

# Fact Sheet



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

Permit Number: **R30-09900009-2017**  
Application Received: **November 21, 2016**  
Plant Identification Number: **03-54-09900009**  
Permittee: **Ashland LLC**  
Facility Name: **Neal Plant**  
Mailing Address: **100 Big Sandy River Road, Kenova, WV 25530**

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Physical Location: Neal, Wayne County, West Virginia  
UTM Coordinates: 360.8 km Easting • 4,247.7 km Northing • Zone 17  
Directions: On the west side of Big Sandy River Road, 0.9 miles south of the junction of Big Sandy River Road with Interstate 64.

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### Facility Description

Maleic anhydride is produced by catalytic partial oxidation of n-butane. This is accomplished by passing a gas mixture consisting of atmospheric air (approximately 98%) and commercial grade butane (approximately 2 percent) over a proprietary vanadium phosphate catalyst.

SIC:  
2865 Chemicals-Allied Products, Cyclic Crudes-Intermediates

### Operating scenarios:

- (1) Normal operation of facility with thermal oxidizer as the primary control device.
- (2) Operation without thermal oxidizer emissions to the abatement scrubber. This scenario addresses plant operations in the event the primary control device (thermal oxidizer) is off-line due to maintenance activities or malfunction. When the incinerator is not operational, air emissions from the reactors would include CO and VOCs. The VOC stream consists primarily of methane, ethane, propane, butane, and acrylic acid. The vent stream from the batch refiner would also be directed to the abatement scrubber. This stream consists primarily of xylene.

## Emissions Summary

Plantwide Emissions Summary [Tons per Year]		
Regulated Pollutants	Potential Emissions	2016 Actual Emissions
Carbon Monoxide (CO)	617.7	470.78
Nitrogen Oxides (NO <sub>x</sub> )	49.5	0.63
Particulate Matter (PM <sub>2.5</sub> )	2.04	0.35
Particulate Matter (PM <sub>10</sub> )	2.04	0.35
Total Particulate Matter (TSP)	2.04	0.69
Sulfur Dioxide (SO <sub>2</sub> )	16.5	0.3
Volatile Organic Compounds (VOC)	77.6	32.38

*PM<sub>10</sub> is a component of TSP.*

Hazardous Air Pollutants	Potential Emissions	2016 Actual Emissions
Acrylic Acid	5.41	0.14
Benzene	0.44	0
Maleic Anhydride	5.85	0.40
Xylenes (isomers and mixtures)	5.66	1.45 (Ortho-xylene)
Propylene	0.62	0
Formaldehyde	0.29	0
Acetaldehyde	0.19	0
Other HAPs	0.17	0
Total HAPs	18.62	1.99

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

### Title V Program Applicability Basis

This facility has the potential to emit 617.7 TPY of Carbon Monoxide. Due to this facility's potential to emit over 100 tons per year of a criteria pollutant, Ashland 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 45CSR7 45CSR10 45CSR11 45CSR14 45CSR16  45CSR§21-39 45CSR30 40 C.F.R. Part 60 Appendix F 40 C.F.R. 60 Subpart VV  40 C.F.R. 60 Subpart III  40 C.F.R. Part 61 40 C.F.R. Part 82, Subpart F	Open burning prohibited. Control of Fugitive Particulate Matter Sulfur dioxide emissions. Standby plans for emergency episodes. Permit #R14-0008K Standards of Performance for New Stationary Sources 40CFR60 Air Oxidation process in SOCOMI Operating permit requirement. Quality Assurance Procedures Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry VOC emissions from Synthetic Organic Chemicals Manufacturing Industry Air Oxidation Unit Process Asbestos inspection and removal Ozone depleting substances
State Only:	45CSR4 45CSR§21-37	No objectionable odors. LDAR

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)
R13-3297T*	March 10, 2016	
R14-0008K	May 5, 2006	

\*Expiration date was extended to September 12, 2017

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," which may be downloaded from DAQ's website.

### **Determinations and Justifications**

Changes to the 2012 Title V Permit renewal consist of the following:

