*West Virginia Department of Environmental Protection*
*Division of Air Quality*

# Fact Sheet

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

Permit Number: **R30-03900102-2017**
Application Received: **December 9, 2016**
Plant Identification Number: **03-054-039-00102**
Permittee: **Covestro LLC**
Facility Name: **South Charleston**
Mailing Address: **501 Second Avenue, South Charleston, WV 25303**

*Revised: N/A*

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| | |
|---|---|
| Physical Location: | South Charleston, Kanawha County, West Virginia |
| UTM Coordinates: | 439.65 km Easting • 4,247.00 km Northing • Zone 17 |
| Directions: | Traveling on I-64 West from Charleston, take the Montrose Exit (Exit 56) and turn right onto Montrose. Straight ahead is the main plant entrance at the corner of Montrose and MacCorkle Avenue. |

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**Facility Description**

The Covestro LLC South Charleston plant is a chemical manufacturing facility which produces polyether and polymer polyols. The facility is characterized by SIC and NAICS codes 2869 and 325199, respectively.

The **Flex Polyol** units (B103 and B196) are chemical manufacturing processes for the production of polyether polyols. Polyether Polyols are compounds that are formed through the polymerization of ethylene oxide (EO) or propylene oxide (PO) with compounds that have at least one reactive hydrogen. Polyether Polyols are either used as raw materials for the Polymer manufacturing units at South Charleston or sold for use in urethane applications. Many different Polyether products are made by changing the reactive hydrogen compound, varying the amount of PO or EO, and changing or adjusting the catalyst.

The **Polymer Polyol** units are chemical manufacturing processes for the production of polymer polyols. Polymer polyols are colloidal dispersions of small polymer particles in polyether polyols. The polymer particles are composed of acrylonitrile and styrene. Polymer polyols are used in the manufacture of polyurethanes. Many different polymer polyol products are manufactured depending upon the final customer application. The different products are made by modifying the Flex Polyol, use of Preformed Stablizer and/or varying copolymer charge amounts. The Polymer Polyol process is broken down into four areas: feed system, reaction system, evaporation system and product filtration/storage system. This is a continuous manufacturing system.

## Emissions Summary

| Plantwide Emissions Summary [Tons per Year] | | |
|---|---|---|
| **Regulated Pollutants** | **Potential Emissions** | **2016 Actual Emissions[2]** |
| Carbon Monoxide (CO) | 0.71 | 0.001 |
| Nitrogen Oxides ($NO_X$) | 6.51 | 3.81 |
| Particulate Matter ($PM_{2.5}$) | 0 | 0 |
| Particulate Matter ($PM_{10}$) | 0.03 | 0.02 |
| Total Particulate Matter (TSP) | 0.03 | 0.02 |
| Sulfur Dioxide ($SO_2$) | 0 | 0 |
| Volatile Organic Compounds (VOC) | 124.0 | 17.67 |
| **Hazardous Air Pollutants[3, 4]** | **Potential Emissions[1]** | **2016 Actual Emissions[2]** |
| Acetaldehyde | 0.62 | 0.05 |
| Acrylic Acid | 0.01 | < 0.01 |
| Acrylonitrile | 0.43 | 0.18 |
| Benzene | 0.02 | Not reported |
| Ethylbenzene | 0.02 | Not reported |
| Ethylene oxide | 0.71 | 0.08 |
| Propylene oxide | 3.65 | 0.62 |
| Propionaldehyde | 0.94 | 0.42 |
| Styrene | 1.68 | 0.74 |
| Xylene | 0.02 | Not reported |
| Total HAPs | 8.10 | 2.09 |

[1] Potential HAP emissions in this column are stack and fugitive emissions, less 0.73 tpy of vinylidene chloride, from the table in permit condition 11.1.1. and aggregate HAPs limit in condition 11.1.2.

[2] Actual emissions are from the State and Local Emissions Inventory System (SLEIS) for calendar year 2016, and represent combined stack and fugitive types of emissions.

[3] The facility is a synthetic minor source of HAPs according to Section 11.0 of permit R13-2561K.

[4] The 2012 renewal Fact Sheet listed potential emissions for chlorine, vinylidene chloride, and hydrogen chloride. However, according to 5/23/2017 technical correspondence, vinylidene chloride was previously used as a raw material for the manufacture of Polymer Polyol, but is no longer used. The destruction of vinylidene chloride in the thermal oxidizer resulted in the formation of chlorine and hydrogen chloride. Since the permittee no longer uses vinylidene

chloride in its process, chlorine and hydrogen chloride emissions are zero. The NSR permit was previously modified (R13-2561H) to remove vinylidene chloride, chlorine, and hydrogen chloride emissions from the thermal oxidizer point E-655. For these reasons, no potential emissions are listed above for vinylidene chloride, chlorine, and hydrogen chloride.

