



west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone (304) 926-0475 • FAX: (304) 926-0479

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-2473K
Plant ID No.: 073-00030
Applicant: Allnex USA Inc. (Allnex)
Facility Name: Willow Island Plant
Location: 252 Hellman Avenue, Belmont, Pleasants County, WV 26134
NAICS Code: 325199
Application Type: Modification
Received Date: April 25, 2016
Engineer Assigned: John Legg
Fee Amount: \$3,500.00
Date Received: April 29, 2016
Complete Date: May 12, 2016
Due Date: August 12, 2016
Applicant Ad Date: April 27, 2016
Newspaper: *St. Marys Oracle*
UTM's: Easting: 473.66 Northing: 4,356.34 Zone: 17
Description: Proposed minor changes:

- Reinstate an emission point MEC-001 for the existing Methanol Storage Tank (V516); Add emission limits for emission point MEC-001;
- Make in-kind equipment replacements for existing equipment items Circulated Methanol Coolers (E035A/B) and Refining Vacuum System (J010/J110);
- Typo correction in R13-2473J section 4.4.6.c;
- Voluntarily revise data collection frequency from daily to at least once every 15 minutes for several existing control devices.

DESCRIPTION OF PROCESS

The following process description came from Attachment G in the permit application:

Allnex proposes to make the following changes:

- Addition of Emission Point MEC-001

Allnex would like to reinstate an emission point for the existing Methanol Storage Tank (V516).

This emission point (MEC-001) was previously removed from the permit after a vapor balancing system was installed to control vapors vented from the tank when unloading methanol from a rail car or tank truck.

At that time, there was no need to be able to vent through the tank's conservation vent.

Allnex would now like to occasionally pump methanol to the storage tank (V516) from the MeC and Methanol Recovery processes.

Doing so would cause the methanol storage tank (V516) to vent through its conservation vent (MEC-001).

Methanol would be transferred from two (2) process vessels:

- During operation of the MeC process, methanol would be pumped from the Methanol Feed Tank (V518).
- During operation of the Methanol Recovery process, methanol would be pumped from the MeC Condenser Receiver (V574).

In both cases, the transfers would be intermittent.

This change would result in a small increase in annual VOC emissions.

This change would not affect the unloading of methanol from rail cars and tank trucks, i.e., the vapor return system would still be used as required by Allnex's current permit.

- In-kind replacement of two existing equipment items:

- The existing Circulated Methanol Cooler (E036A/B) would be replaced with like-kind coolers of the same capacity (200,000 BTU/hr).

The new coolers would continue to have no direct vent to the atmosphere.

- The existing Refining Vacuum System (J010/J110) would be replaced with a like-kind vacuum system of moderately higher capacity (742 ft³/min).

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The new vacuum system would continue to vent to the atmosphere via control devices C102/E120 and vent at emission point UAM-001.

The pump capacity increase will not result in any change in emissions.

- Correct a typo in section 4.4.6.c.
- Changes to Appendix A - "Emission Limits" to add emission limits for emission point MEC-001.
- Changes to Appendix B - "Control Devices Parametric Monitoring" to voluntarily revise data collection frequency from daily to at least once every 15 minutes for several existing control devices.

Allnex is proposing this change to reflect its enhanced process data collection system.

Note that Allnex provided a revised permit in their application (R13-2473K, Appendix 1) detailing the proposed changes to be made.

Table 1: Emission Unit Table (R13-2473K, Attachment I) Allnex, Willow Island Plant, Belmont, Pleasants County, WV 26134.						
Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Type and Date of Change	Control Device
V516	MEC-001	Methanol Storage Tank	1988/ 2016	17,500 gallon	Modification	None for vent MEC-001
E036A and E036B	No Direct Vent	Circulated Methanol Coolers	2016	200,000 BTU/hr	Modification (like-kind replacement)	None
J010/J110	UAM-001	Refining Vacuum System	2016	742 ft ³ /min	Modification (like-kind replacement)	C102/E120

Table 2: Emissions Unit Data Sheet (R13-2473K, Attachment L) for Replacement Circulated Methanol Coolers, Allnex, Willow Island Plant, Belmont, Pleasants County, WV 26134.	
Identification Number	E036A and E036B
Name or Type and Model of Proposed Affected Source:	Circulate Methanol Coolers; 200,000 BTU/hr capacity; Used to chill methanol for the methanol spray condenser (V032); Gaspar Inc. manufacturer; Serial Numbers 41823-1 and 41823-2.

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Table 2: Emissions Unit Data Sheet (R13-2473K, Attachment L) for Replacement Circulated Methanol Coolers, Allnex, Willow Island Plant, Belmont, Pleasants County, WV 26134.	
Identification Number	E036A and E036B
Projected Operating Schedule	24 hours/day; 7 days/week; 42 weeks/yr

Table 3: Emissions Unit Data Sheet (R13-2473K, Attachment L) for Replacement Vacuum System, Allnex, Willow Island Plant, Belmont, Pleasants County, WV 26134.	
Identification Number	J010/J110
Name or Type and Model of Proposed Affected Source:	Refining Vacuum System; 742 ft ³ /min air displacement capacity, used to maintain vacuum on the first pass columns (C002) and second pass column (C120); Busch LLC manufacturer; Model Number: Cobra NCO603.B
Projected Operating Schedule	24 hours/day; 7 days/week; 42 weeks/yr
Projected Amount of Pollutants that would be Emitted from Affected Source if No Control Devices were Used.	11.5 lb/hr VOC; 0.2 lb/hr Methanol.\

SITE INSPECTION

The writer did not visit Allnex's Willow Island Plant for this modification because the facility is an existing facility, routinely inspected by DAQ Enforcement.

