West Virginia Department of Environmental Protection
Division of Air Quality

Fact Sheet

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

This Fact Sheet serves to address the changes specific to this Significant Modification, and shall be considered a supplement to the original Fact Sheet corresponding with the issuance of the initial Title V operating permit issued on August 8, 2006.

Permit Number: **R30-03900005-2006 (2 of 5)**
Application Received: **October 1, 2008**
Plant Identification Number: **03-054-039-00005**
Permittee: **Union Carbide Corporation**
Facility Name: **Institute Plant**
Business Unit: **Acetone Derivatives/TONE® Polyol (Group 2 of 5)**
Mailing Address: **P.O. Box 8361, South Charleston, WV 25303**

Permit Action Number: SM01 *Revised: February 3, 2009*

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

For Title V permitting purposes, Union Carbide Corporation has divided the Institute Plant into five separate business units for which each received a Title V permit. Group 2 of 5 includes the Acetone Derivatives and TONE® Polyol Plants. The Acetone Derivatives Plant converts isopropanol and/or acetone to produce various ketones and alcohols that are used in a wide range of applications including hair spray, nail polish remover, lacquer thinner, sinus tablets, and coatings used in the automobile industry. The TONE® Polyol Plant reacts caprolactone with different alcohols to produce various polyester polyols. Some primary applications for these products are in paints and coatings, adhesives, and elastomers. The facility remains characterized by SIC code 2869.

The primary purpose of this permitting action is to incorporate applicable requirements of 40 C.F.R. Part 63, Subpart FFFF, *National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing* (a.k.a., "MON MACT") into the Title V operating permit. The secondary

purpose of this action is to remove the TONE™ Polyol section from the permit since this plant has been permanently shut down.

Emissions Summary

There are no emissions increases associated with this permitting action. The permittee confirmed this in November 14, 2008, technical correspondence.

Title V Program Applicability Basis

With the proposed changes associated with this modification, this facility maintains the potential to emit 121.7 tpy of VOC, and 12.0 tpy of the HAP methyl isobutyl ketone. Due to this facility's potential to emit over 100 tons per year of criteria pollutant, and over 10 tons per year of a single HAP, Union Carbide Corporation's Institute Plant Acetone Derivatives business unit is required to have an operating permit pursuant to Title V of the Federal Clean Air Act as amended and 45CSR30.

Legal and Factual Basis for Permit Conditions

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

This facility has been found to be subject to the following applicable rules:

Federal and State:	45CSR30	Operating permit requirement.
	45CSR34	Emission Standards for HAPs pursuant to 40 C.F.R. Part 63
	40 C.F.R. 63, Subpart FFFF	NESHAP: Miscellaneous Organic Chemical Manufacturing (MON MACT)
State Only:	45CSR4	No objectionable odors.

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

Permit or Consent Order Number	Date of Issuance	Permit Determinations or Amendments That Affect the Permit *(if any)*
CO-R21-97-41	10/20/97	

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

40 C.F.R. Part 63, Subpart FFFF – *National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing*

The Acetone Derivatives Plant is a continuous process that produces methyl isobutyl ketone (MIBK) and non-HAP chemicals. Plant operations are covered by the HON NESHAP. However, batch process vents are exempt from HON and are subject to the MON MACT. Batch process vents subject to the MON MACT are distillation (Equipment ID# S251) and reactivation of process reactors (Equipment ID# R201, R202, R203, R206 through R209, and R211). Feed to affected distillation equipment is from other HON-affected equipment. Relatively small amounts of HAPs (e.g., MIBK) are generated as by-products during process reactor reactivations. Emissions from reactor reactivation are controlled by a water scrubber (Equipment ID# D030, Em. Pt. ID 030A). The following paragraphs are discussions of the sections of the MON MACT to which the equipment is subject. Unless otherwise specified, the technical correspondence mentioned throughout this discussion is a November 14, 2008 e-mail received from the permittee.

Requirements for Batch Process Vents (§63.2460)

Typically, batch process vents are subject to the applicable requirements of 40 C.F.R. §63.2460. The permittee has two (2) batch process vents that appear to be subject to these requirements. Those vents are the 251 Still Vent (Em. Pt. ID 030K), and the vent from the water scrubber (Em. Pt. ID 030A) which controls emissions due to the reactivation of process reactors.

The following is part of the definition of a *Batch process vent* according to §63.2550, which is useful for making an applicability determination for the vents mentioned above.

