

Fact Sheet



*For Final Permitting Action Under 45CSR30 and
Title V of the Clean Air Act*

Permit Number: **R30-03900005-2006**
Title V Application Received: **October 7, 1996**
Plant Identification Number: **03900005**
Permittee: **Union Carbide Corporation**
Facility Name: **Institute Plant**
Business Unit: **Logistics (Group 3 of 5)**
Mailing Address: **P. O. Box 8361, South Charleston, WV 25303**

Physical Location: Institute, Kanawha County, West Virginia
UTM Coordinates: 432.00 km Easting • 4,284.31 km Northing • Zone 17
Directions: From I-64, take the Institute exit, turn right onto State Route 25. Plant is located about ½ mile west on Route 25.

Facility Description

Union Carbide Corporation has divided their Title V Application into the following five separate business units for which each will receive a Title V Permit:

Group	Process Units
1 of 5	EO Catalyst/Glycol Recovery
2 of 5	Acetone Derivatives/TONE [®] Polyol
3 of 5	Logistics
4 of 5	Glutaraldehyde
5 of 5	Water Soluble Polymers

Group 3 of 5 is the Logistics Group (also known as Supply and Services). This Group includes an Ethylene Oxide (EO) Distribution Unit which unloads ethylene oxide; a Barge Operations Process to load and unload barges; a Tank Truck and Rail Car Operations Process to load and unload tank trucks and rail cars; and the Plant Lab.

Emissions Summary

Logistics (Group 3 of 5) Emissions Summary [Tons per Year]		
Criteria Pollutants	Potential Emissions	2004 Actual Emissions
Carbon Monoxide (CO)	9.00	6.92
Nitrogen Oxides (NO _x)	2.10	1.27
Particulate Matter (PM ₁₀)	0.01	Negligible
Total Particulate Matter (TSP)	0.01	Negligible
Sulfur Dioxide (SO ₂)	0.01	Negligible
Volatile Organic Compounds (VOC)	5.42	0.09

PM₁₀ is a component of TSP.

Hazardous Air Pollutants	Potential Emissions	2004 Actual Emissions
Ethylene Glycol	0.01	0.01 ¹
Ethylene Oxide	3.00	0.09
Isophorone	0.20 ¹	0.10 ¹
Methyl Isobutyl Ketone	1.16	9.51 ¹

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

¹Includes emissions from both Group 2 of 5 and Group 3 of 5.

Title V Program Applicability Basis

Due to the facility-wide potential to emit over 100 tons per year of criteria pollutants, over 10 tons per year of an individual HAP, and over 25 tons per year aggregate HAPs, Union Carbide Corporation's Institute Plant is required to have an operating permit pursuant to Title V of the Federal Clean Air Act as amended and 45CSR30.

Legal and Factual Basis for Permit Conditions

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

Group 3 of 5 has been found to be subject to the following applicable rules:

Federal and State:	45CSR6	Open burning prohibited.
	45CSR11	Standby plans for emergency episodes.
	45CSR13	Preconstruction permits for minor sources.
	WV Code § 22-5-4 (a) (14)	The Secretary can request any pertinent information such as annual emission inventory reporting.
	45CSR30	Operating permit requirement.
	45CSR34	Emission Standards for Hazardous Air Pollutants Pursuant to 40 C.F.R. Part 63.
	40 C.F.R. Part 61	Asbestos inspection and removal

	40 C.F.R. 63, Subpart Y	Marine Tank Vessel Loading MACT
	40 C.F.R. 63, Subpart PPP	Polyether Polyols MACT
	40 C.F.R. Part 82, Subpart F	Ozone depleting substances
State Only:	45CSR4	No objectionable odors.
	45CSR§§21-37 and 40	Control of VOC Emissions
	45CSR27	Best Available Technology (BAT) for HAPs

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

The Secretary's authority to require standards under 40 C.F.R. Part 60 (NSPS), 40 C.F.R. Part 61 (NESHAPs), and 40 C.F.R. Part 63 (NESHAPs MACT) is provided in West Virginia Code §§ 22-5-1 *et seq.*, 45CSR16, 45CSR15, 45CSR34 and 45CSR30.

