



west virginia department of environmental protection

Division of Air Quality
601 57th Street, SE
Charleston, WV 25304

Harold D. Ward, Cabinet Secretary
dep.wv.gov

**COLLABORATIVE AGREEMENT
ISSUED UNDER THE AIR POLLUTION CONTROL ACT
WEST VIRGINIA CODE, CHAPTER 22, ARTICLE 5, SECTION 4**

TO: Union Carbide Corporation
Institute, West Virginia
Attn: Ana Marino
WVO Responsible Care Leader

Agreement #: CA-C22-2025-1
Facility ID: 039-00005

INTRODUCTION

This Collaborative Agreement ("Agreement") is established between the Director of the Division of Air Quality, West Virginia Department of Environmental Protection (hereinafter "Director" or "DAQ") and Union Carbide Corporation ("UCC") under the authority of West Virginia Code, Chapter 22, Article 5, Section 1 et seq. and specifically pursuant to West Virginia Code, Chapter 22, Article 5, Section 4(a)(7) addressing agency encouragement of voluntary cooperation by industries in preserving the purity of the air within the state.

The Agreement shall be governed by the enforcement and penalty provisions of Chapter 22, Article 5, Section 1 et. seq.

FINDINGS OF FACT

1. UCC owns and operates a chemical distribution facility ("Facility") and catalyst plant, located in Institute, West Virginia. The Facility distributes ethylene oxide ("EtO") for use in chemical manufacturing processes. The catalyst plant does not emit EtO and is not subject to the terms of this Agreement.
2. The Facility is currently in compliance with state and federal air regulations applicable to EtO.
3. In response to U.S. EPA's 2016 redesignation of EtO cancer risk and the release of the August 22, 2018, National Air Toxics Assessment ("NATA") screening tool results identifying areas

Promoting a healthy environment.

in and around Institute as having potentially elevated cancer risk due to EtO exposure, DAQ took the following actions related to EtO:

- a. Starting in 2018, the DAQ developed and implemented an information request methodology to obtain onsite meteorological data and updated, more accurate EtO emission data for operations in Kanawha County of all EtO emitters, to include the UCC, Institute — Facility ID 039-00005.
 - b. The DAQ has performed two (2) air dispersion model runs to estimate EtO concentrations in ambient air using the EPA approved AERMOD program:
 - i. In 2021, using 2017 emissions and 2019 meteorological data.
 - ii. In 2022, using 2020 emissions and 2019 meteorological data.
 - c. In 2022, the DAQ performed the latest AERMOD model with data obtained using the information request methodology. The AERMOD results were used in EPA's Human Exposure Model (HEM). This modeling estimated potential EtO risk levels above 100 in a million in some populated areas of Jefferson, Institute and St. Albans, WV.
 - d. In 2022, the DAQ performed a short-term EtO monitoring study. Four sets of 24-hour samples were taken from January through April 2022 using canister monitors in, around, and at the fenceline of the Institute site. Additionally, from May through July of 2022, UCC performed seven (7) weeks of fenceline monitoring at the Institute site, with the DAQ collocating a monitor at select sites.
 - e. Results of the monitoring referenced above showed that the highest concentrations of EtO were predominantly from the western end of the Institute site where EtO is received by rail cars, unloaded, and distributed via pipeline. The data indicated variability of EtO concentrations from the monitoring devices and/or test methods. The EtO cannister monitors at the western end of the site were approximately seven hundred seventy-five (775) feet from the rail car unloading operations.
4. The local community within the vicinity of the Institute Facility has communicated comments about EtO operations at the Facility to the Director.
 5. The terms and conditions of this Collaborative Agreement represent unique site-specific state-only enforceable commitments, not otherwise addressed by current law or regulation, designed by the parties to specifically respond to local community comments about this Facility.
 6. Overview of UCC Actions related to EtO:
 - a. UCC had developed and implemented best management practices for EtO emissions at the Facility in addition to implementation and compliance with the federal leak detection and repair ("LDAR") regulatory requirements.
 - b. UCC had developed and implemented EtO best management practices for unloading of rail cars in EtO service.
 - c. UCC provided DAQ with monitored emission, fenceline and meteorological data.