- 1) The company name changed from "Ashland Inc." to "Ashland LLC", and facility name was changed from "Ashland Performance Materials / Neal Plant" to "Neal Plant".
- 2) The following permit revisions took place:
  - MM01 (October 28, 2014) -- minor modification to use 40 Portable Diesel Fuel Fired Air Compressors as primary supply of compressed air, a raw material in the production of maleic anhydride, in the event that one of the two existing electric air compressors experiences extended downtime for maintenance or repairs.
  - AA01 (April 6, 2016) – administrative amendment to include requirements of the temporary permit R13-3297T in order to continue to use 40 Portable Diesel Fuel Fired Air Compressors, 76.3 HP each (Emission Units IDs 008-01 through 008-40, Emission Points IDs 17E through 56E). These 40 compressors are limited to 2,250 hours of operation each, or a total maximum of 90,000 operating hours for a maximum of 40 portable air compressors.
- 3) Emission Units Table 1.1 - Maleic Anhydride Reactor D-210 is planned to be replaced with an identical reactor in the fall of 2017. Per the permit determination PD16-068 (issued on December 22, 2016) the reactor replacement project will not result in any PTE increase, and no pre-construction permit is required. Therefore, the new Reactor D-210 modification date (11/2017) was added. Also, new installation date (10/31/2014) was added for the MAN Product Storage Tank F-601 because the old tank was replaced with the exact same size tank.
- 4) Condition 3.7.2 (Permit Shield) – 40 C.F.R. 60 Subparts K and Ka were added as not applicable per company's request under items (b) and (c). Also, in item (d) a paragraph "(d)(2)" was added to the "40CFR§60.110b", and a typo was corrected in item (i): "Subpart F" was replaced with "Subpart FF".
- 5) Requirement 4.2.4 – a phrase "but no less than 1 minute" was added after "sufficient time interval" for clarity.
- 6) Requirement 5.1.9 – corrected Emission Point IDs to correspond with the Emission Units Table 1.1.
- 7) Temporary permit R13-3297T - in accordance with 45CSR13§11.2 and §11.3 (requirement 6.1.5), and per company's request on August 31, 2016, the permit expiration date was extended to September 12, 2017.

Therefore, a note indicating the new expiration date was added to the table “1.2. Active R13, R14, and R19 Permits”, and to the requirement 6.1.5.

### Non-Applicability Determinations

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

1. From permit (condition 3.7.2):

- a. 40 C.F.R. 60 Subpart E - *Standards of Performance for Incinerators*. The Neal plant Incinerator is not used to burn solid waste.
- b. 40 C.F.R. 60 Subpart K - *Standards of Performance for Storage Vessels for Petroleum Liquids for which Construction, Reconstruction or Modification Commenced after June 11, 1973 and prior to May 19, 1978* – there are no petroleum liquid storage tanks in the Neal plant.
- c. 40 C.F.R. 60 Subpart Ka - *Standards of Performance for Storage Vessels for Petroleum Liquids for which Construction, Reconstruction or Modification Commenced after May 18, 1978 and prior to July 23, 1984* – there are no petroleum liquid storage tanks in the Neal plant.
- d. 40 C.F.R. 60 Subpart Kb - *Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction or Modification Commenced after July 23, 1984*. Per 40CFR§§60.110b(b) and (d)(2) the Subpart doesn't apply to the facility. Tanks F-400, F-330, F-412, F-413, M-1410A, M-1410B, F-414, F-601, F-602 are not subject to this Subpart because of their size/true vapor pressure characteristics. Butane pressure vessels TK-101, TK-102, TK-103 are exempted from the requirements of this Subpart, because they are designed to operate in excess of 204.9 kPa and without emissions to the atmosphere.
- e. 40 C.F.R. 60 Subpart DDD - *Standards of Performance for Volatile Organic Compound (VOC) Emissions From the Polymer Manufacturing Industry*. The Neal plant does not produce polymers.
- f. 40 C.F.R. 60 Subpart NNN - *Standards of Performance for Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations*. The Neal plant's distillation process is designed and operated as a batch operation, so it is exempted per section 60.660 (c) (3).
- g. 40 C.F.R. 60 Subpart RRR - *Standards of Performance for Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes*. The Neal plant is manufacturing maleic anhydride by air oxidation process, so it is not subject to this Subpart, but is subject to Subpart III instead.
- h. 40 C.F.R. 60 Subpart DDDD - *Emissions Guidelines and Compliance Times for Commercial and Industrial Solid Waste Incineration Units that Commenced Construction On or Before November 30, 1999* - the Neal plant incinerator is not used to burn solid waste.

