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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-3297T
Plant ID No.:	099-00009
Applicant:	Ashland, Inc. (Ashland Performance Materials)
Facility Name:	Neal Plant
Location:	Neal, Wayne County
SIC Code:	2869 (Industrial Organic Chemicals, not elsewhere classified)
Application Type:	Temporary
Received Date:	February 05, 2016
Engineer Assigned:	Thornton E. Martin Jr.
Fee Amount:	$1,000.00
Date Received:	February 05, 2016
Complete Date:	March 03, 2016
Applicant Ad Date:	February 06, 2016
Newspaper:	*Wayne County News*
UTM's:	Easting: 360.8 km Northing: 4,247.7 km Zone: 17
Description:	Temporary permit for forty (40) portable diesel fuel fired air compressors to support operations while the primary air compressor is being repaired.

DESCRIPTION OF PROCESS

This application was submitted for 40 portable diesel fuel fired air compressors to serve 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. Due to the age of the existing electric air compressor units, there is some concern that the plant could possibly require an alternate supply of compressed air at some point during the year. At this time, it is not known if or when these units will need to be installed; however, this application was submitted so that the necessary permitting will be in place should the situation arise where the plant needs to bring in these portable units in order to continue operating. The portable units would only be used until repairs and/or replacement of the electric air compressor could be completed.

Ashland will contact WVDAQ of their intent to bring in the units prior to commencing

mobilization of the units.

Emission Units Table:

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type and Date of Change	Control Device
008-01 thru 008-40	17E thru 56E	(40) Portable Diesel Fuel Fired Air Compressors	2016	76.3 hp (each)	New (temporary portable units)	None

SITE INSPECTION

The facility is well known by WV DAQ. The last full on site targeted inspection was conducted by Todd Shrewsbury of the Compliance and Enforcement section on August 13, 2015. At the time of the inspection, they were found to be in compliance.

The plant is located on the west side of the Big Sandy River Road, 0.9 miles south of the junction of Big Sandy River Road with I-64. The plant is most easily accessed from Exit 1, the Kenova exit of I-64 then following Route 52 south for about 2 miles to the intersection of Route 52 and Big Sandy River Road.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions for the temporary air compressors were calculated using both AP-42 emission factors from Section 3.3 for *Gasoline and Diesel Industrial Engines (10/96)* and emission factors provided by the equipment vendor. Both calculations used the engine rating for the compressor of 76.3 hp, used diesel fuel, were based on 2,250 operating hours per year, and were based on 40 temporary units.

AP42 emission factors were used to calculate the SO_X, CO_2, VOC, and HAP emissions. Vendor emission factors were used to calculate NO_X, PM, $PM_{2.5}$, and CO emissions.

All of the emissions from these portable sources are due to combustion emissions from diesel fuel; therefore no fugitive emissions are expected as part of this application.

Emission Points Data Table:

Emission Point ID	Emission Unit ID	Regulated Pollutants	Maximum Potential Emissions	
			lb/hr	tpy
17E*	008-01*	PM_{10}	0.025	0.03
		$PM_{2.5}$	0.025	0.03
		SO_X	0.156	0.18

		NO_X	0.807	0.91
		VOC	0.192	0.22
		CO	0.437	0.49
		CO_2	88	99
		Total HAPs	0.035	0.039

* Emissions shown above represent the emissions from one of the 40 portable air compressors that will be installed (if needed). A summation of the total project emissions is provided in the emissions summary table.

The total increase in emissions proposed by this application are based on 40 temporary units with a 76.3 hp rating, burning diesel fuel, and operating for 2,250 hours/year. The total emissions increase is shown in the emissions summary table below.

Emissions Summary Table:

Regulated Pollutants	PTE Total (40 units)	
	lb/hr	TPY
PM_{10}	1.00	1.14
$PM_{2.5}$	1.00	1.14
SO_X	6.24	7.00
NO_X	32.28	36.30
VOC	7.68	8.60
CO	17.48	19.70
CO_2	3520	3,949
Total HAPs	1.38	1.55

REGULATORY APPLICABILITY

The following state regulations were reviewed for applicability.

45CSR10 TO PREVENT AND CONTROL AIR POLLUTION FROM THE EMISSION OF SULFUR OXIDES

It is the intent of the Director that all persons engaged in the burning of fuel make a maximum effort to utilize the best quality fuel available regardless of the requirements of this rule.

The maximum allowable sulfur dioxide emission rate of 3.2 times the total design heat input of the units in MMBTu/hr per section 3.3.f. The design heat input is 76.30 hp or 0.194 MMBTU/hr. The applicant has demonstrated compliance with this requirement because the SO_X emission

rate of 0.156 lb/hr is less than the allowable rate of 0.62 lb/hr.

45CSR13 PERMITS FOR CONSTRUCTION, MODIFICATION, RELOCATION AND OPERATION OF STATIONARY SOURCES OF AIR POLLUTANTS, NOTIFICATION REQUIREMENTS, ADMINISTRATIVE UPDATES, TEMPORARY PERMITS, GENERAL PERMITS, PERMISSION TO COMMENCE CONSTRUCTION, AND PROCEDURES FOR EVALUATION

The possible addition of 40 portable air compressors meets the definition of a stationary source per section 2.24 because it has the potential to discharge more than six (6) pounds per hour and ten (10) tons per year of any regulated air pollutant.