Active Permits/Consent Orders for Group 3 of 5

Permit or Consent Order Number	Date of Issuance	Permit Determinations or Amendments That Affect the Permit (<i>if any</i>)
R13-2646A	August 8, 2006	NA
CO-R21-97-41	October 20, 1997	June 14, 2006 letter from J. L. Blatt
CO-R27-99-14-A(92)	March 31, 1999	NA

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

Determinations and Justifications

EO Distribution

40 C.F.R. 63, Subpart PPP Requirements

Process Vents

There are no Group 1 or Group 2 process vents subject to 40 C.F.R. 63, Subpart PPP.

Storage Vessels

Tanks 9704 and 9705 are subject to the requirements of 40 C.F.R. 63, Subpart PPP for Group 1 storage vessels. For each storage vessel located at a 40 C.F.R. 63, Subpart PPP affected source, the owner or operator shall comply with the HON storage vessel requirements of 40 C.F.R. §§63.119 through 63.123 and the HON leak inspection provisions in 40 C.F.R. §63.148, with the differences noted in 40 C.F.R. §§63.1432 (b) through (p). To demonstrate compliance with the requirements of 4.1.1, the permittee is required to conduct monitoring, recordkeeping, and reporting in accordance with 4.2.1, 4.4.1, and 4.5.4. Condition 4.2.1 requires the permittee to demonstrate compliance with the 4.1.1.1.c requirement which limits the periods of planned routine maintenance of the control

device to 240 hours per year by submitting periodic reports per 4.5.4.1.a; it requires the permittee to continue to meet the general control device requirements specified in 40 C.F.R. §63.11(b), and requires each closed vent system to be inspected in accordance with 40 C.F.R. §63.148 unless it is maintained under negative pressure. Condition 4.4.1.1 requires the permittee to maintain records showing the dimensions of the storage vessels and an analysis showing the capacities of the storage vessels. Records of planned routine maintenance on the control device are required under 4.4.1.2 and reporting for planned routine maintenance is specified under 4.5.4.1.a. To demonstrate that the flare meets the general control device requirements specified in 40 C.F.R. §63.11(b), the permittee is required to maintain records and submit periodic reports as specified under 4.4.1.3 and 4.5.4.1.b. Union Carbide Corporation requested that the recordkeeping provisions of 4.4.1.3 be added which require the permittee to maintain hourly records of whether the monitor was continuously operating and whether a flame was continuously present at the pilot light during each hour and records of the times and duration of all periods during which all pilot flames are absent. Although these records were not required by the rule, the permittee was required to continue to meet the general control device requirements of 40 C.F.R. §63.11(b) and to submit reports under 4.5.4.1.b of the times when the flare did not meet the general control device requirements. Union Carbide Corporation wanted to maintain records demonstrating that the flare did meet the requirements and to use these records as a basis for submitting reports. The recordkeeping requirements specified in the permit are the same records required to be maintained for a process vent subject to the requirements of 40 C.F.R. 63, Subpart PPP using a flare to control emissions.

There are no Group 2 storage vessels subject to 40 C.F.R. 63, Subpart PPP.

Transfer Operations

There are no Group 1 or Group 2 transfer operations subject to 40 C.F.R. 63, Subpart PPP.

Wastewater

There are no Group 1 or Group 2 wastewater streams subject to 40 C.F.R. 63, Subpart PPP.

Heat Exchange System

The heat exchange system is required under 40 C.F.R. §63.1435 to comply with the requirements of 40 C.F.R. §63.104, with the exceptions noted in 40 C.F.R. §§63.1435(b) through (e). Since the heat exchange system is a once-through heat exchange system subject to an NPDES permit that meets the requirements of 40 C.F.R. §§63.104(a)(4)(i) through (iv), 40 C.F.R. §63.104(a) does not require any additional monitoring, recordkeeping, or reporting to be conducted.