The plant was last inspected on May 27, 2014 by Dan Bauerle, DAQ Enforcement Inspector, who conducted a full-on-site inspection and found the facility to be in compliance (status code 30).

Directions to the facility as given in the permit appliance are as follows:

From Interstate 77, Exit 179, take State Route 2, north approximately 10 miles. The plant site on left (river side) of State Route 2, two miles south of Belmont, WV.

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ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions resulting from this modification permit are estimated to increase by the following amounts.

Table 4: Estimated Emissions Increases Resulting from Modification Permit R13-2473K.				
Emission Point ID No.	Pollutant		Estimated Emissions Increases	
			(lb/hr)	(ton/yr)
MEC-001 (Conservation Vent on Methanol Tank V516)	VOC		4.7	0.1
	HAP	Methanol (67-56-1)	4.6	0.1

Maximum hourly emissions resulting from the two (2) types of process transfers were calculated using Emission Master modeling software (version 7.6.1.12):

1. Maximum VOC emissions from emission point MEC-001 when transferring methanol from the MeC process are 4.7 lb/hr; while methanol emissions are 4.6 lb/hr. The VOCs are primarily methanol with a small amount of MeC.

Transfer methanol from methanol feed tank V518 to methanol storage tank V516; See Attachment N, Supporting Emissions Calculations, pages N2, N3, N4, and N5.

2. Maximum VOC/methanol emissions from emission point MEC-001 when transferring methanol from the Methanol Recovery process are 0.64 lb/hr. The VOCs are all methanol.

Transfer methanol from MeC condenser receiver V574 to methanol storage tank V516; See Attachment N, Supporting Emission Calculation, pages N6, N7, and N8.

Maximum annual emissions are small, estimated at not to exceed 0.1 ton/yr of total VOC and 0.1 ton/yr of methanol for each of the two process liquid transfer operations, because transfers will be intermittent and for short periods of time.

REGULATORY APPLICABILITY

Allnex's Willow Island Plant is a major, stationary source under Rule 13 (> 100 TPY of VOC), a Title V source and an major source for Hazardous Air Pollutants (HAPs) [> 10 TPY of an individual HAP: methanol, methyl isobutyl ketone, toluene, and triethylamine; > 25 TPY of aggregated HAPs].

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There were no new regulatory or revised requirements.

The following rules were reviewed for this modification application:

45CSR13 - "Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits, and Procedures for Evaluation."

Allnex submitted a complete application (on May 12, 2016 - newspaper affidavit arrived at DAQ) for the modification permit (because the addition of vent emission point MEC-001 has HAP emissions of greater than 2.0 lb/hr); ran a legal advertisement (on April 27, 2016 in *St. Marys Oracle*); and paid a \$3,500 application fee (April 29, 2016; \$1,000 modification application fee and \$2,500.00 NESHAP/MACT fee) to obtain a modification permit.

45CSR34 - "Emission Standards for Hazardous Air Pollutants for Source Categories Pursuant to 40 CFR, Part 63"

This rule establishes and adopts a program of national emission standards for hazardous air pollutants (NESHAPS) and other regulatory requirements promulgated by the United States Environmental Protection Agency pursuant to 40 CFR Parts 61, 63 and section 112 of the federal Clean Air Act, as amended (CAA). This rule codifies general procedures and criteria to implement emission standards for stationary sources that emit (or have the potential to emit) one or more of the eight substances listed as hazardous air pollutants in 40 CFR §61.01(a), or one or more of the substances listed as hazardous air pollutants in section 112(b) of the CAA. The Secretary hereby adopts these standards by reference. The Secretary also adopts associated reference methods, performance specifications and other test methods which are appended to these standards.

40 CFR 63, Subpart FFFF was reviewed for applicability. See below.

40 CFR 63, Subpart FFFF - "National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing."

The existing Methanol Storage Tank (V516) is subject to this subpart/MON MACT. However, adding the new emission/vent point MEC-001 to the existing Methanol Storage Tank (V516) does not affect any existing requirement of the MON MACT.

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TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

There were no non-criteria regulated pollutants resulting from this modification permit.

AIR QUALITY IMPACT ANALYSIS

No modeling was conducted for this modification permit because VOC emissions are estimated to increase no more than 0.1 tpy.

MONITORING OF OPERATIONS

Appendix B entitled "Control Devices Parametric Monitoring" was changed to voluntarily revise data collection frequency from daily to at least once every 15 minutes for several existing control devices.

Allnex is proposing this change to reflect its enhanced process data collection system.

CHANGES TO PERMIT R13-2473J

A compare file comparing the old permit (R13-2473J) with the new/resulting permit (R13-2473K) is provided in Attachment 1 to this evaluation. Pages where no changes were made were omitted to save space.

RECOMMENDATION TO DIRECTOR

The information supplied in permit application R13-2473K indicates that compliance with all applicable requirements will be achieved. Therefore, it is the writer's recommendation that this modification permit for several minor changes to Allnex's Willow Island Plant located near Belmont, Pleasants County, WV facility be granted.

John Legg
Permit Writer

August 17, 2016

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Attachment 1

Compare File

Comparing R13-2473J to R13-2473K

Allnex USA Inc.

Willow Island Plant,

Belmont, Pleasants County, WV

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