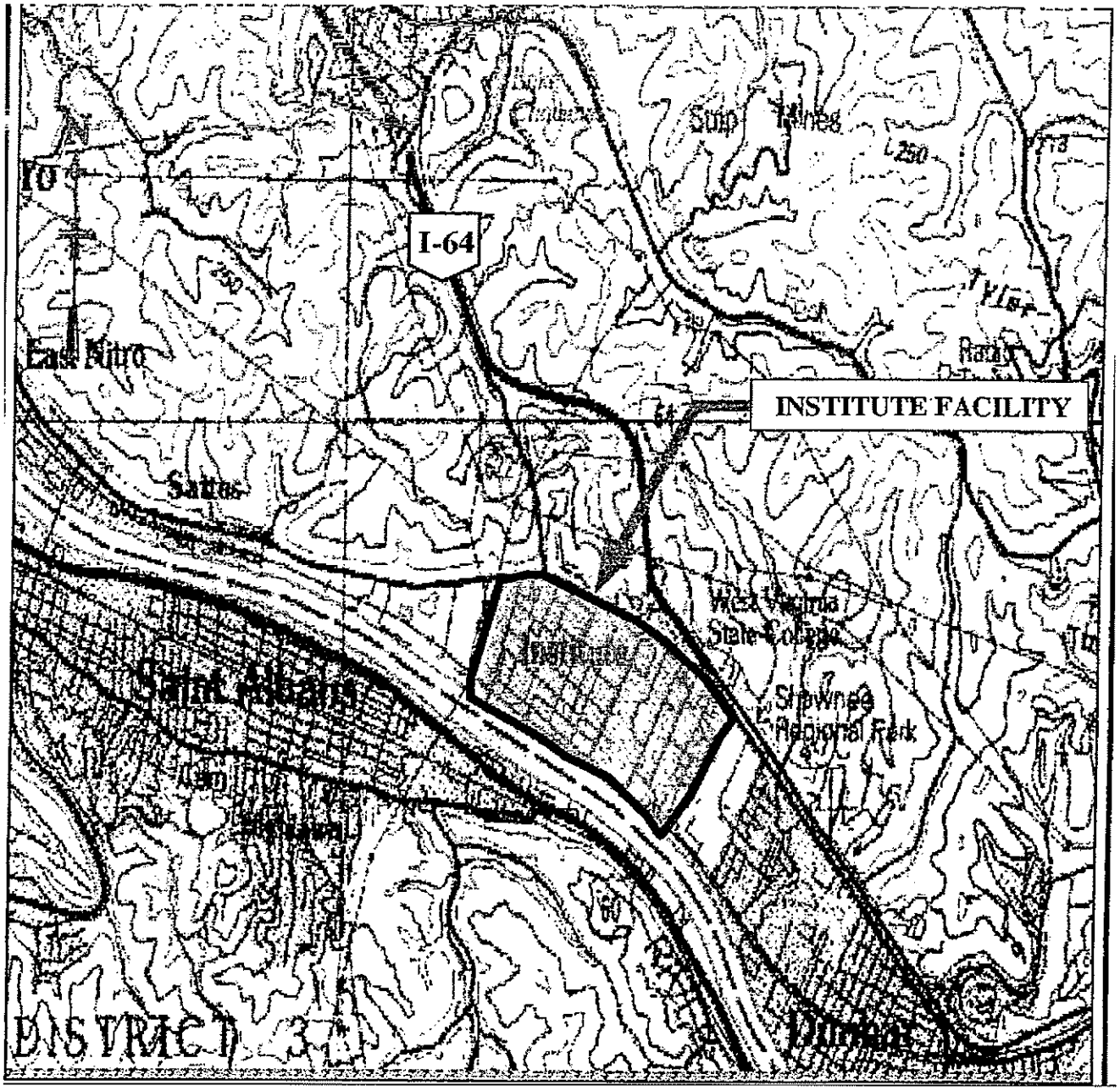
This certificate shall be permanent until cessation of the business for which the certificate of registration was granted or until it is suspended, revoked or cancelled by the Tax Commissioner.