## Title V Program Applicability Basis

This facility has the potential to emit 124.0 TPY of VOC. Due to this facility's potential to emit over 100 tons per year of criteria pollutant, Covestro LLC 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: | 45CSR6 | Open burning prohibited. |
| | 45CSR7 | To Prevent and Control Particulate Air Pollution from Manufacturing Process Operations. |
| | 45CSR11 | Standby plans for emergency episodes. |
| | 45CSR13 | Construction/modification permits |
| | 45CSR16 | Incorporation of 40CFR60, Federal NSPS |
| | 45CSR21 | Control of VOCs Section 46 |
| | 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 HAPs |
| | 40 C.F.R. 60 Subpart Kb | NSPS for VOL Storage Vessels after July 23, 1984 |
| | 40 C.F.R. Part 61 | Asbestos inspection and removal |
| | 40 C.F.R. Part 63, Subpart PPP | MACT for Polyether Polyols Production |
| | 40 C.F.R. Part 82, Subpart F | Ozone depleting substances |
| State Only: | 45CSR4 | No objectionable odors. |
| | 45CSR21 | To Prevent and Control the Emissions of VOCs Sections 37 and 40 |
| | 45CSR27 | To Prevent and Control the Emissions of Toxic Air Pollutants |

Each State and Federally-enforceable condition of the Title V Operating Permit references the specific relevant requirements of 45CSR30 or the applicable requirement upon which it is based. Any condition of the Title V permit that is enforceable by the State but is not Federally-enforceable is identified in the 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, 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)* |
|---|---|---|
| R13-2561K | 8/19/2015 | |

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

I. **Emission Units Table Revisions.** The following changes have been made in subsection 1.1. of the renewal operating permit based upon technical correspondence received in an e-mail from the permittee on May 23, 2017, and August 16, 2017

a. For T-2165 and T-2265, the design capacity for each tank has been corrected from "1,200 gal" to "660 gal".

b. For T-8480, T-8481, T-8482, and T-8483, the design capacity for each tank has been corrected from "30,000 gal" to "28,000 gal".

c. For T-1522, the design capacity of the tank has been corrected from "50,500 gal" to "54,000 gal".

d. For T-3578, the design capacity of the tank has been corrected from "170 gal" to "200 gal".

e. For T-258, the design capacity of the tank has been corrected from "13,400 gal" to "11,000 gal".

f. For T-3678, the design capacity of the tank has been corrected from "95 gal" to "80 gal".

g. For T-269, the design capacity of the tank has been corrected from "49,000 gal" under Rx #3 Feed System Related, and "50,400 gal" under B103 Final Product Storage, to "50,000 gal" in both places. T-269 is used as a feed tank and for storage, with storage being its predominant service.

h. For T-672, the design capacity of the tank has been corrected from "98,500 gal" to "100,000 gal".

i. For T-673 and T-674, the design capacity for each tank has been corrected from "97,400 gal" to "100,000 gal".

j. For T-9, the design capacity of the tank has been corrected from "25,200 gal" to "23,000 gal".

k. The waste water stripper decanter C-2046 has been added following C-2044. Emission unit C-2046 is permitted in condition 6.1.12.

II. **Facility-wide Reporting Revisions**. The following changes have been made in the renewal permit that primarily involve electronic reporting.

a. Condition 3.5.3. – The paragraph has been updated and the DAQ C&E e-mail address has been added.

b. Condition 3.5.5. (Compliance Certification) – The paragraph has been updated, and the DAQ and US EPA e-mail addresses have been added.

c. Condition 3.5.6. (Semiannual monitoring reports) – The last statement of the paragraph and the DAQ e-mail address have been added.

III. **Permit Shield**. In section 3.7.2. the specific language regarding 40 C.F.R. 64 Compliance Assurance Monitoring (CAM) has been revised. The following changes have been made to this permit shield based upon technical correspondence received in e-mails from the permittee on May 23, 2017, and July 25, 2017. Refer to the Non-Applicability Determinations section of this Fact Sheet for the revised content of condition 3.7.2.

a. Items (1), (2), and (3) have been revised to specify that a continuous compliance determination method is in the permit and therefore the exemption in §64.2(b)(1)(vi) has been met.

b. Item (4) of the current permit regarding Condenser EX2424 and Vacuum Jet H-2443 has been modified since the Condenser EX2424 and Vacuum Jet H-2443 are *inherent process equipment* (as defined in §64.1) to PMPO #4, which are not included in the regulation's definition of a control device.

c. Item (5) of the current permit was reserved due to removal of Wet Scrubber V-2493 in minor modification MM03 of R13-03900102-2012. The reserved item has been deleted.