AGREEMENT FOR VOLUNTARILY DERIVED ENFORCEABLE ACTIONS

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

7. This agreement supersedes and replaces CA-C22-2023-1.
8. Effective on the Date of this Agreement, UCC shall continue to implement a unique, site-specific EtO emissions screening program for rail cars in EtO service on the transportation storage rail spurs that are just south of the unloading rack. The obligations in this paragraph are unique, site-specific state-only enforceable commitments. These EtO rail car emissions screening include, at a minimum, the following requirements:
 - a. Each rail car described above shall be monitored for EtO emissions within twelve (12) hours of arriving at the Facility. The following shall be applied retroactively to the beginning of the monitoring program:
 - i. Each rail car shall be monitored once per day.
 - ii. If monitoring for 90 consecutive days results in zero occurrences of concentration measurements of 20 ppm or greater for all rail cars, the facility may monitor once per week.
 - iii. If monitoring at the once per week frequency results in zero occurrences of concentration measurements of 20 ppm or greater for all rail cars for three consecutive months, the facility may monitor once per month.
 - iv. If monitoring at the once per month frequency results in zero occurrences of concentration measurements of 20 ppm or greater for all rail cars for six consecutive months, the facility may monitor once per quarter.
 - v. If monitoring at the once per quarter frequency results in zero occurrences of concentration measurements of 20 ppm or greater for all rail cars for four consecutive quarters, the facility may monitor once per year.
 - vi. Should any of the monitoring events described above result in a concentration measurement of 20 ppm or greater, the monitoring shall revert to the frequency immediately preceding the current monitoring frequency.
 - vii. Should monitoring be conducted, directed, or observed by DEP at any time result in a concentration measurement of 20 ppm or greater, the monitoring shall revert to the frequency immediately preceding the current monitoring frequency.
 - b. Each rail car referenced in 8.a and 8.e shall be monitored by on-site personnel utilizing a testing device capable of detecting EtO concentrations down to at least 20 ppm.
 - c. Each rail car referenced in 8.a will be monitored at one or more openings in the dome. Each rail car referenced in 8.e will be monitored at all components inside the dome.
 - d. Upon a monitored concentration measurement of 20 ppm or greater, appropriate action will be initiated in accordance with developed response plans.

- e. Within ninety (90) days of the Effective Date of this Agreement, UCC shall develop and implement a unique, site-specific EtO emissions screening program for rail cars in EtO service that are staged at the unloading rack. The obligations in this paragraph are unique, site-specific state-only enforceable commitments. The unloading rack EtO rail car emissions screening shall include, at a minimum, the following requirements:
 - i. Each rail car shall be monitored once per day.
 - ii. If monitoring for 90 consecutive days results in zero occurrences of concentration measurements of 20 ppm or greater for all rail cars, the facility may monitor once per week.
 - iii. If monitoring at the once per week frequency results in zero occurrences of concentration measurements of 20 ppm or greater for all rail cars for three consecutive months, the facility may monitor once per month.
 - iv. If monitoring at the once per month frequency results in zero occurrences of concentration measurements of 20 ppm or greater for all rail cars for six consecutive months, the facility may monitor once per quarter.
 - v. If monitoring at the once per quarter frequency results in zero occurrences of concentration measurements of 20 ppm or greater for all rail cars for four consecutive quarters, the facility may monitor once per year.
 - vi. Should any of the monitoring events described above result in a concentration measurement of 20 ppm or greater, the monitoring shall revert to the frequency immediately preceding the current monitoring frequency.
 - vii. Should monitoring be conducted, directed, or observed by DEP at any time result in a concentration measurement of 20 ppm or greater, the monitoring shall revert to the frequency immediately preceding the current monitoring frequency.
 - f. The Facility shall keep records of the screening for EtO emissions from the rail cars as required above. The requirements of this paragraph are not required by federal or state law and were entered into voluntarily, consistent with discretionary authorities under state law and are not intended nor designed for incorporation into the Facility's Clean Air Act Title V permit.
9. The Facility, in addition to its obligations to comply with the federal LDAR program, as set forth in 40 C.F.R. §63.1434(a), shall be subject to the following State only requirements:
- a. Skip periods authorized under the federal LDAR program shall not be utilized by UCC.
 - b. For readings, taken during compliance monitoring, that are at or above the action thresholds of 10 ppm, an attempt at repair will be made (consistent with 40 CFR §63.1434(a)), after which re-monitoring will occur.