Change in name or change of location shall be considered a cessation of the business and a new certificate shall be required.

TRAVELING/STREET VENDORS: Must carry a copy of this certificate in every vehicle operated by them.
CONTRACTORS, DRILLING OPERATORS, TIMBER/LOGGING OPERATIONS: Must have a copy of this certificate displayed at every job site within West Virginia.

atL006 v.4
L0004129408

Union Carbide Corporation Institute Site
Rule 13 Permit Application
Attachment B - Map



COPY OF USGS 7.5 MINUTE SERIES TOPOGRAPHIC MAP OF ST. ALBANS QUADRANGLE, WEST VIRGINIA- 1976.

WVDAQ Rule 13 Permit Application
UCC Institute Facility Polyox™ Plant
Attachment D - Regulatory Discussion

The Polyox™ Plant is covered by Rule 21, Section 40 Consent Order CO-R21-97-41 for reducing emissions of volatile organic compounds (VOCs) and Rule 27 Consent Order R27-99-14-A(92) for controlling emissions of toxic air pollutants (TAPs). The TAPs discharged by the Plant are ethylene oxide and propylene oxide. This application is prepared for the purpose of converting consent order applicable requirements to Rule 13 permit terms. As explained in more detail in Attachment G, Process Discussion, there will be a change in the vent point for three tanks (T4905, T4906, and T4907) as listed in the Rule 21 Consent Order. There will be no change in the amount of VOCs authorized to be emitted to the air (48 lbs/hr, 1.8 tons/yr). The following applicable requirements are from the consent orders and/or Permit R30-03900005-2017 (Group 5 of 8).

45CSR21 Consent Order CO-R21-97-41

1. The Permittee shall implement an alternative emission reduction plan (AERP) to reduce volatile organic compound emissions from point sources that have maximum theoretical emissions equal to or greater than 6 lbs/hr as identified in Attachment I-A of this application. [45CSR§21-40.3.b. and R30-03900005-2017 (Group 5 of 8), Condition 5.1.12.1.]
   Current Consent Order Reference: CO-R21-97-41, III.1.

2. The Permittee shall implement an emission control plan for equipment leaks (fugitive emissions) using the methods and criteria of Rule 21, Section 37 or alternative methods and criteria approved by the Director. [45CSR§§21-40.3.a.2, 37.1.c, 37.3 through 37.9 and R30-03900005-2017 (Group 5 of 8), Conditions 5.1.13 and 5.3.6.]
   Current Consent Order Reference: CO-R21-97-41, III.2.

3. The Permittee must at all times, including periods of start-up, shutdown, and malfunction, maintain and operate the VOC emitting sources and associated air pollution control devices listed in Attachment I-A in a manner consistent with good air pollution control practices for minimizing emissions. [R30-03900005-2017 (Group 5 of 8), Condition 5.1.12.2.]
   Current Consent Order Reference: CO-R21-97-41, III.3.

4. The Permittee agrees to comply with the applicable provisions of 45CSR§21-41 regarding test methods and compliance procedures, except as otherwise approved by the Director. If requested by the Director, testing shall be in accordance with applicable test methods specified in Rule 21 Sections 41 through 46 or by other means approved by the Director. Compliance with the emission limits set forth in Attachment I-A of this permit application shall be demonstrated by test or monitoring data, approved emission factors, material balances, and/or representative calculations in accordance with 45CSR21. [45CSR§§21-40.5 and 41, R30-03900005-2017 (Group 5 of 8), Conditions 5.1.12.1 and 5.3.5.]
   Current Consent Order Reference: CO-R21-97-41, III.1.