IV. **Miscellaneous**

a. The emission points listed in current permit conditions 4.1.9. and 4.1.10. are listed in Section 1.1. under Flexible Polyols group instead of the Polymer Polyols group and Section 4.0 is for Polymer Polyols. These emission points should be in Section 8.0 for Flexible Polyols. Therefore, they have been relocated to renewal permit conditions 8.1.27. and 8.1.28., respectively. Since condition 4.3.1. refers to these requirements, a copy of requirement 4.3.1. with the 45CSR7A citation and associated Flex Polyol emission points has been written as renewal permit condition 8.3.1. Current condition 4.3.1. has been modified to remove the references to conditions 4.1.9. and 4.1.10. and 45CSR7 Flex Polyol emission points.

b. In current permit conditions 4.1.9. and 4.3.1. (renewal conditions 8.1.27. and 8.3.1.) the emission point E-5331 has been changed to E-3100. Dust collector K-5331 (emission point E-5331) was removed because the permittee no longer uses a solid catalyst (potassium hydroxide) in the B-196 Flex Polyol reactor area. The dust collector was for collection of fugitive dust from the potassium hydroxide. Dust emissions were very low. This change was permitted in R13-2561H (3/12/2012). Since the permittee still uses solid catalysts in the B-103 reaction area the dust collector was moved to the B-103 area and renamed Y-3100 (emission point E-3100), which was also permitted in R13-2561H.

c. The footnote (1) in the table of condition 6.1.4. has been deleted since the content of condition 6.1.10. was deleted and reserved as part of minor modification MM03 during the current permit term. For the same reason, the recordkeeping in 6.4.1. has been deleted and the condition number reserved.

d. In condition 8.1.2., Table 8.1.2., in the first column emission units H-3116 and H-3216 have been deleted as these were removed in 2012 as permitted in R13-25161H. The respective emission points E-600 and E-601 in the second column have also been deleted for this renewal.

e. Emission points E-600 and E-601 have been deleted from the citations of authority in permit conditions 8.1.14. through 8.1.22. since the vacuum jets H-3116 and H-3216 were removed in 2012 as permitted in R13-25161H.

f. The list of emission units in condition 8.4.3. has been revised to reflect that in condition 8.2.1.

g. The Vinylidene Chloride limit of 0.73 tpy in underlying permit R13-2561K, requirement 11.1.1., has been deleted from the table in Title V renewal permit condition 11.1.1. since Vinylidene Chloride is no longer utilized at the plant site. The permittee confirmed this fact in technical correspondence received on July 25, 2017.

h. Attachment A – 45CSR21 and 45CSR27 Source List.

   i. The underlying permit number and associated revision date in the lower-left corner have been corrected since the content of Attachment A was revised as part of minor modification MM03 of R13-03900102-2012, which was associated with NSR permit R13-2561K.

   ii. The source identification, source description, control device identification, service, and 45CSR21 applicability for emission point E-7101 has been updated to reflect NSR permit R13-2561K.

## Non-Applicability Determinations

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

| Non-applicable Regulation | Rationale |
|---|---|
| 40 C.F.R. 60 Subpart Kb | All tanks except T-626 and T-632 were found <u>not</u> to be subject to NSPS Kb since all met one of the following exemption criteria:<br>1. Were built before July 23, 1984, and no physical modifications or reconstructions were performed since July 23, 1984 and/or<br>2. Are of capacity less than 19,813 gallons and/or<br>3. Are of a capacity greater than 39,890 gallons, and have a maximum true vapor pressure less than 0.51 psia.<br>4. Are of a capacity greater than 19,813 gallons but less than 39,890 gallons, and have a maximum true vapor pressure of less than 2.2 psia. |
| 40 C.F.R. 63<br>Subparts F, G, and H<br><br>(Except as Subpart H is incorporated by reference in other applicable standards). | 40 C.F.R. §63.100(b) states that the provisions of subparts F, G, and H apply to chemical manufacturing process units that meet all the criteria specified in paragraphs (b)(1), (b)(2), and (b)(3) of §63.100. According to the renewal application, the facility does not manufacture as a primary product one or more of the chemicals listed in (b)(1)(i) or (b)(1)(ii) of §63.100. Therefore, Subparts F, G, and H are not applicable. However, Subpart H requirements are applicable insofar as they are incorporated by reference into other applicable standards (e.g., permit R13-2561K). |