> "*Batch process vent* means a vent from a unit operation or vents from multiple unit operations within a process that are manifolded together into a common header, through which a HAP-containing gas stream is, or has the potential to be, released to the atmosphere. Examples of batch process vents include, but are not limited to, vents on condensers used for product recovery, reactors, filters, centrifuges, and process tanks. The following are not batch process vents for the purposes of this subpart:…
>
> …
>
> (8) Emission streams from emission episodes that are undiluted and uncontrolled containing less than 50 ppmv HAP are not part of any batch process vent. A vent from a unit operation, or a vent from multiple unit operations that are manifolded together, from which total uncontrolled HAP emissions are less than 200 lb/yr is not a batch process vent; emissions for all emission episodes associated with the unit operation(s) must be included in the determination of the total mass emitted."

According to technical correspondence, the 251 Still Vent does not emit, and has no potential to emit HAPs. This is due to the fact that MIBK is not present in the 251 Still feed. MIBK is removed from the stream several steps prior to the 251 Still. Since the 251 Still vent neither emits, nor has the potential to emit HAPs, it does not meet the definition of *Batch process vent*, and thus this emission point (030K) is not subject to the requirements of §63.2460.

According to technical correspondence, the Reactor Burnout vent of the water scrubber has estimated total uncontrolled HAP emissions (i.e., before the water scrubber) of 137 lb/yr. The permittee provided calculations used to arrive at this estimate in the technical correspondence. Since the Reactor Burnout vent emits less than 200 lb/yr, the vent does not meet the definition of a *Batch process vent*, and thus this emission point (030A) is not subject to the requirements of §63.2460.

Equipment Leak Detection and Repair (§63.2480)
The equipment components associated with S251 and reactor reactivation are subject to 40 C.F.R. §63.2480, which refers to requirements in Table 6 of the MACT. Table 6 applies to equipment that is *in organic HAP service*, which is defined under §63.2550 to mean that a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 5 percent by weight total organic HAP. The permittee stated in the NOCS that process streams associated with affected equipment contain less than 5 percent weight organic HAP. Therefore, the leak detection and repair provisions of §63.2480 do not apply.

According to technical correspondence, an engineering analysis of process conditions indicates that HAP concentrations will always be less than 5% weight for all batch vents. Removal of MIBK occurs several steps up-stream of the 251 Still such that the influent to the 251 Still does not contain MIBK. The HAP concentration of the reactivation vent gas is approximately 107 ppmv. Both concentrations are significantly below 5,000 ppmw, which is the applicability level for monitoring.

Process Wastewater (§63.2485)
The process wastewater stream is subject to 40 C.F.R. §63.2485(c), which refers to requirements in Tables 8 and 9 of the MACT for process wastewater. The term *Wastewater* is defined under §63.2550 as "an annual average concentration of compounds in tables 8 and 9 to this subpart of at least 5 ppmw and has an annual average flowrate of 0.02 liters per minute or greater; or an annual average concentration of compounds in tables 8 and 9 to this subpart of at least 10,000 ppmw at any flowrate." According to the application, the wastewater from the reactor burnout vent scrubber contains less than 1 ppmw of HAPs listed in Tables 8 and 9. Since the permittee's wastewater from the reactor burnout vent scrubber does not meet the definition of *Wastewater*, the requirements of §63.2485 do not apply.

Heat Exchange Systems (§63.2490)
40 C.F.R. §63.2490 refers to requirements in Table 10 of Subpart FFFF, which states that for each *Heat exchange system*, as defined in §63.101, the permittee must comply with the requirements of §63.104 and the requirements referenced therein, except as specified in §§63.2490(b) and (c).

The permittee's heat exchangers meet the definition of *Heat exchange system* in §63.101. However, §63.2490 does not apply since the systems fall under the exception §63.104(a)(4), which excepts a once-through heat exchange system subject to an NPDES permit with certain prescribed monitoring requirements. According to technical correspondence and NOCS this is the case for the permittee's heat exchange systems S251TC and S251OC.

Recordkeeping
While the batch vents are subject to the MACT, the limitations and standards in the regulation are not applicable to the emission sources, as demonstrated above. Therefore, there are no recordkeeping requirements from §63.2525 that are applicable. However, the general requirements of 40 C.F.R. Part 63 require the permittee to maintain information used to prepare the Notification of Compliance Status (NOCS). Thus a new condition 4.4.10. has been added to the permit to this end.

