INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.
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Michael R. Pence
Governor
Carol S. Comer
Commissioner

STATE OF INDIANA)
) SS:
COUNTY OF MARION)

BEFORE THE INDIANA DEPARTMENT
OF ENVIRONMENTAL MANAGEMENT

IN THE MATTER OF:)
ORDER OF THE COMMISSIONER)
PURSUANT TO 326 IAC 8-1-5)
FOR ABENGOA BIOENERGY OF INDIANA)
)

NOTICE AND ORDER OF THE COMMISSIONER OF THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

To:

This Notice and Order of the Commissioner of the Department of Environmental Management ("Order") is issued pursuant to IC 13-14-1-9, IC 13-14-2-1, and is based on 326 IAC 8-1-5 (Petition For Site-Specific Reasonably Available Control Technology (RACT) Plan). During the Commissioner's review, it was determined that the Petitioner met all requirements of 326 IAC 8-1-5 according to the terms specified below:

PETITION

Petitioner is Abengoa Bioenergy of Indiana, which owns and operates an ethanol production plant, located at 8999 West Franklin Road, Mt. Vernon, Indiana 47620, and permitted under the Title V air operating permit program. Pursuant to the original permit issued to the source, the ethanol loading racks were subject to 326 IAC 8-1-6 (New Facilities; General Reduction Requirements), which required the ethanol plant to collect and control the volatile organic compound (VOC) emissions with the use of Best Available Control Technology (BACT). The BACT for the ethanol loading racks was determined to be enclosed flares, with an overall control efficiency of at least ninety-eight percent (98%).

On February 20, 2007, Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) finalized a new rule (326 IAC 8-5-6 Fuel Grade Ethanol Production at Dry Mills) for fuel grade ethanol production at dry mills. This rule specifically requires ethanol plants to use one of the following add-on control devices to mitigate VOC emissions:

1. a thermal oxidizer with an overall control efficiency of at least 98% or maximum VOC emissions of ten (10) parts per million (ppm) or less,

2. a wet scrubber with an overall control efficiency of at least 98% or maximum VOC emissions of twenty (20) parts per million (ppm) or less, or

3. an enclosed flare with an overall control efficiency of at least 98%.

On December 24, 2008, the Petitioner submitted an application to OAQ to modify the plant's design, including the ethanol loading racks. Since this plant was modified, it is subject to the requirements of 326 IAC 8-5-6 (Fuel Grade Ethanol Production At Dry Mills), instead of 326 IAC 8-1-6 (New Facilities; General Reduction Requirements).

On February 18, 2009, the Petitioner submitted a request to use an alternative to the requirements specified in 326 IAC 8-5-6 (Fuel Grade Ethanol Production At Dry Mills).

The Petitioner proposed to control the VOC emissions from the ethanol loading racks with a John Zink carbon adsorption/absorption hydrocarbon vapor recovery system. As currently written, 326 IAC 8-5-6 does not allow sources to use carbon adsorption/absorption hydrocarbon vapor recovery system or other equivalent control devices that are not currently specified in the rule.

The petition is submitted for the following reasons:

1. The proposed carbon adsorption/absorption hydrocarbon vapor recovery system is recognized as Best Available Control Technology (BACT), Maximum Achievable Control Technology (MACT), and Generally Available Control Technology (GACT) by the United States Environmental Protection Agency (U.S. EPA), as are the add-on control devices outlined in 326 IAC 8-5-6 (Fuel Grade Ethanol Production at Dry Mills).

2. The carbon adsorption/absorption hydrocarbon vapor recovery system has a control efficiency of at least ninety-eight (98%) or better. In addition, it is designed to meet an emission standard of 10 milligrams of VOC release per liter of ethanol loaded, which is the U.S. EPA standard for bulk distribution facilities.