| Non-applicable Regulation | Rationale |
|---|---|
| 40 C.F.R. 63<br>Subpart EEEE | 40 C.F.R. §§ 63.2338(c) and (c)(1) state the following: "The equipment listed in paragraphs (c)(1) through (4) of this section and used in the identified operations is excluded from the affected source. (1) Storage tanks, transfer racks, transport vehicles, containers, and equipment leak components that are part of an affected source under another 40 CFR part 63 national emission standards for hazardous air pollutants (NESHAP)." The following equipment is subject to the applicable requirements of 40 C.F.R. 63 Subpart PPP – Polyether Polyols Production MACT: propylene oxide storage spheres (T-9016, T-9017, C-101 and C-102); carbon filtering vessels (C-2090A and C-2090B); North Charleston propylene oxide barge loading station; and piping and associated piping components in propylene oxide distribution service. Therefore, the aforementioned sources meet the criterion at 40 C.F.R. §63.2338(c)(1) and are not subject to 40 C.F.R. 63 Subpart EEEE. |
| 40 C.F.R. 63<br>Subpart FFFF "MON" | The synthetic minor HAP status for wastewater treatment defined within section 6.0 was established through minor NSR permit number R13-2561C (issued April 9, 2007). Since permit R13-2561C established this limitation before the applicable compliance date of May 10, 2008 pertaining to the referenced "MON" standard, Bayer's South Charleston facility will not be subject to this Federal Standard. |
| 40 C.F.R. 63<br>Subpart VVVVVV | Acetaldehyde (Table 1 HAP) is received as an impurity in propylene oxide and may under specific operating conditions be generated in the manufacturing process in low concentration. Acetaldehyde is a noncarcinogen and is not present in the process fluid at greater than 0.1%. Based upon these facts, the applicability criterion at 40 C.F.R. §63.11494(a)(3) is not met; therefore, Subpart VVVVVV does not apply to the facility. |
| 40 C.F.R. 64 Compliance Assurance Monitoring (CAM) | (1) *Emission units controlled by thermal oxidizer Y-2124*. Control device Y-2124 has a continuous compliance determination method in permit condition 4.2.2.(a); therefore, the control device and associated emission units are not subject to CAM per the exemption in 40 C.F.R. §64.2(b)(1)(vi).<br><br>(2) *Emission units controlled by Plug Flow Reactor C-2016*. Control device C-2016 has a continuous compliance determination method in permit conditions 6.2.3.(d) and (e); therefore, the control device and associated emission units are not subject to CAM per the exemption in 40 C.F.R. §64.2(b)(1)(vi).<br><br>(3) *Emission units controlled by Steam Stripper with dual flow trays C-2044*. Control device C-2044 has a continuous compliance determination method in permit conditions 6.2.3.(a), (b), and (c); therefore, the control device and associated emission units are not subject to CAM per the exemption in 40 C.F.R. §64.2(b)(1)(vi).<br><br>(4) *Condenser EX-2424 and Vacuum Jet H-2443.* These devices are considered *inherent process equipment* (as defined in §64.1) to PMPO #4, which are not included in the regulation's definition of a *control device*. Since the applicability criterion at §64.2(a)(2) is not met, CAM does not apply. |

| Non-applicable Regulation | Rationale |
|---|---|
| | (5) *Emission units controlled by Scrubber Y-7101*. 40 C.F.R. 63 Subpart PPP regulates ethylene oxide (EO) emissions. Subpart PPP was proposed by the Administrator after November 15, 1990. 40 C.F.R. §64.2(b)(1)(i) provides an exemption for standards under NSPS and MACT proposed after that date. Since the MACT standards are applicable to D-7102 and D-7103, the EO sources D-7102 and D-7103 that are controlled by the scrubber Y-7101 are exempt from CAM based upon the exemption granted in the regulation at 40 C.F.R. §64.2(b)(1)(i). |

## 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 25, 2017
Ending Date: September 25, 2017

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

Denton B. McDerment, P.E.
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

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: 304/926-0478

## Response to Comments (Statement of Basis)

**Public Comments**

The following comments were submitted in an e-mail on 9/7/2017 by Mr. James White, Senior HES Manager for the permittee.

1) Page 4. Under description for T-2165 this should be "Additive tank for BHT or PDDP." Not BHP.

**DAQ Response:** The requested change has been made in the final permit.

2) Page 5. Delete T-1451 in PMPO Support Section. T-1451 is shown in PFS section on page 6.