5. The Permittee shall report each occurrence of excess VOC emissions expected to last more than 7 days within 1 business day after becoming aware of such occurrences. [45CSR§21-5.2. and R30-03900005-2017 (Group 5 of 8), Condition 3.5.10]

6. If the provisions of 45CSR21 cannot be satisfied due to repairs made as the result of routine maintenance or in response to the unavoidable malfunction of equipment, the Director may permit the owner or operator of a source subject to 45CSR21 to continue to operate said source for periods not to exceed 10 days upon specific application to the Director. Such application shall be made prior to the making of repairs and, in the case of equipment malfunction, within 24 hours of the equipment malfunction. Where repairs will take in excess of 10 days to complete, additional time periods may be granted by the Director. In cases of major equipment failure, additional time periods may be granted by the Director provided a corrective program has been submitted by the owner or operator and approved by the Director. During such time periods, the owner or operator shall take all reasonable and practicable steps to minimize VOC emissions. [45CSR§21-9.3. and R30-03900005-2017 (Group 5 of 8), Condition 3.5.11.]
Current Consent Order Reference: CO-R21-97-41, III.3.

45CSR27 Consent Order CO-R27-99-14-A(92)

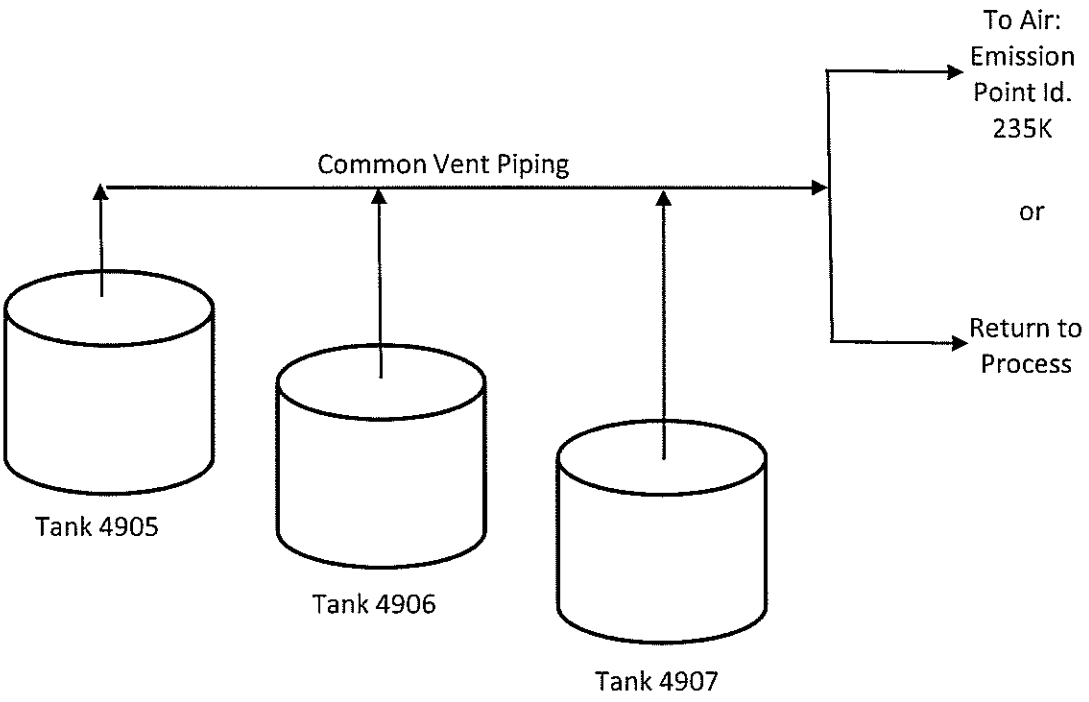
1. The Permittee shall implement best available technology to control emissions of toxic air pollutants. Any source of equipment specifically subject to a federal regulation or standard shall not be required to comply with provisions more stringent than such regulation or standard. [45CSR§27-3.1]
Current Consent Order Reference: CO-R27-99-14-A(92), III.

2. The Permittee shall implement a leak detection and repair program to control emissions from equipment components in toxic air pollutant service. [45CSR§27-4.1 and R30-03900005-2017 (Group 5 of 8), Conditions 5.1.5 and 5.1.13]
Current Consent Order Reference: CO-R27-99-14-A(92), III.