Ashland has met the applicable requirements of this rule by publishing a Class I Legal Advertisement in *The Wayne County News* on February 06, 2016, paid the $1,000.00 application fee for a temporary permit, and submitted a complete permit application.

Ashland is subject to the temporary construction permit requirements of §45-13-11.

45CSR14 PERMITS FOR CONSTRUCTION AND MAJOR MODIFICATION OF MAJOR STATIONARY SOURCES OF AIR POLLUTION FOR THE PREVENTION OF SIGNIFICANT DETERIORATION

Ashland is located in Kenova, Wayne County, WV that is an area that is designated as an attainment area with the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants. The major source status is therefore determined under 45CSR14.

Determination of Major Source Status:

Ashland Performance Materials is an existing major source of criteria pollutants for purposes of New Source Review according to the definition provided in 45 CSR §14-2.43.a and 45CSR19-2.35.a. Chemical Plants are one of the identified source categories where the "major source" threshold is one hundred tons per year (100 tpy) of any regulated NSR pollutant and Ashland Performance Materials has the potential to emit 100 tpy or more of at least one of the regulated NSR pollutants on a facility-wide basis.

Determination of Major Modification:

Ashland is proposing a "physical change in or change in the method of operation of a major stationary source" and therefore a determination must be made regarding whether or not the proposed changes described in the permit application meet the definition of a major modification.

A "major modification" is defined under section 2.40 of 45CSR14 as a:

> . . . physical change in or change in the method of operation of a major stationary source which results in: a significant emissions increase (as defined in subsection 2.75) of any regulated NSR pollutant (as defined in subsection 2.66); and a significant net emissions increase of that pollutant from the major stationary source. [. . .]

Section 3.4 of 45CSR14 provides guidance on the process of determining if proposed changes are a major modification. §45-14-3.4(a) states that:

> . . . consistent with the definition of major modification contained in subsection 2.40, a project is a major modification for a regulated NSR pollutant if it causes two types of emissions increases -- a significant emissions increase (as defined in subsection 2.75), and a significant net emissions increase (as defined in subsections 2.46 and 2.74). The proposed project is not a major modification if it does not cause a significant emissions increase. [. . .]

Therefore, for the proposed changes to meet the definition of a major modification, the changes themselves must result in a significant emissions increase. The methodology for calculating the emissions increase under the first step is given under Sections 3.4(b), 3.4(c), 3.4(d) and 3.4(f). The substantive language of each is given below:

[§45-14-3.4(b)]
> The procedure for calculating (before beginning actual construction) whether a significant emissions increase (i.e., the first step of the process) will occur depends upon the type of emissions units being modified, according to subdivisions 3.4.c through 3.4.f.

[§45-14-3.4(c)]
> Actual-to-projected-actual applicability test for projects that only involve existing emissions units. -- A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the difference between the projected actual emissions (as defined in subsection 2.63) and the baseline actual emissions (as defined in subdivisions 2.8.a and 2.8.b), for each existing emissions unit, equals or exceeds the significant amount for that pollutant (as defined in subsection 2.74).

[§45-14-3.4(d)]
Actual-to-potential test for projects that only involve construction of a new emissions unit(s). – A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the difference between the potential to emit (as defined in subsection 2.58) from each new emissions unit following completion of the project and the baseline actual emissions (as defined in subdivision 2.8.c) of these units before the project equals or exceeds the significant amount for that pollutant (as defined in subsection 2.74).

[§45-14-3.4(f)]
Hybrid test for projects that involve multiple types of emissions units. -- A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the emissions increases for each emissions unit, using the method specified in subdivisions 3.4.c through 3.4.d as applicable with respect to each emissions unit, for each type of emissions unit equals or exceeds the significant amount for that pollutant (as defined in subsection 2.74).

Further, under the definition of "projected actual emissions" - Section 2.63(a)(4), the applicant may use an emission unit's PTE in lieu of projecting actual emissions.

It is important to note that when any emissions decrease is claimed (including those associated with the proposed modification), the second step of the test is triggered - a determination if the project results in a "significant net emissions increase." This determination is defined under the definition of "net emissions increase" [§45-14-2.46] and must include "any other increases and decreases in actual emissions at the major source that are contemporaneous with the particular change and are otherwise creditable." A change is contemporaneous if it "occurs not more than five (5) years prior to the date on which construction on the particular change commences nor later than the date on which the increase from the particular change occurs." This determination will not include any decreases in emissions and will stay within the first step of the test.

The determination of major modification will be conducted in accordance with §45CSR14-3.4(d) which is the actual to potential test because the proposed project involves only the temporary addition of new emission units.

PSD Applicability Analysis:

The modifications associated with the PSD demonstration are the temporary addition of 40 portable diesel fuel fired air compressors in the

event that one of the two existing electric air compressors experience extended downtime for maintenance or repairs at the facility to supply air that is a raw material in the production of maleic anhydride.

