TITLE V OPERATING PERMIT RENEWAL APPLICATION
BRASKEM PP AMERICAS, INC. – NEAL PLANT

KENOVA, WEST VIRGINIA

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June 2010

Project 093601.0059

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1.1 INTRODUCTION

Braskem PP Americas, Inc. (Braskem), previously Sunoco Chemicals, Inc., owns and operates a polypropylene resin manufacturing facility located near Kenova, WV (Neal Plant). The facility currently operates under Title V Operating Permit R30-09900010-2006, issued January 3, 2006 (modified June 9, 2008), by the West Virginia Department of Environmental Protection (WVDEP). The current Title V Operating Permit expires January 3, 2011; therefore, Braskem is required to submit a Title V Operating Permit renewal application by July 3, 2010. With this application, Braskem is requesting a renewal of the Title V Operating Permit for the Neal Plant in accordance with Title 45, Legislative Rule of the Division of Air Quality (DAQ) Series (CSR) 30-4.1.a.3.

1.2 BRIEF FACILITY DESCRIPTION

The Neal Plant is a polypropylene resin manufacturing facility. The process to produce polypropylene resin includes a feed purification system, a polymerization processes, and a product finishing and shipping area. The Neal Plant's process includes a catalyst preparation system, two reaction loops, a material recovery step, and product extrusion process. The Neal Plant also operates a number of boilers to supply steam to various areas of the facility. A complete and detailed facility-wide process description was included in the January 2002 Title V Operating Application Update. A brief summary of each of these operations is provided below. Please refer to Attachment D for a comprehensive list of the emission units in operation at the facility.

Process Area 10 – Propylene and Propane Storage

Redacted Version - Claim of Confidentiality

Process Area 11 -- Distillation

Redacted Version - Claim of Confidentiality

Process Area 15 – Nitrogen

Redacted Version - Claim of Confidentiality

Process Area 16 – Railcar

Redacted Version - Claim of Confidentiality

Process Area 91 – Polymerization

Redacted Version - Claim of Confidentiality

Process Area 8 – Product Finishing and Shipping (FNS)

Redacted Version - Claim of Confidentiality

OSBL Flare and ISBL Flare

The OSBL Flare manages the fugitive equipment leaks and non-fugitive VOC emissions from Process Areas 10, 11, 15, and 16, and some emissions from Process Area 91. The ISBL Flare, while primarily an emergency flare, does manage some of the non-fugitive VOC emissions from Process Area 91. Emissions due to the maintenance of equipment are also vented to the OSBL and ISBL Flares. In the event of an emergency, the process equipment may release to the appropriate flare. Startup, shutdown, and malfunction emissions, including emergency emissions, are not included in VOC loading limits or emission estimates. Please note that with this application, Braskem is requesting that the Title V operating permit specifically state that startup, shutdown, and malfunction VOC loads to the flare and associated emissions are not included in the VOC load limits and the emission limits derived from the VOC load limits.

Natural Gas-Fired Boilers

Historically, the Neal Plant has utilized B602, a 155 MMBtu/hr coal-fired boiler, and B600, a 77 MMBtu/hr natural gas-fired boiler, as the facility's two main sources of steam production. At least one boiler must operate at all times in order for the plant to remain in operation with the other boiler serving as a back-up in case the main boiler experiences operational issues. Braskem received approval to install a temporary natural gas-fired boiler (B603) at the Neal Plant while maintenance was performed on B600 and B602. Braskem recently developed plans to replace B602 with a new natural gas-fired boiler, Boiler #4 (B604). However, the new boiler is not expected to be ready for installation and operation until 2011. Since B602 will be permanently shutdown, Braskem will require a back-up for B600 until B604 is installed. As such, Braskem intends to incorporate B603 as a permanent fixture at the Neal Plant until B604 is installed. Please see April 2010 permit application for additional information.

1.3 EMISSION UNITS TO BE SHUTDOWN

As discussed above and in Braskem' recent permit to construct application, Braskem will be permanently shutting down the Coal Boiler (B602) and all associated equipment upon issuance of permit to construct for B603. Therefore, this Title V operating permit renewal application does not include B602 and associated equipment. Please see Table 1-1 for a complete list of emission units to be shutdown.