3. To demonstrate implementation of Rule 27 best available control technology, the Permittee shall limit ethylene and propylene oxide emissions as set forth in Attachment I-B of this application. [*modified* R30-03900005-2017 (Group 5 of 8), Condition 5.1.4]
Current Consent Order Reference: CO-R27-99-14-A(92), III.

4. To demonstrate compliance with Rule 27 equipment leak detection and repair program requirement, the Permittee shall comply with all applicable standards of 40 C.F.R. 63, Subpart H —"National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks", except §63.165 and as specified in paragraphs (b) through (h) of 40 C.F.R. §63.1434. The permittee shall perform all testing and maintain the results of all tests and calculations used to demonstrate compliance. [45CSR34; 40 C.F.R. §§63.1434(a) and (c); 40 C.F.R. 63, Subpart H; and *modified* R30-03900005-2017 (Group 5 of 8), Conditions 5.1.5 and 5.1.13]
Current Consent Order Reference: CO-R27-99-14-A(92), III.

WVDAQ Rule 13 Permit Application
UCC Institute Facility Polyox Plant
Attachment F - Process Flow Diagram



WVDAQ Rule 13 Permit Application
UCC Institute Facility Polyox™ Plant
Attachment G - Process Description

Tanks 4905, 4906, and 4907 are covered by Rule 21 Consent Order CO-R21-97-41. The Order specifies volatile organic compound (VOC) emission limits to the air for each tank. A project has been implemented to combine the three vents via common piping. A change in the Order limits is needed to account for the new vent arrangement.

Common piping for Tank 4905, 4906, and 4907 vents was recently routed to a compressor and condenser system via a common process vent collection header. When the plant is operating, condensable components are removed and recycled for re-use while the non-condensable components are routed to the Polyox™ Flare.

When the process is not operating (e.g. stand-by mode), the combined vent piping for Tanks 4905, 4906 and 4907 discharges to the air via common emission point (Emission Point Id. 235K). The maximum theoretical VOC emissions from the common emission point are estimated to be 48 lbs/hr, 1.8 tons per year. The current Order VOC emission limit for each tank is 48 lbs/hr, 0.6 tpy. Therefore, there is a reduction in overall maximum hourly with no change in annual VOC emissions limits.

In addition to Tank 4905, 4906 and 4907 vent change, the Order covers other Polyox™ equipment. This application proposes that current Order applicable requirements to be converted to Rule 13 permit limits. See Attachment D - Regulatory Discussion for more information.

Attachment I

Emission Units Table

(includes all emission units and air pollution control devices that will be part of this permit application review, regardless of permitting status)

Emission Unit ID[1]	Emission Point ID[2]	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type[3] and Date of Change	Control Device[4]
		See Attachment I-A Rule 21 Equipment and Attachment I-B Rule 27 Equipment				

[1] For Emission Units (or Sources) use the following numbering system:1S, 2S, 3S,... or other appropriate designation.
[2] For Emission Points use the following numbering system:1E, 2E, 3E, ... or other appropriate designation.
[3] New, modification, removal
[4] For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.

WVDAQ Rule 13 Permit Application
UCC Institute Facility Polyox™ Plant
Attachment I-A
Rule 21: Equipment with Maximum Theoretical VOC Emissions ≥ 6 lbs/hr

Process Area Description and Identification Number	Name of Process Equipment Vented to Control Device and Equipment Identification Number	Maximum Theoretical Emissions (MTE) of the Source (lbs/hr)	Emission Point Identification Number	Control Device Identification Number	Control Device Description	Efficiency of Control Device	Maximum Allowable Hours of Operation (hrs/yr)	Maximum Allowable VOC Emissions (lbs/hr)	Maximum Allowable VOC Emissions (tons/yr)
POLYOX™ 230	Vessel 302 (V302)	1,100	230O	None	No Device	0	8,760	1,100	28.5
POLYOX™ 230	Tank 4928 (T4928)	150	230Q	None	No Device	0	8,760	150	0.11
POLYOX™ 230	Vent Header to Flare (A221)	300	221A	A221	FL	98	8,760	Vents to Flare (R13-0171)	Vents to Flare (R13-0171)
POLYOX™ 230	Tank 4905 (T4905) Tank 4906 (4906) Tank 4907 (T4907)	48	235K	None	No Device	0	8,760	48	1.8
POLYOX™ 230	Scrubber Header (B230)	18.7	230B	B230	PBS	75	8,760	5.00	1.25
POLYOX™ 230	Tank 4920 (T4920)	6.1	235J	None	No Device	0	8,760	6.1	1.2
POLYOX™ 230	Tank 4994 (T4994)	12	235F	None	No Device	0	8,760	12	0.04

