West Virginia Department of Environmental Protection
Division of Air Quality

Fact Sheet

For Final Minor Modification Permitting Action Under 45CSR30 and Title V of the Clean Air Act

This Fact Sheet serves to address the changes specific to this Minor Modification, and shall be considered a supplement to the Fact Sheet corresponding with the Title V operating permit issued on April 24, 2012.

Permit Number: **R30-09900010-2012**
Application Received: **September 17, 2012**
Plant Identification Number: **03-54-099-00010**
Permittee: **Braskem America, Inc.**
Facility Name: **Neal Plant**
Mailing Address: **200 Big Sandy Road, Kenova, WV 25530**

Permit Action Number: *MM02* Revised*: November 27, 2013*

Physical Location:	Kenova, Wayne County, West Virginia
UTM Coordinates:	360.6 km Easting • 4,246.1 km Northing • Zone 17
Directions:	From I-64 take Exit 1. Go south on US 52, approximately 2 miles to the stop sign and turn right. Then take another right at "T" intersection and then go 1/4 mile then turn left just after going through railroad underpass. Make a left after underpass and go one mile to the plant entrance on the right.

Facility Description

Changes incorporated by this minor modification are with respect to the intermittent ISBL flare compliance demonstration requirements. The latest renewal permit specified that this emergency flare conduct a design evaluation in order to satisfy 40CFR64 compliance assurance monitoring (CAM) requirements that verify the unit is being operated efficiently. This design evaluation compares the unit's operating parameters to the Federal flare performance standards promulgated under 40CFR§60.18 for non assisted, air assisted, and steam assisted flares.

After the company conducted a detailed design evaluation review of the flare, it turned out the device was designed as a pressure assisted flare which does not correlate with the flare types covered by EPA's standard. The pressure assist design allows it to operate efficiently at tip velocities exceeding the maximum 400 ft/s velocity defined by EPA's standards.

The 40CFR§60.18 performance standards consist of design parameters such as minimum waste gas heating value and maximum burner tip velocities, which correlate with the efficiency studies conducted for EPA. The pressure assisted flare design was not tested by EPA at that time. The flare manufacturer, John Zink, designed the flare to burn up to 40,000 lb/hr VOC while operating at greater than 98% destruction efficiency, in a smokeless, patented design. This normal venting scenario utilizes a staged burner ring containing 18 total burners.

For larger emergency events a center pipe, U20, is opened in the middle of the burner ring. This scenario is designed for catastrophic events such as fires and can handle rates up to 230,000 lb /hr VOC. Under this extreme, the flare does not claim to operate in a smokeless fashion and therefore, does not claim the 98% efficiency. Normal operations, which are the subject of this Title V CAM review will remain intermittent in nature and less than 40,000 lb/hr VOC with a smokeless design and 98% destruction efficiency.

As expressed by Braskem, it's the company's intent to continue operating the ISBL flare as a smokeless unit in accordance with its design specifications defined by John Zink. As a result, all references within section 7.0 of the permit which refer to the Federal flare performance standards of 40CFR§60.18 will be changed to "manufacturer's specification".

Emissions Summary

There are no emission increases associated with this minor modification.

Title V Program Applicability Basis

This facility has the potential to emit 130 TPY CO and 163 TPY VOC. Due to this facility's potential to emit over 100 tons per year of criteria pollutant, Braskem 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.

The modification to this facility has been found to be subject to the following applicable rules:

Federal and State:	45CSR30	Operating permit requirement.
	40 C.F.R. Part 64	Compliance Assurance Monitoring

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)*
R13-1830J	07-10-2012	
G60-C019	08-30-2010	

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 Title V Permit Section 7.0. are as follows:

7.2.5. **Quality Improvement Plan (QIP)**

(a) Based on the results of a determination made under permit condition 7.2.3.b, 7.2.5.(b), or 7.2.5.(c) the Administrator or the Director may require the permittee to develop and implement a QIP. If a QIP is required, it shall be developed, implemented, and modified as required according to 40 C.F.R. §§64.8(b) through (e). Refer to permit condition 7.5.1(b)(iii) for the reporting required when a QIP is implemented.

(b) If five (5) percent or greater of the time, is documented with no pilot light available during a calendar quarter, the permittee shall develop and implement a QIP. The Director may waive this QIP requirement upon a demonstration that the cause(s) of the excursions have been corrected, or may require flare assessment tests at any time ~~pursuant to 40 C.F.R. §60.18~~ to verify manufacturer's design specifications are being adhered to.

(c) If during any time period the permittee observes a visible emission (VE) excursion, which shall be defined as, the presence of visible emissions exceeding 5 minutes within any 2 hour time period the permittee shall develop and implement a QIP. Additionally, the observed emissions should not be counted towards the total if related to a pilot light excursion or during a startup, shutdown or malfunction (SSM) event.

In developing a QIP due to visible emission excursions, the source shall identify through process knowledge and flow monitoring data the type and amount of waste gas going to the flare at the time of each VE excursion. The data gathered shall be compared to the design criteria established within ~~40 C.F.R. §60.18~~ the manufacturer's design specification.

7.3.2. In order to verify a control efficiency based on pilot light availability and no visible emissions, a design analysis based on manufacturer's recommendations shall be conducted to determine the ~~in order to assess compliance with~~ minimum gas heating value and tip velocity ~~requirements specified by 40 C.F.R. §60.18.~~ The design analysis shall take into account each of the intermittent venting scenarios that can reasonably be expected to occur when operating the polypropylene production unit. This design analysis shall be submitted for approval within 150 days of permit issuance.

During this review, the ISBL flare design evaluation, as required by permit condition 7.3.2, was submitted on

September 21, 2012 and approved by the writer. The evaluation demonstrated operating parameters within the manufacturer's design range based on a maximum of 43,380 lb/hr waste gas combustion during smokeless operation. The tip velocities were estimated by the manufacturer based on header pressures, to be between 405 - 638 ft/sec. These tip velocities correspond to combusting a waste gas containing 83% propylene and 16% propane on a volume basis. The waste gas heating value was calculated for this mixture and found to be 2,498 Btu per cubic foot. The fact that this waste gas has such a high heating value allowed the manufacturer to take advantage of the pressure assisted design in an efficient smokeless manner.

Request for Variances or Alternatives

None

Insignificant Activities

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

Comment Period

Not Applicable for minor modifications

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

No comments were received from US EPA.