TABLE 1-1. COAL BOILER AND ASSOCIATED EQUIPMENT

Emission Unit ID	Emission Point ID	Emission Unit Description	Control Device
001-01 Baghouse	02E	Boiler #2 (B602) - Coal Fired Steam Boiler: Baghouse	APCD
001-01 Multicyclone	02E	Boiler #2 (B602) - Coal Fired Steam Boiler: Multicyclones	Baghouse
001-01	02E	Boiler #2 (B602) - Coal Fired Steam Boiler: Overfeed Stoker, Model# CE Vertical Type VU, Serial# 19621	Multicyclones
Coal Storage Piles	Fugitive	Coal Storage Piles	NA
Coal Handling	Fugitive	Coal Handling	Water Mist
Coal Transfer	Fugitive	Coal Transfer	NA

Furthermore, Braskem no longer operates a few emission units in Area 91 and in the FNS area. Braskem is classifying these emission units, which are presented in Table 1-2, as being permanently shutdown. Therefore, these emission units are not included in renewal application. Braskem will be submitting an application for a Class I Administrative Update to current R13-1830 permit in accordance with 45CSR13-4.2.a.6 to reflect the permanent removal of these emission units.

TABLE 1-2. SHUTDOWN AREA 91 AND FNS EMISSION UNITS

Emission Unit ID	Emission Point ID	Emission Unit Description	Control Device
G-8011C	16E	Receiver Units Canister Filter C	APCD
G-8004	16E	D-8004 Masterbatch Receiver - Bag Filter	G-8011C
D-8004	16E	D-8004 Masterbatch Receiver	G-8004
G-8011A	19E	Receiver Units Canister Filter A	APCD
G-8005	19E	D-8005 Misc Additive Receiver - Bag Filter	G-8011A
G-8006	19E	D-8006 BHT Receiver - Bag Filter	G-8011A
G-8007	19E	D-8007 Misc Additive Receiver - Bag Filter	G-8011A
D-8005	19E	D-8005 Misc Additive Receiver	G-8005
D-8006	19E	D-8006 BHT Receiver	G-8006
D-8007	19E	D-8007 Misc Additive Receiver	G-8007
G-8011B	20E	Receiver Units Canister Filter B	APCD
G-8005	20E	D-8005 Misc Additive Receiver - Bag Filter	G-8011B
G-8006	20E	D-8006 BHT Receiver - Bag Filter	G-8011B
G-8007	20E	D-8007 Misc Additive Receiver - Bag Filter	G-8011B
D-8005	20E	D-8005 Misc Additive Receiver	G-8005
D-8006	20E	D-8006 BHT Receiver	G-8006
D-8007	20E	D-8007 Misc Additive Receiver	G-8007
G-8013	21E	Hard Resin Receiver Units Canister Filter	APCD
G-8009	21E	D-8009 Hard Resin Receiver - Bag Filter	G-8013
D-8009	21E	D-8009 Hard Resin Receiver	G-8009
G-8016	22E	WPA LIW Feeders Bag Filter	APCD
L-8004	22E	L-8004 LIW Feeder #3	G-8016
L-8005	22E	L-8005 LIW Feeder #7	G-8016
L-8006	22E	L-8006 LIW Feeder #6	G-8016
L-8007	22E	L-8007 LIW Feeder #4	G-8016
L-8009	22E	L-8009 LIW Feeder #2	G-8016
J-8055	23E	WPA Pellet Dryer	NA
G-8814	47E	WPB Classifier Undersized Pellets Bag Filter	APCD
L-8857	47E	WPB Pellet Classifier Undersized Pellets Line	G-8814
DF-508	53E	Discharge Hopper – Filter	APCD
D-509	53E	Discharge Hopper	DF-508
G-8008	55E	WPA LIW Feeder #1 Bag Filter	APCD
L-8008	55E	WPA LIW Feeder #1	G-8008
Unnamed Cyclone #1	64E	Portable Blower Unit #1 - Unnamed Cyclone #1	APCD
Portable Blower Unit #1	64E	Portable Blower Unit #1	Unnamed Cyclone #1
Unnamed After Filter	65E	WP1 & WP2 Feed Transport System After Filter	APCD
G-800	65E	WP1 & WP2 Feed Transport System Dust Collector	Unnamed After Filter
G-494	65E	G-494 WP1 Cyclone	G-800
G-495	65E	G-495 WP2 Cyclone	G-800
D-449	63E	Packing Silo	NA

ORGANIZATION OF APPLICATION

This Title V Operating Permit renewal application contains the following elements:

- Section 2: Regulatory Applicability
- Section 3: WVDAQ Application Forms
- Attachment A: Area Map
- Attachment B: Plot Plan
- Attachment C: Process Flow Diagrams
- Attachment D: Equipment Table
- Attachment E: Emission Unit Forms
- Attachment G: Air Pollution Control Device Forms
- Attachment H: CAM Plans
- Appendix A: PTE Calculations
- Appendix B: Confidentiality Claims

2. REGULATORY APPLICABILITY

A key objective of a Title V operating permit application is to compile all applicable Clean Air Act derived requirements into one document. The requirements can be categorized as: (1) emission limits and work practice standards; and (2) testing, monitoring, recordkeeping, and reporting requirements. To compile a list of the requirements applicable to a facility, it is first necessary to determine which Federal and State air regulations apply to the facility as a whole, or to individual emission units. This section documents the applicability determinations made for Federal and State air quality regulations. Regulations potentially applicable to the Neal Plant are detailed in Section 4 in the "Applicable Requirements" forms provided by WVDEP.

Additional details on applicability for several regulations are presented in this section. Specifically, the remainder of this section summarizes the air permitting requirements and key air quality regulations that apply to the operation of the Neal Plant. Applicability or non-applicability of the following regulatory programs is addressed:

- New Source Review (NSR) Permitting;
- Title V of the 1990 Clean Air Act Amendments;
- New Source Performance Standards (NSPS);
- National Emission Standards for Hazardous Air Pollutants (NESHAP);
- Acid Rain Program;
- Compliance Assurance Monitoring (CAM);
- Risk Management Plan (RMP);
- Stratospheric Ozone Protection; and
- West Virginia State Implementation Plan (SIP) Regulations

This review is presented to supplement and/or add clarification to the information provided in the WVDEP Title V application forms which fulfill the requirement to include citations and descriptions of applicable statutory and administrative code requirements. In addition to providing a summary of applicable requirements, this section of the application also provides non-applicability determinations for certain regulations, allowing WVDEP to confirm that identified regulations are not applicable to the Neal Plant. Note that explanations of non-applicability are limited to those regulations for which there may be some question of applicability specific to the operations at the Neal Plant. Regulations that are categorically non-applicable are not discussed.

2.1 NEW SOURCE REVIEW CLASSIFICATION

Federal construction permitting programs regulate new sources of pollutants under Prevention of Significant Deterioration (PSD) and Non-Attainment New Source Review (NANSR). Chemical process plants are classified as one of the 28 listed source categories in Title 40 of the Code of Federal Regulations (CFR), Section 52.21(b)(1)(i)(a) with a 100 ton per year (tpy) "major" source

PSD threshold. The Neal Plant is an existing "major" source with regard to PSD with facility-wide emissions of at least one PSD pollutant greater than 100 tpy. In addition, the Neal Plant is located in Wayne County, which was, and continues to be, "in attainment" or "unclassifiable" with the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants (see 40 CFR 81.336) with the exception of $PM_{2.5}$.[1] Therefore, any physical change or change in the method of operation of the facility that would result in a significant net emission increase of a PSD-pollutant would require PSD review prior to the modification.

The applicability of NANSR is evaluated for proposed modification projects that result in an emission increase of a criteria pollutant for which the area is not in attainment with the NAAQS. The Neal Plant is located in Wayne County, which is designated nonattainment for $PM_{2.5}$ per 40 CFR 81.349.

On May 16, 2008, the U.S. EPA published the final phase II rule for implementing the new standards for $PM_{2.5}$ within the Federal Register (FR).[2] These standards include a NANSR major source threshold of 100 tpy for $PM_{2.5}$ and its precursors. According to the implementation discussion provided in 73 FR 28342, the provisions of 40 CFR 51, Appendix S apply in any state that has yet to incorporate the nonattainment standards for $PM_{2.5}$ as part of its State Implementation Plan (SIP). Because WVDEP has yet to promulgate nonattainment standards for $PM_{2.5}$ in the requirements for pre-construction review provided in 45CSR19, all NANSR evaluations in Wayne County for $PM_{2.5}$ must be conducted according to 40 CFR 51, Appendix S. According to 40 CFR 51, Appendix S, Paragraph II.A.31(iii)(b), SO_2 is the only identified precursor to $PM_{2.5}$ in all $PM_{2.5}$ nonattainment areas. With the permanent shutdown of B602, the Neal Plant will no longer be a major source of SO_2. As shown in Appendix A, the Neal Plant is not a major source of $PM_{2.5}$.