WVDAQ Rule 13 Permit Application
UCC Institute Facility Polyox™ Plant
Attachment I-A
Rule 21: Equipment with Maximum Theoretical VOC Emissions ≥ 6 lbs/hr

Process Area Description and Identification Number	Name of Process Equipment Vented to Control Device and Equipment Identification Number	Maximum Theoretical Emissions (MTE) of the Source (lbs/hr)	Emission Point Identification Number	Control Device Identification Number	Control Device Description	Efficiency of Control Device	Maximum Allowable Hours of Operation (hrs/yr)	Maximum Allowable VOC Emissions (lbs/hr)	Maximum Allowable VOC Emissions (tons/yr)
POLYOX™ 230	Tank 4998 (T4998)	9.16	N/A	N/A	N/A	N/A	N/A	See Note 1	See Note 1
POLYOX™ 230	Tank 23009 (T23009)	13	253A	None	No Device	0	8,760	13	0.04
POLYOX™ 230	Vent Header to Air (CC230)	300	230CC	None	Eliminated in 2016				
POLYOX™ 230	Tank Truck Loading (TTR-PX1)	77.4	N/A	N/A	N/A	N/A	N/A	See Note 2	See Note 2

Note 1: Vent routed to process.
Note 2: Vent routed to T4998.

WVDAQ Rule 13 Permit Application
UCC Institute Facility Polyox™ Plant
Attachment I-B
Rule 27 Equipment

Emission Source	Emission Point	Ethylene Oxide Emission Limit after BAT	
		lb/hr	lb/yr
POLYOX™ Flare V4921 V4922 T4928 (aka Vessel 4928) T4989 (aka Vessel 4989) T4990 (aka Vessel 4990) V302 (aka Vessel POX2-302) V404	221A	Vents to Flare (R13-0171)	Vents to Flare (R13-0171)
V302 (aka POX2-302)	230O	6.3	129
T4928 (aka Vessel 4928)	230Q	0.2	2
T4929 (aka Vessel 4929)	235E	0	0
T4930 (aka Vessel 4930)	230AA	0	**0**
POLYOX™ Solids Handling Systems E530 - #1 Conveyor E531 - #2 Conveyor E532 - #3 Conveyor E504 – Blender L6DA - Packaging System (Packaging Bin (4945) Vent) Package System (no longer exists rerouted to process) Baghouse E707 E535 - Vac System	 230K 230L 230M 230L 230R ~~230II~~ 230J 230V	0.6	722

Ethylene oxide emissions from the flare not to exceed 0.80 lbs/hr, 0.16 tons/year.

Emission Source	Emission Point	Propylene Oxide Emission Limit after BAT	
		lb/hr	lb/yr
T4903 (aka Vessel 4903)	230B	1	7
T4901 (aka Vessel 4901)	230S	4.4	200

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, for a construction permit to convert consent order provisions into a Rule 13 permit for a chemical manufacturing process unit located on State Route 25 in Institute, Kanawha County, West Virginia. The latitude and longitude coordinates are: 38.3844N and 81.7767W

UCC is requesting that existing provisions related to Rule 21 and Rule 27 consent orders be converted to Rule 13 provisions There is no change in authorized emissions.

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 this permit application should be directed to the DAQ at (304) 926-0499, extension 1250, during normal business hours.
Dated this the ( ) day of ( ), 2018.