3. Finally, the proposed carbon adsorption/absorption hydrocarbon vapor recovery system does not require the combustion of natural gas to control VOC emissions, unlike enclosed flares, which will cause undue burden to the company. Since the carbon adsorption/absorption hydrocarbon vapor recovery system does not combust natural gas there will be no by-product emissions that occur from the combustion of natural gas.

The table below provides a comparison of the limited potential to emit for both types of loadout systems. The limited potential to emit VOC for the carbon adsorption/absorption hydrocarbon vapor recovery system is less than the enclosed flare and the carbon adsorption/absorption hydrocarbon vapor recovery system will not have the potential to emit carbon monoxide (CO) and nitrogen oxides (NOx). The use of the carbon adsorption/absorption hydrocarbon vapor recovery system also saves approximately 13 million cubic feet of natural gas.

Limited PTE Comparison Between Liquid Load Systems (tons/year)*		
Pollutant	**Carbon Adsorption/Absorption Hydrocarbon Vapor Recovery System**	**Enclosed Flare****
VOC	5.67***	8.44
CO	0.0	4.65
NOx	0.0	2.79
Natural Gas Combustion (MMcf per year)	0.0	12.8

* Each system includes the truck/rail and barge emissions associated with the worst-case loadout of 135.7 MMGal of E85 per year.

** Existing Limits in the permit and includes the two-pilot flare emissions at 0.1 MMBtu/hr for 8760 hours and the worst-case truck/rail loading at 1.26 MMBtu/hr for 8760 hours compared to the 2000 hour limit for the 3.78 MMBtu/hr barge loadout flare.

*** Limited VOC PTE = 0.0835 (lb/kgal) * 135,714.29 (kgal/yr) * 1/2000 (ton/lb) = 5.67 tons/yr

FINDINGS

Pursuant to 326 IAC 8-1-5(b), IDEM may approve a petition for a site-specific RACT plan if the petition:

1. is submitted in accordance with 326 IAC 8-1-5(a),

2. demonstrates that the alternative control measures represent RACT, and

3. contains a compliance schedule for achieving and maintaining a reduction of volatile organic compound emissions as expeditiously as practicable.

Based on the foregoing information, IDEM finds the following:

1. As VOC control technologies continue to evolve, IDEM agrees that dry mill ethanol plants should have the flexibility to use equivalent add-on control devices that are not currently specified in 326 IAC 8-5-6 (Fuel Grade Ethanol Production at Dry Mills) and have the ability to attain the intended minimum overall control efficiency of 98%.

2. IDEM supports the installation of control devices that can achieve similar control efficiencies without the aid of fossil fuels, thus eliminating the associated emissions from combustion.

3. As required by 326 IAC 8-5-6 (Fuel Grade Ethanol Production at Dry Mills), IDEM must confirm initial and continuing compliance with the proposed add-on control device, thus requiring compliance monitoring and record keeping requirements for the carbon adsorption/absorption hydrocarbon vapor recovery system.

CONDITIONS OF APPROVAL

The issuance of this Order is subject to the following conditions:

1. The Petitioner shall use a carbon adsorption/absorption hydrocarbon vapor recovery system, identified as C-2101, to control the emissions from ethanol loading to trucks and railcars (L-2101D).

2. The carbon adsorption/absorption hydrocarbon vapor recovery systems (C-2101) shall be in operation and control emissions from the ethanol loading systems (L-2101D) at all times when the ethanol loading systems are in operation.

3. The overall efficiency for the carbon adsorption/absorption hydrocarbon vapor recovery system (C-2101), including the capture efficiency and adsorption/absorption efficiency, shall be at least 98%. The Petitioner shall demonstrate compliance using methods approved by the department. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures) at least once every five (5) years from the date of the most recent valid compliance demonstration.

4. The Petitioner shall certify and maintain a continuous emissions monitoring system (CEMS) for each carbon bed within 180 days after the effective date of this Commissioner's Order. The CEMS shall meet the performance specifications of 40 CFR 60, Appendix B, Performance Specification No. 8 and is subject to monitor system certification requirements pursuant to 326 IAC 3-5.