- i. 40 C.F.R. 61 Subpart FF - *National Emission Standard for Benzene Waste Operations*. The Neal plant has benzene waste in gas/vapor form only, therefore the plant is exempt from requirements of this subpart per §61.340(c)(1).
- j. 40 C.F.R. 61 Subpart J - *National Emission Standard for Equipment Leaks (Fugitive Emission Sources) of Benzene*. The Neal plant does not operate in “benzene service”, because its equipment contacts a fluid that contains less than 10 percent benzene by weight. The raw butane feed into the system contains less than 1 percent benzene by weight; then before reaction process butane flow gets diluted with air at more than 50 to 1 dilution rate, so benzene content of the process fluid drops even less. Facility is required to keep on site the quarterly butane analysis to demonstrate compliance with the process fluid benzene content.
- k. 40 C.F.R. 61 Subpart BB - *National Emission Standard for benzene emissions from Benzene Transfer operations*. The Neal plant is not subject to this subpart, because it is not a benzene production facility or a bulk terminal.
- l. 40 C.F.R. 63 Subpart A - *National Emission Standards for Hazardous Air Pollutants for Source Categories. General Provisions*. This subpart is not applicable because the Neal plant is not a major source of HAPs (facility has aggregate HAP emissions less than 25 TPY and single HAP emissions less than 10 TPY at maximum operating conditions).
- m. 40 C.F.R. 63 Subpart B - *Requirements for Control Technology Determinations for Major Sources in Accordance With Clean Air Act Sections, Sections 112(g) and 112(j)*. This subpart is not applicable because the Neal plant is not a major source of HAPs.
- n. 40 C.F.R. 63 Subpart F - *National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry*. This subpart is not applicable because the Neal plant is not a major source of HAPs.
- o. 40 C.F.R. 63 Subparts G - *National Emission Standards for Organic Hazardous Air Pollutants for Synthetic Organic Chemical Manufacturing*. The Neal plant is not subject to these subparts, because the plant is not a major source of HAPs.
- p. 40 C.F.R. 63 Subpart H - *National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks*. This subpart is not applicable because the Neal plant is not a major source of HAPs.
- q. 40 C.F.R. 63 Subpart I - *National Emission Standards for Organic Hazardous Air Pollutants for Certain Processes Subject to the Negotiated Regulation for Equipment Leaks*. The Neal plant is not a major source of HAPs, therefore the Subpart is not applicable.
- r. 40 C.F.R. 63 Subpart Q - *National Emission Standards for Organic Hazardous Air Pollutants for Industrial Process Cooling Towers*. The Neal plant cooling towers are not subject to this subpart, because the plant is not a major source of HAPs.
- s. 40 C.F.R. 63 Subpart EEEE - *National Emission Standards for Organic Hazardous Air Pollutants for Organic Liquid Distribution (non-Gasoline)*. The Neal plant is not a major source of HAPs, therefore the Subpart is not applicable.

- t. 40 C.F.R. 63 Subpart FFFF - *National Emission Standards for Organic Hazardous Air Pollutants for Miscellaneous Organic Chemical Manufacturing*. The Neal plant is not a major source of HAPs, therefore the Subpart is not applicable.
  - u. 40 C.F.R. 63 Subpart DDDDD - *National Emission Standards for Organic Hazardous Air Pollutants for Industrial/Commercial/Institutional Boilers and Process Heaters*. The Neal plant is not a major source of HAPs, therefore the Subpart is not applicable.
  - v. 45 C.S.R. 27 - *To Prevent and Control the Emissions of Toxic Air Pollutants*. The Neal plant is not subject to this rule, because its benzene emission rate is less than 1000 lbs/yr.
2. 40 C.F.R. 63 Subpart ZZZZ - *National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*. Per 40 CFR §1068.30 portable engines are considered “nonroad engines” (*Nonroad engine, (1)(iii)*), and per §63.6585(a) they are not subject to this subpart as long as they do not stay at the site for more than 12 consecutive months (*Nonroad engine, (2)(iii)*).
3. Requirements 4.1.6, 4.4.2 and 4.4.3 of the permit R13-3297T are left out of this permit because there are no control devices associated with the Portable Diesel Fuel Fired Air Compressors.
4. **40 C.F.R. 64 Compliance Assurance Monitoring (CAM) Plan** – Reactors 208, 209, 210 and 211, and Refiner 410 are vented to the Thermal Oxidizer B-800. The reactors have emission limits for both CO and VOC (requirement 4.1.1). Based on the 97% oxidizer destruction efficiency for CO, PTE before control for CO for each reactor is 4,983.3 TPY. Based on the 98% oxidizer destruction efficiency for VOC, PTE before control for VOC for each reactor is 862.5 TPY. CAM would apply for both CO and VOC limitations, but there are continuous compliance determination methods specified in the permit: CO CEM monitoring (requirements 4.2.1, 4.2.3, 4.4.1.b and 4.4.3) and combustion temperature monitoring to demonstrate compliance with the VOC emission limit (the oxidizer combustion temperature is measured at least every 15 min, and averaged on an hourly basis - requirements 4.2.1, 4.1.4, 4.4.1.c, 4.4.2 and 4.5.1), therefore these emission limitations are exempt from the requirements of CAM (per 40 C.F.R. §64.2(b)(1)(vi)).

The Refiner 410 is limited for Xylene emissions (requirement 4.1.1). Based on the 98% oxidizer destruction efficiency for Xylene, PTE before control for Xylene is 279.5 TPY, therefore CAM is potentially applicable. Since Xylene is a HAP, and also is part of VOC emissions, the continuous oxidizer combustion temperature monitoring for compliance with the VOC limit should be satisfactory for compliance with the Xylene limit as well, therefore this emission limitation is exempt from the requirements of CAM (per 40 C.F.R. §64.2(b)(1)(vi)).

#### **Request for Variances or Alternatives**

None.

#### **Insignificant Activities**

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

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**Comment Period**

Beginning Date: June 28, 2017  
Ending Date: July 28, 2017

**Point of Contact**

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

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**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.

**Response to Comments (Statement of Basis)**

Not applicable.