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

ATTACHMENT R

Union Carbide Corporation
A Subsidiary of The Dow Chemical Company
P.O. Box 8004
437 MacCorkle Avenue, SW
South Charleston, WV 25303
USA

AUTHORITY OF CORPORATION

TO: The West Virginia Department of Environmental Protection, Division of Air Quality

DATE: March 1, 2016

ATTN: Mr. William F. Durham, Director

Corporation's Federal Employer I.D. Number 13-1421730

The undersigned hereby files with the West Virginia Department of Environmental Protection, Division of Air Quality, a permit application and hereby certifies that the said name is a trade name which is used in the conduct of an incorporated business.

Further, the corporation entity certifies as follows:

(1) Jon W. Putnam is the authorized representative and in that capacity may represent the interest of the corporation and may obligate and legally bind the corporation.

(2) The corporation is authorized to do business in the State of West Virginia.

(3) If the corporation changes its authorized representative, the corporation shall notify the Director of the West Virginia Department of Environmental Protection, Division of Air Quality, immediately upon such change.

Jason P. Lankford
Vice President
Union Carbide Corporation
A Subsidiary of The Dow Chemical Company

ATTACHMENT R, Continued

DOW

Union Carbide Corporation
A Subsidiary of The Dow Chemical Company

February 22, 2016

RE: DELEGATION OF AUTHORITY

I delegate to the following individual the authority to sign and execute documents on behalf of Union Carbide Corporation (the "Company") in the areas identified below associated with West Virginia Operations.

Name:	Jon W. Putnam
Position:	Responsible Care Leader
Facilities:	South Charleston Manufacturing Plant 437 MacCorkle Avenue, SW, South Charleston, WV 25303 South Charleston Technology Park 3200/3300 Kanawha Turnpike, South Charleston, WV 25303 Institute Manufacturing Site Route 25, Institute, WV 25112

To the fullest extent permitted by law, this delegation includes the authority to sign all reports and permit applications under regulations implementing federal, state, or local environmental, health and safety laws and regulations, and to provide, where appropriate, other relevant information requested by the Administrator of the U.S. EPA or other federal, state or local environmental, health and safety agencies. Any environmental, health and safety documents signed or executed by Jon W. Putnam shall have the same force and effect, and shall bind Union Carbide Corporation, as if done by me. Without limiting the generality of the foregoing, I am an authorized signatory for the Company as defined in 40 CFR 98.4, 40 CFR 122.22, 40 CFR 144.32, and 40 CFR 270.11, and a Responsible Official as defined in 40 CFR 70.2.

I explicitly stipulate that the individual named above is restricted to re-delegating any authority granted by this Delegation unless that delegation is executed in writing and the re-delegation is approved by the Law Department as meeting requirements of the environmental regulations referenced in the paragraph above.

This Delegation shall remain in effect until rescinded or modified by me or my successor, in writing, and shall expire on August 31, 2019. This Delegation supersedes and replaces any prior delegations.

02/23/16
Date

Jason P. Lankford
Vice President

STATE OF LOUISIANA)
) ss.
PARISH OF ST. CHARLES)

The foregoing instrument was acknowledged before me this 23rd day of February, 2016, by Jason P. Lankford, Vice President of Union Carbide Corporation, a New York corporation, on behalf of the corporation.

Notary Public

My commission expires

Donald L. Lichenstein III
Notary Public
State of Louisiana
Notary ID # 131940
My Commission is for Life

DOW CONFIDENTIAL - Do not share without permission

Dow International Finance S.a.r.l.
Attn: Accounts Payable
2511 E Patrick Road
Midland, MI 48641-1286

62-20
311

No. 2200483890

04/23/18

PAYMENT ON BEHALF OF: SEE ATTACHED REMITTANCE ADVICE

PAY TO THE ORDER OF
WEST VIRGINIA DEPT OF ENV PRO DIV O
601 57TH ST
CHARLESTON WV 25304-000

$$$$$$$$$$1,000.00

NOT VALID AFTER 1 YEAR

Ronald C. Edmonds
AUTHORIZED SIGNATURE

One Thousand and 00/100 Dollars

CITIBANK, N.A.
ONE PENN'S WAY, NEW CASTLE, DE 19720

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