5. The continuous VOC monitoring system shall be calibrated and operated to measure the outlet VOC concentration of the carbon adsorption/absorption hydrocarbon vapor recovery system serving the ethanol loading systems. The continuous VOC monitoring system shall be in operation at all times the ethanol loading systems are in operation, except during periods the monitoring system is undergoing quality assurance/quality control checks, repairs, replacement or maintenance or is malfunctioning. "Continuous" shall mean the collection of at least one measurement of the carbon adsorption/absorption hydrocarbon vapor recovery system outlet VOC concentration for each 15-minute block period.

6. The VOC CEMS is to be used as parametric monitoring to indicate breakthrough of VOC emissions and a spike in emissions. The VOC concentration indicating breakthrough shall be determined by an engineering analysis and shall be available for inspection, if requested by the department. If the carbon bed outlet VOC concentration exceeds the level determined to be breakthrough, then the Petitioner shall take reasonable steps to restore operation of the control device to its normal or usual manner of operation as expeditiously as possible in accordance with good air pollution control practices for minimizing excess emissions. Failure to take response steps shall be considered a deviation.

7. The Petitioner shall maintain records of the readings of the continuous VOC monitoring system.

ORDER

1. This Order approves the petition submitted by the Petitioner subject to the Conditions of the Approval and allows the Petitioner to control the VOC emissions from the ethanol loading rack using a John Zink carbon adsorption/absorption hydrocarbon vapor recovery system, in lieu of the requirement to control VOC emissions from the ethanol loading racks as specified in 326 IAC 8-5-6 (Fuel Grade Ethanol Production at Dry Mills).

2. This Order shall apply to and be binding upon the Petitioner, its successors and assigns. No change in ownership, corporate, or partnership status of the Petitioner shall in any way alter its status or responsibilities under this Order.

3. The Petitioner shall request a significant permit modification of its Part 70 permit pursuant to 326 IAC 2-7-12 within one hundred eighty (180) days to add the Conditions of Approval contained in the Order.

EFFECTIVE DATE OF ORDER

Pursuant to IC 4-21.5-3-5, IDEM will give notice of this Order to each person whom the order is directed and affected neighbors.

Pursuant to 40 CFR 51.102, this Order will be submitted to U.S. EPA as a revision to the Indiana state implementation plan. Upon approval by the U.S. EPA, this Order will be part of the Indiana state implementation plan.

This Order becomes effective on the eighteenth (18^{th}) day after this Order and notice of decision are deposited in the U.S. mail. Under IC 4-21.5-3-2(e), IC 4-21.5-3-5, and IC 4-21.5-3-7(a)(3), this Order may be appealed by filing a petition for review within eighteen (18) days after the date that affected persons were given notice through service by U.S. mail. A petition for review must be submitted to the Office of Environmental Adjudication (OEA), 100 North Senate Avenue, Room N-501 E, Indianapolis, Indiana 46204 as required by IC 4-21.5-3-7. The petition must contain facts demonstrating you are either the applicant, the person aggrieved or adversely affected by this decision, or otherwise entitled to review by law. Pursuant to IC 4-21.5-3-5(d), the Administrative Law Judge will provide parties who request review with notice of prehearing conferences, preliminary hearings, stays or orders disposing of all proceedings.

Persons seeking judicial review of this Order may do so in accordance with IC 4-21.5-5.

If you have procedural or scheduling questions regarding your request for review, you may contact the Office of Environmental Adjudication at (317) 232-8591. If you have questions regarding this Order, please contact Susan Bem, Air Programs Branch, Office of Air Quality, by telephone at (317) 233-5697 or email at sbem@idem.in.gov.

Dated at Indianapolis, Indiana this 8th day of Sept., 2015.

Carol S. Comer
Commissioner
Indiana Department of Environmental Management