Maintenance Wastewater

For maintenance wastewaters containing organic HAP's listed in table 9 of 40 C.F.R. 63, Subpart G and meeting the definition of organic HAP in 40 C.F.R. §63.1423, the permittee is required to comply with the requirements of 4.1.2 and 4.4.2 by preparing a description of maintenance procedures and implementing them as part of the start-up, shutdown, and malfunction plan required under 40 C.F.R. §63.6(e)(3).

Equipment Leaks

Group 3 of 5 is subject to the applicable standards of 40 C.F.R. 63, Subpart H – “National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks”, except as specified in 40 C.F.R. §§63.1434(b) through (g). The pertinent equipment leak standards include: 40 C.F.R. §§63.162 (Standards: General), 63.163 (Standards: Pumps in light liquid service), 63.165 (Standards: Pressure relief devices in gas/vapor service), 63.166 (Standards: Sampling connection systems), 63.167 (Standards: Open-ended valves or lines), 63.168 (Standards: Valves in gas/vapor service and in light liquid service), 63.171 (Standards: Delay of repair), 63.172 (Standards: Closed-vent systems and control devices), 63.173 (Standards: Agitators in gas/vapor service and in light liquid service), and 63.174 (Standards: Connectors in gas/vapor service and in light liquid service). Testing, recordkeeping, and reporting requirements to demonstrate compliance with the applicable leak standards specified in 4.1.3 are provided in 4.3.1 (40 C.F.R. §63.180 – Test methods and procedures), 4.4.3 (40 C.F.R. §63.181 – Recordkeeping requirements), and 4.5.5 (40 C.F.R. §63.182 – Reporting requirements).

45CSR21 Requirements

The permittee is subject to the state-enforceable only emission limitation requirements from 45CSR§21-40 and Consent Order CO-R21-97-41 provided in 4.1.4 and the state-enforceable only leak detection and repair (LDAR) requirements from 45CSR§21-37 and Consent Order CO-R21-97-41 provided in 4.1.5, 4.3.3, 4.4.4, and 4.5.6. The specific hourly, daily, and annual emission limits from Consent Order CO-R21-97-41 for EO Distribution are provided in Appendix A, Attachment A of the permit.

45CSR27 Requirements

The permittee is subject to the state-enforceable only emission limitation requirements from 45CSR§27-3.1 and Consent Order CO-R27-99-14-A(92) for emission points 410B and 410A provided in 4.1.6 and the leak detection and repair (LDAR) requirements from 40 C.F.R. 63, Subpart H provided in 4.1.3. Since Emission Points 410B and 410A are already subject to the requirements of 40 C.F.R. 63, Subpart G for flares A410 and B410 because they are used to comply with the Group 1 storage vessel provisions for Tanks 9704 and 9705, no additional monitoring, testing, recordkeeping, or reporting was added to demonstrate compliance with the 45CSR27 emission limits from Consent Order CO-R27-99-14-A(92).

Attachment B of Consent Order CO-R27-99-14-A(92) had fugitive ethylene oxide emissions for involved equipment in the Ethylene Oxide Distribution Department. These emissions were not included as limits in the Title V permit based on a letter dated August 24, 2000 from Rick Atkinson and G. Dale Farley of the DAQ which states that such emissions from the consent order are not a numerical value limit and are only used for understanding the potential size of emissions and as a measuring stick to judge how the LDAR program is performing.

45CSR6 Requirements

The permittee is required to comply with the hourly particulate matter emission limits of 45CSR§6-4.1 for flares B410 and A410. Based on the incinerator capacity, the particulate matter limit for these flares is 1.19 lbs/hr. To demonstrate compliance with the hourly particulate matter emission limits, 4.3.4 requires the permittee to conduct 40 C.F.R. 60, Appendix A, Method 5 stack tests at the request of the Director.