2.2 TITLE V OPERATING PERMIT PROGRAM

The requirements of 40 CFR 70 establish the federal Title V operating permit program. West Virginia has incorporated the provisions of this federal program as part of SIP under 45CSR30. The major source thresholds with respect to the West Virginia Title V operating permit program regulations are 10 tons per year (tpy) of a single hazardous air pollutant (HAP), 25 tpy of any combination of HAPs, and 100 tpy of all other regulated pollutants. The potential emissions of at least one regulated pollutant exceed the corresponding threshold(s) at this facility. Therefore, the Neal Plant is classified as a major source for Title V purposes. As described in Section 1.1, Braskem is submitting this timely and complete renewal application by the submission deadline of July 3, 2010 (i.e., six months prior to the expiration of the current Title V Operating Permit) in accordance with 45CSR30-4.1.a.3.

2.3 NEW SOURCE PERFORMANCE STANDARDS

The federal NSPS require new, modified, or reconstructed sources to control emissions to the level that is achievable by the best demonstrated technology as specified in the applicable provisions of the

[1] Although WVDEP has recently submitted data to U.S. EPA demonstrating attainment with the annual $PM_{2.5}$ NAAQS, Wayne County will remain a nonattainment area for $PM_{2.5}$ until U.S. EPA promulgates revised attainment designations in 40 CFR 81.

[2] Volume 73 of the Federal Register, Pages 28321 through 28350 (73 FR 28321 through 28350).

rule. The following summary describes the applicability and non-applicability of NSPS subparts relevant to the Neal Plant.

2.3.1 NSPS DDD – STANDARDS OF PERFORMANCE FOR VOLATILE ORGANIC COMPOUND (VOC) EMISSIONS FROM THE POLYMER MANUFACTURING INDUSTRY

The raw material preparation, polymerization reaction, material recovery, product finishing, and product storage activities at the Neal Plant remain subject to the provisions of 40 CFR 60, Subpart DDD (NSPS DDD). As described in consent decree CO-R21-97-44 issued November 12, 1997 (CO-R21-97-44), Braskem achieves compliance with the requirements of 45CSR21 through compliance with NSPS DDD. The applicable emission standards for continuous and intermittent process vent streams at polypropylene facilities are provided in 40 CFR 60.562-1(a)(1) and 60.562-1(a)(2), respectively. Individual continuous vent streams that have uncontrolled emissions of less than 1.76 tpy are exempt from the requirements of 40 CFR 60.562-1(a)(1) according to 40 CFR 60.560(g). Therefore, VOC emissions from FNS as well as the uncontrolled emissions from the analyzers[3] are exempt from control requirements.

For all other continuous and intermittent process vent streams, Braskem utilizes the control options provided in 40 CFR 60.562-1(a)(1)(i)(C) and 60.562-1(a)(2)(i). Therefore, non-exempt process vent streams are controlled utilizing the OSBL and ISBL Flares. The OSBL Flare controls both continuous and intermittent vent streams while the ISBL Flare controls only intermittent vent streams.

Since the OSBL Flare is used to comply with continuous vent stream standards provided in 40 CFR 60.562-1(a)(1)(i)(C), it is required to meet the provisions of 40 CFR 60.18. Furthermore, 40 CFR 60.562-1(a)(2)(i)(A) through 40 CFR 60.562-1(a)(2)(i)(C) specify the compliance provisions for the ISBL Flare. Emergency vent streams, as defined in 40 CFR 60.561, at the Neal Plant are exempt from the requirements of 40 CFR 60.562-1(a)(2).[4]

In addition to process vent requirements, NSPS DDD contains leak detection and repair (LDAR) standards in 40 CFR 60.562-2, which are discussed in the 40 CFR 60, Subpart VV (NSPS VV) section below.

Braskem demonstrates compliance with the NSPS DDD process vent requirements, include flare provisions, via the monitoring requirements of 40 CFR 60.563(a)(2), 60.563(b)(2), 60.563(c), 60.563(d), and with the recordkeeping and reporting requirements of 40 CFR 60.565(a)(3), (a)(5), (b)(2), (e), (g), (h), and (k). No additional performance testing is required for either flare.

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[3] Sunoco Chemicals controls back purges as well as the speed loops associated the the facility analyzers. Only the sample streams from the analyzers are uncontrolled.

[4] The general standards and maintenance requirements provided in 40 CFR 60.11(c) specify that opacity standards (e.g., those provided for the OSBL Flare and ISBL Flare in 40 CFR 60.18(c)(1) and 40 CFR 60.562-1(a)(2)(i)(A), respectively) do not apply during periods of startup, shutdown, or malfunction. Additionally, emissions during SSM events in excess of the level of the applicable emission limit are not considered a violation of the applicable emission limit per 40 CFR 60.8(c).