Component Type	Frequency	Weekly Visual	Action Threshold
Agitator	Monthly	Yes	10 ppm
Connector — NTM*	Annual		10 ppm
Connector — DTM**	Annual		10 ppm
Pump	Monthly	Yes	10 ppm
Relief	Monitored After Release		10 ppm
Valve — NTM*	Quarterly		10 ppm
Valve — DTM**	Annual		10 ppm

*NTM — Normal To Monitor

**DTM — Difficult To Monitor

- c. The Facility shall keep records of any measurements at or above the action threshold including concentrations and repairs and/or repair attempts. The requirements of this paragraph are not required by federal or state law and were entered into voluntarily, consistent with discretionary authorities under state law and are not intended nor designed for incorporation into the Facility's Clean Air Act Title V permit.
10. UCC shall immediately upon execution of this Collaborative Agreement commit to continue its ongoing effort to cooperate with U.S. EPA and the DAQ by providing in-kind or other tangible resources relative to state and federal air agency research related to EtO to assist with the development of air quality related data collection, air quality modeling, development of fenceline EtO monitoring protocols and securing meteorological data related to such research.
11. Records shall be maintained onsite for a period of at least 5 years.
12. If UCC fails to complete any of the requirements contained in this Agreement within the time limits set forth herein, this Agreement shall be governed by the enforcement and penalty provisions of Chapter 22, Article 5, Section 1 et. seq. Payments made pursuant to this paragraph are not tax-deductible expenditures for purposes of State or federal law. At the discretion of the Director, penalties collected pursuant to this Agreement may be dedicated to the community within the Institute, WV area.

OTHER PROVISIONS

13. UCC hereby waives its right to appeal this Agreement under the provisions of Chapter 22, Article 5, Section 1 of the Code of West Virginia. Under this Agreement, UCC agrees to take all actions required by the terms and conditions of this Agreement and consents to and will not contest the Director's jurisdiction regarding this Agreement. 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, administrative or civil, to enforce this Agreement.
14. If any event occurs which causes delay in the achievement of the requirements of this Agreement, 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). Within five (5) working days after UCC becomes aware of such a delay, notification shall be provided to the Director and 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.

15. Compliance with the terms and conditions of this Agreement 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. Failure to adhere to the terms and conditions of this Agreement may subject UCC to injunctive relief in accordance with the applicable law.
16. The terms and conditions of this Agreement shall not in any way be construed as relevant to any other state or federal statutory provisions or regulatory requirements or future proposals or representative of general industry best practices as this Agreement is unique to the Facility and was mutually executed as a means of responding to local community comment.
17. The provisions of this Agreement 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.
18. This Agreement is binding on UCC, its successors and assigns.
19. The Effective Date of this Agreement shall be the date when the last party executes this Agreement.
20. This Agreement may be amended or modified in whole or in part upon written agreement of the parties. An amendment or modification granted by the Director shall be incorporated into the Agreement, considered binding, and subject to all stipulated requirements of the Agreement.

Ana Marino, WVO Responsible Care Leader
Union Carbide Corporation

Date

Laura M. Crowder, Director
WV Division of Air Quality

2025-07-28

Date