Step 1 - Determination of Emission increase is provided in the following Table. The baseline emissions for the 40 new portable air compressors are zero because they are defined as new units.

Step 1 Table:

Emission Units	Potential Emissions						
	NO_x	CO	VOC	CO_2	SO_x	PM/PM_{10}	$PM_{2.5}$
008-01 thru 008-40 (EACH)	0.91	0.49	0.22	99	0.18	0.03	0.03
Total PTE	36.3	19.7	8.60	3949	7.00	1.14	1.14
PSD Threshold	40	100	40	n/a	40	25/15	10
Significant?	No	No	No	No	No	No	No

The proposed changes described in this engineering evaluation do not meet the definition of a major modification of an existing major stationary source because there is not a "significant emissions increase" per the definitions provided in 45CSR14-2.40, 2.74 and 2.75. These proposed changes are not a major modification if they do not cause a significant emissions increase as stated in the applicability criteria provided in section 45CSR14-3.4. No additional analysis is required.

On July 24, 2014 the U.S. EPA issued a decision addressing the application of stationary source permitting requirements to greenhouse gases (GHG). In very brief summary, the Supreme Court said that the EPA may not treat GHG as an air pollutant for purposes of determining whether a source is a major source required to obtain a PSD or Title V permit. The Supreme Court also said that the EPA could continue to require that PSD permits, otherwise required based on emissions of conventional pollutants, contain limitations on GHG emissions based on the application of BACT.

45CSR30 REQUIREMENTS FOR OPERATING PERMITS

Ashland is subject to 45CSR30 and currently operates under permit R30-09900009-2012. The applicant submitted a combined application for NSR permit and Title V permit revision.

Federal Regulations:

The following federal regulations were reviewed and found to not be applicable.

40 CFR 60,
Subpart IIII STANDARDS OF PERFORMANCE FOR STATIONARY COMPRESSION IGNITION INTERNAL COMBUSTION ENGINES

The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE) and other persons as specified in paragraphs (a)(1) through (4) of § 60.4200. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

Stationary internal combustion engine means any internal combustion engine, except combustion turbines, that converts heat energy into mechanical work and is not mobile. Stationary ICE differ from mobile ICE in that a stationary internal combustion engine is not a nonroad engine as defined at 40 CFR1068.30 (excluding paragraph (2)(ii) of that definition), and is not used to propel a motor vehicle, aircraft, or a vehicle used solely for competition. Stationary ICE include reciprocating ICE, rotary ICE, and other ICE, except combustion turbines.

A *nonroad engine* as defined at 40 CFR1068.30 is an internal combustion engine that meets any of the following criteria...(1)(iii) By itself or in or on a piece of equipment, it is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform. The engines will not remain at the facility for more than 12 consecutive months (2)(iii).

The applicant is not subject to 40 CFR 60, Subpart IIII because the proposed temporary air compressors do not meet the definition of a stationary internal combustion engine.

40CFR63,
Subpart ZZZZ NATIONAL EMISSIONS STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINES

The applicant is not subject to 40 CFR 63, Subpart ZZZZ because the proposed temporary air compressors do not meet the definition of a stationary reciprocating internal combustion engine as defined in § 63.6675.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

Formaldehyde is a new hazardous air pollutants associated with these temporary portable air compressors from the use of diesel fuel.

Formaldehyde is used mainly to produce resins used in particle board products and as an intermediate in the synthesis of other chemicals. Exposure to formaldehyde may occur by breathing contaminated indoor air, tobacco smoke, or ambient urban air. Acute (short-term) and chronic (long-term) inhalation exposure to formaldehyde in humans can result in respiratory symptoms, and eye, nose, and throat irritation. Limited human studies have reported an association between formaldehyde exposure and lung and nasopharyngeal cancer. Animal inhalation studies have reported an increased incidence of nasal squamous cell cancer. EPA considers formaldehyde a probable human carcinogen (Group B1).

AIR QUALITY IMPACT ANALYSIS

The proposed project does not meet the definition of a major modification according to the definitions in 45CSR14 and 45CSR19; therefore, modeling is not required for this permit application.

MONITORING OF OPERATIONS

- Dates that the temporary portable air compressors are received at the facility and removed from the facility.
- Hours of operation of the portable air compressors
- Records of the number of portable air compressors in operation
- Reporting requirements for any portable air compressor that has exceed 12 consecutive months being located at the facility
- Immediate reporting requirement in the event that the NO_x emission limit is exceeded.

CHANGES TO PERMIT R14-0008K

There are no changes to the existing permit. This temporary construction permit is a new permit.

RECOMMENDATION TO DIRECTOR

It is recommended that this temporary permit R13-3297T be issued to the Ashland Performance Materials (Neal facility) located in Kenova, Wayne County, WV. Based on the information provided in the permit application and reviewed by the writer, the applicant has demonstrated compliance with all applicable state and federal regulations and will demonstrate future compliance by being in compliance with the conditions of this permit.

Thornton E. Martin Jr.
Permit Engineer

March 03, 2016
Date