As noted in Attachment H, Braskem is required to continuously monitor the flares. However, continuous monitoring for flares is not defined in NSPS DDD. With this application, Braskem is requesting that the Title V operating permit specifically state that continuous records will be considered to be a single reading in each fifteen (15) minute period.[5]

Additionally, Braskem has determined that the following material storage tanks are not subject to the requirements of NSPS DDD since they do not meet the definitions of any of the affected facilities provided in 40 CFR 60.560(a)(1). This non-applicability determination refers to the following tanks: F-698, D103, D105, D106A, D106B, D107, D110A, D110B, F-8809A, and F-8809B. Please see Section 19 of the Title V renewal application general form for additional information.

2.3.2 NSPS VV – Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry

The Neal Plant is not a synthetic organic chemical manufacturing industry (SOCMI) facility; therefore, the Neal Plant is not directly subject to NSPS VV. However, Areas 11, 15, and 91 of the Neal Plant are required to comply with NSPS VV standards in 40 CFR 60.482-1 through 40 CFR 60.482-10 in accordance with 40 CFR 60.562-2(a) of NSPS DDD. Additionally, consent decree CO-R21-97-44 extends the LDAR requirements of NSPS DDD and NSPS VV to Areas 10 and 16. Since the process streams in Area 8 contain less than ten (10)-percent VOC and the majority of such streams are in neither gas nor liquid service, the LDAR requirements of NSPS DDD and NSPS VV do not apply to Area 8.

NSPS VV standards include work practices and monitoring requirements for certain LDAR equipment known to contribute to fugitive VOC emissions (e.g., valves, pumps, and compressors). As provided in 40 CFR 60.562-2(b), the Neal Plant may elect to comply with the alternative standards for valves provided in 40 CFR 60.483-1 and 40 CFR 60.483-2. In addition to these work practice standards, Braskem utilizes the OSBL Flare to control emissions from LDAR equipment. Therefore, Braskem complies with the control device requirements provided in 40 CFR 60.482-10(d), which requires compliance with the general requirements for flares provided in 40 CFR 60.18.

Braskem will continue to comply with the work practice standards and monitoring, recordkeeping, and reporting requirements of NSPS VV.

2.3.3 NSPS VVa –Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry

As stated above, the Neal Plant is not a SOCMI facility; therefore, the Neal Plant is not directly subject to 40 CFR 60, Subpart VVa (NSPS VVa). Additionally, NSPS DDD does

[5] This is consistent with the definition of "continuous" specified in 40 CFR 60.563(a)(3), 60.564(i), 60.13(e)(2) for flow monitoring devices, temperature monitoring equipment, and continuous monitoring systems, respectively.

not incorporate NSPS VVa. Therefore, the Neal Plant is not required to comply with the provisions of NSPS VVa. Please see Section 19 of the Title V renewal application general form for additional information.

2.3.4 NSPS Dc – Standards of Performance for Small Industrial-Commercial Steam Generating Units

The affected source under 40 CFR 60, Subpart Dc (NSPS Dc) is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989, and that has a maximum design heat input capacity of 100 million British thermal units per hour (MMBtu/hr) or less, but greater than or equal to 10 MMBtu/hr. NSPS Dc contains emission standards for SO_2 and PM.

As provided in 40 CFR 60.41c, a steam-generating unit is defined as:

> *"…a device that combusts any fuel and produces steam or heats water or any other heat transfer medium. This term includes any duct burner that combusts fuel and is part of a combined cycle system. This term does not include process heaters as defined in this subpart."*

While NSPS Dc will be applicable to the two new proposed boilers (B603 and B604) at the Neal Plant, the current permanent boilers (B600, H-081, and H-082) at the Neal Plant are not subject to NSPS Dc.