**DAQ Response:** The requested change has been made in the final permit. Specifically, the following row has been removed under PMPO #3 in section 1.1. of the final permit.

| Emission Unit ID | Emission Point ID | Emission Unit Description | Year Installed/ Modified | Design Capacity | Control Device |
|---|---|---|---|---|---|
| T-1451 | E-1451 | Preformed Stabilizer Tank | 1964 | 14,950 gal | atm vent |

3) Page 6. Delete T-631 in PMPO feed system and add to PMPO #3 section (Page 5). While T-631 does provide a feedstock to PFS, T-631 is thought of as part of PMPO #3 (and PMPO #2) since condensed alcohol and monomers from PMPO #3 and PMPO #2 go to the tank.

**DAQ Response:** The requested change has been made in the final permit. T-631 has been added after T-8483 as shown in the edited copy of the emission units table attached as a PDF file to the e-mail.

4) Page 6. Delete T-1457 in PMPO feed system. This tank had been out of service for some time, but I was not aware it has now been demo'd.

**DAQ Response:** The requested change has been made in the final permit. Specifically, the following row has been removed under PMPO Feed System in section 1.1. of the final permit.

| Emission Unit ID | Emission Point ID | Emission Unit Description | Year Installed/ Modified | Design Capacity | Control Device |
|---|---|---|---|---|---|
| T-1457 | E-1457 | EPO | 1965 | 12,200 gal | atm vent |

5) Page 7. For T-112 change the emission unit description to Isopropanol versus Storage.

**DAQ Response:** The requested change has been made in the final permit.

6) Page 9, Delete T-269 in #5 System. T-269 is in B103 final product storage (Page 11).

**DAQ Response:** The requested change has been made in the final permit. Specifically, the following row has been removed under Rx #3 Feed System Related in section 1.1. of the final permit.

| Emission Unit ID | Emission Point ID | Emission Unit Description | Year Installed/ Modified | Design Capacity | Control Device |
|---|---|---|---|---|---|
| T-269 | E-269 | Polyol starter | 1961 | 50,000 gal | atm vent |

7) Page 9 in Rx #3 Storage & Ancillary System. Change description for T-611 and T-612 to "Intermediate polyol" instead of crude Polyol.

**DAQ Response:** The requested changes have been made in the final permit.

8) Page 9 in Rx #3 Storage & Ancillary System change T-669 and T-670 emission unit description to "Polyol Product."

**DAQ Response:** The requested change from "Crude Polyol" to "Polyol Product" has been made in the final permit.

9) Page 11 in B103 Final Product Storage change emission unit description to Product storage & starter for T-269.

**DAQ Response:** The requested change has been made in the final permit.

10) Page 13 and 14 under EO distribution there is a column Year Installed/Modified. None of the 6 line items in this section have been installed. By having a date in the Year installed/modified column this gives the impression the equipment is in place. I would suggest an asterisk with foot note be added to each EO equipment line item that states the date shown is for the R13 air permit, but the equipment is not installed at the date of issue of the Title V permit or similar language.

**DAQ Response:** The requested change has been made in the final permit.

11) Page 31 (40 CFR 64 CAM) of the draft permit has the language we agreed upon for Y-2124, C-2016 and C-2044. On page 7 of the fact sheet you have the old language {64.2(a)(3)} is not met for Y-2124, C-2016 and C-2044. The language in the fact sheet needs to be changed to read the same as the draft permit language.

**DAQ Response:** The requested corrections have been made in this final fact sheet.

**U.S. EPA Comments**

Mr. Paul Wentworth with U.S. EPA Region III submitted the following comments in two e-mails on September 27, 2017:

1) The only concern I have is that the WV needs to verify the installation status of the equipment to be sure that the permits for the equipment that has not been installed has not expired.

2) I have reviewed the Covestro permit and outside of the concern I expressed in the previous email, I have no reason to object to it issuance.

**DAQ Response:** 45CSR§13-10.2. provides that the Secretary may suspend or revoke a permit or general permit registration if, after six (6) months from the date of issuance, the holder of the permit cannot provide the Secretary, at the Secretary's request, with written proof of a good faith effort that construction, modification, or relocation, if applicable, has commenced. At the time of issuance of this Title V renewal permit, the Director of the Division of Air Quality, on behalf of the Secretary, has not chosen to suspend or revoke permit R13-2561K; therefore, it remains active. While Title V Operating Permits expire and are renewed every five years, NSR permits issued under State rule 45CSR13 do not expire (except for Temporary Permits per 45CSR§13-11, and R13-2561K is not temporary). For these reasons, there should be no issue with retaining the NSR permit requirements for the uninstalled equipment in this Title V renewal permit.

Mr. Wentworth concurred with the response in an e-mail on October 3, 2017.