Reporting
Applicable requirement §63.2520(a) requires the permittee to submit all reports in Table 11 of this subpart that apply to the affected emission units. The permittee has already submitted the precompliance report and NOCS. The periodic *compliance report* in Table 11 is the remaining applicable requirement to which the permittee is subject. The contents of the *compliance report* are described under §63.2520(e), and the report must be submitted semiannually according to the requirements of §63.2520(b). Table A below lists the elements of a compliance report, and specifies which apply to the permittee at the time of this permit action.

Table A – Compliance Report Contents

Section	Description of Report Contents	Applicable (Yes or No)
§63.2520(e)(1)	Company name and address	Yes
§63.2520(e)(2)	Certification of accuracy	Yes
§63.2520(e)(3)	Report date, and reporting period dates	Yes
§63.2520(e)(4)	Documentation of compliance with SSMP	No – SSMP does not apply
§63.2520(e)(5)	Reporting of deviations	No – There are no applicable emission limits, operating limits, or work practice standards.
§63.2520(e)(6)	Statement that there were no periods in which CEMS was out of control	No – CEMS is not used.
§63.2520(e)(7)	Report new operating scenarios since last compliance report and not included in NOCS or previous compliance report.	Yes
§63.2520(e)(8)	Records of process units added to a process unit group (PUG) and records of primary product redeterminations.	Yes
§63.2520(e)(9)	Applicable records and information for periodic reports as specified in referenced subparts F, G, H, SS, UU, WW, and GGG of this part and subpart F of 40 CFR part 65.	Yes
§63.2520(e)(10)	Notification of process change	Yes

In keeping with §63.2520(b)(5), the permittee may submit the first and subsequent compliance reports with the Title V semiannual monitoring report (permit condition 3.5.6.). The compliance report requirement is set forth as new permit condition 4.5.11. In technical correspondence the permittee proposed to submit a significant modification application for any future changes, if appropriate. Since the MON MACT does not require this, but the permittee proposed it, 45CSR§30-12.7. has been cited to require submittal of an appropriate modification application in such a situation.

TONE™ Polyol Plant

According to the cover letter received with the NOCS, the TONE™ Plant was permanently shut down the third quarter of 2007. This writer asked the permittee if they are seeking any changes in the permit due to this shut down. The permittee requested in technical correspondence that section 5.0 of the permit be deleted; therefore, that section has been stricken.

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: December 19, 2008
Ending Date: January 20, 2009

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

Denton B. McDerment, P.E.
Title V Permit Engineer
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street, S.E.
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

Denton B. McDerment, P.E.
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone: 304/926-0499 ext. 1221 • Fax: 304/926-0476

Response to Comments (Statement of Basis)

Public Comments

On January 12, 2009, DAQ received a written comment from the permittee concerning draft permit condition 4.5.11. The comment is transcribed below in italics.

As discussed in the draft permit fact sheet, UCC proposed to submit a permit modification application in the event a process change affects the information reported in the Notification of Compliance Status (NOCS) Report. UCC proposed this draft permit language in lieu of semi-annual compliance reporting. Semi-annual reporting was considered to be of limited value since the Acetone Derivatives Plant is not subject to a substantive requirement under the MON MACT and must file Title V compliance certifications. Since the Agency has decided that semi-annual reporting is needed, UCC requests that draft permit language regarding submittal of a permit modification application for any change in the NOCS be deleted. As indicated by the Draft Permit Fact Sheet, a change in information provided by the NOCS may not require a permit modification.

Based upon this comment, the permittee requested changing draft permit condition 4.5.11. to read as:

The permittee shall submit compliance reports containing all applicable information specified in 40 C.F.R. §63.2520(e). Such reports shall be submitted with the semiannual monitoring report (permit condition 3.5.6.). ~~If there is any process change that affects a determination provided by the NOCS report for 40 C.F.R. Part 63, Subpart FFFF (MON MACT), a permit modification application shall be included with the compliance report.~~

[40 C.F.R. §§ 63.2520(a), 63.2520(e), 63.2520(b)(5); 45CSR34; 45CSR§30-12.7.]

The requested change is justifiable since a process change must be reported in accordance with applicable requirement §63.2520(e)(10), and the MACT does not specifically require a permit modification application be submitted in conjunction with a process change. Whether or not a permit modification is required will be determined when a process change occurs. The language has been removed from the final permit condition.

In summary, the requested change will be made in the final permit. Although not requested by the permittee, the authority citation of 45CSR§30-12.7. will be removed in the final permit since this was used as authority to require the modification application be included with the compliance report. This change, however, neither prevents, nor absolves the permittee from submitting a modification application with a compliance report, if appropriate.

No other comments were received from the public.

U.S. EPA Comments

No comments were received from U.S. EPA.