45CSR§6-4.3 limits the opacity from flares B410 and A410 to less than twenty (20%) percent. In order to demonstrate compliance with this limit, the permittee is required by 4.2.2 to conduct monthly visual emissions monitoring and to maintain records in accordance with 4.4.5.

Barge/Tank Truck/Rail Car Operations

R13-2646A Requirements

5.1.1 and 5.1.2 limits the hourly and annual VOC (including HAPs) and Methyl Isobutyl Ketone (MIBK) emissions from barge loading operations (B1L) and 5.1.3 limits the hourly and annual loading rates for the barge loading operations (B1L). To demonstrate compliance with the hourly and annual emission limits and the hourly and annual loading rate limits, the permittee is required by 5.4.1.a to maintain records showing the date, the chemical/material loaded, and the amount loaded.

5.1.4 limits the VOC and total HAP emissions from barge unloading operations (2B1L) and also limits the number of barges that undergo unloading activities. The annual limit on the number of barges that unload is used to demonstrate compliance with the annual emission limit. To demonstrate compliance with the hourly and annual emission limits and the annual limit on the number of barges that undergo unloading activities, the permittee is required by 5.4.1.b to maintain records showing the date, the number of barges by chemical that was unloaded, and the name of the chemical/material that was unloaded. In addition to the emission limits and throughput limits for barge unloading specified in 5.1.4, the permittee is also required by 5.1.5 to install, operate, and maintain a nitrogen blanketing system for all barges containing flammable organic liquids (organic liquid with a flash point less than 140 °F) that contain VOCs in the vapor space of the storage compartment. Condition 5.1.5 also prohibits the permittee from purging empty barges that contain VOC laden vapors.

5.4.2 requires the permittee to review and determine if the actual number of barge loading and unloading activities are within the limits specified in 5.1.3 and 5.1.4. These reviews are required to be conducted on a semi-annual basis, with the first half beginning on January 1st and ending on June 30th, and the second half beginning on July 1st and ending on December 31st. These determinations must be made no later than 60 days after the end of the respective semi-annual period. If the number of barge loading and unloading activities are within the limits stated in 5.1.3 and 5.1.4, the permittee will be considered to be in compliance with the annual emission limits of 5.1.1, 5.1.2, and 5.1.4.

Since there are no control devices listed in the Emission Units Table in Section 1.0 of R13-2646A, boilerplate requirements 4.1.7, 4.4.2, and 4.4.3 from R13-2646A were not included.

40 C.F.R. 63, Subpart Y Requirements

According to 40 C.F.R. §63.560(a)(2), existing sources with emissions less than 10 and 25 tons are not subject to the emissions standards of 40 C.F.R. §§63.562(b) and (d). They are, however, subject to the recordkeeping requirements of 40 C.F.R. §63.567(j)(4) and the emission estimation requirements of 40 C.F.R. §63.565(l). 40 C.F.R. §63.567(j)(4) requires that the owner or operator retain records of the emissions estimates determined in 40 C.F.R. §63.565(l) and records of their actual throughputs by commodity, for 5 years.

Requirements for Loading Operations RCL4 (TCL4), TTL4, L5RC (L5TC), and L6TT

Requirements for Loading Operations RCL4 (TCL4) and TTL4 are specified in R30-03900005-2006 (Group 2 of 5) and requirements for Loading Operations L5RC (L5TC) and L6TT are specified in R30-03900005-2006 (Group 4 of 5).

Non-Applicability Determinations

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

None.

Request for Variances or Alternatives

None.

Insignificant Activities

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

Comment Period

Beginning Date: August 15, 2006
Ending Date: September 14, 2006

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

Carrie McCumbers
Title V Permit Writer
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street SE
Charleston, WV 25304

Procedure for Requesting Public Hearing

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

Point of Contact

Carrie McCumbers
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone: 304/926-0499 ext. 1226 • Fax: 304/926-0478

Response to Comments (Statement of Basis)

No comments were received.