A non-applicability determination with respect to 40 CFR 60, Subpart Dc was made pertaining to B600, a 77 MMBtu/hr natural gas-fired boiler constructed in 1961 before the 1989 applicability date. In 1995, a low NO_X burner was added to B600; however, the addition is not considered a modification under NSPS since it did not result in an increase of air pollutants for which NSPS Dc provides standards under 40 CFR 60.42c and 40 CFR 60.43c. *[Title V Permit Condition 3.7.2.b.]*

An additional non-applicability determination with respect to 40 CFR 60, Subpart Dc was made for the H-081 and H-082 boilers since the rated capacity for each boiler is less than the applicability threshold of 10 MMBtu/hr provided in 40 CFR 60.40c(a). *[Title V Permit Condition 3.7.2.c.]*

2.3.5 NSPS IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

According to 40 CFR 60.4200(a)(2), owners and operators of compression-ignition internal combustion engines (CI ICEs) constructed after July 11, 2005, must comply with the standards of 40 CFR 60, Subpart IIII (NSPS IIII).

Braskem installed each CI ICE (i.e., EG-1, EG-2, and EG-3) before July 11, 2005. Therefore, these CI ICEs do not meet the applicability provisions of NSPS IIII and are not subject to NSPS IIII.

2.3.6 NSPS JJJJ – STANDARDS OF PERFORMANCE FOR STATIONARY SPARK IGNITION INTERNAL COMBUSTION ENGINES

Affected sources under 40 CFR 60, Subpart JJJJ (NSPS JJJJ) include spark-ignition internal combustion engines. The provisions of 40 CFR 60.4248 define spark-ignition as related to gasoline-fueled engines or any other type of engine with a spark plug. The ICEs installed at the Neal Plant are compression-ignition ICEs; therefore, they are not subject to NSPS JJJJ.

2.4 NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

Maximum achievable control technology (MACT)-based NESHAPs (located in 40 CFR 63) require sources that are "major" for HAPs to control emissions to the level achievable by the best demonstrated technology as specified in the applicable provisions. A major source is defined in 40 CFR 63.2 as:

> *"…any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants…"*

Generally available control technology (GACT)-based NESHAPs (located in 40 CFR 63) require area (i.e., non-major) sources to control emissions to the level achievable by the use of generally available control technologies or management practices to reduce emissions of HAPs.

Although the Neal Plant has been historically classified as a major source with the potential to emit more than ten (10) tpy of a single HAP and 25 tpy of combined HAPs, the permanent shutdown of B602 will reduce potential emissions of HAPs to levels below the major source thresholds (refer to Appendix A for HAP PTE calculations). Therefore, the Neal Plant will become an area source (i.e., non-major source) of HAPs upon shutdown of B602.

Under its new classification as an area source, Braskem has evaluated the potential applicability of the GACT requirements for area sources and has determined that none of these subparts trigger any additional regulatory applicability for the Neal Plant.

2.4.1 40 CFR 63, SUBPART FFFF – NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS: MISCELLANEOUS ORGANIC CHEMICAL MANUFACTURING

Braskem is not subject to the standards and provisions in the miscellaneous organic NESHAP (MON) provided in 40 CFR 63, Subpart FFFF since the Neal Plant will be considered an area source of HAPs upon the permanent shutdown of B602. As described in 40 CFR 63.2435(a), 40 CFR 63, Subpart FFFF applies only to miscellaneous organic chemical manufacturing process units (MCPUs) at major sources of HAP emissions. Please note, historically, the Neal Plant has not been subject to the standards and provisions in 40 CFR 63, Subpart FFFF as the only major source of HAP emissions was B602 which is considered ancillary equipment. Per 40 CFR 63.2550, ancillary equipment

is not part of an MCPU. For additional information, please refer to the May 19, 2004 MON non-applicability letter from Jim Fain (Sunoco) to Jesse Hanshaw (WVDAQ).

2.4.2 40 CFR 63, SUBPART EEEE – NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS: ORGANIC LIQUIDS DISTRIBUTION

Braskem is not subject to the standards and provisions for organic liquids distribution (OLD) operations provided in 40 CFR 63, Subpart EEEE since the Neal Plant will be considered an area source of HAPs upon the permanent shutdown of B602. As described in 40 63.2334(a), 40 CFR 63, Subpart EEEE applies only to OLD operations at major sources of HAP emissions. Please note, historically, the Neal Plant has not been subject to the standards and provisions in 40 CFR 63, Subpart EEEE as the only major source of HAP emissions was B602. Additionally, the liquid materials handled and processed at the facility do not contain organic HAPs in concentrations of five (5) percent by weight or greater as determined according to the procedures specified in 40 CFR 63.2354(c). Therefore, the Neal Plant does not meet the definition of an OLD operation in 40 CFR 63.2406.

2.4.3 40 CFR 63, SUBPART VVVVVV – NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR CHEMICAL MANUFACTURING AREA SOURCES

The Neal Plant does not use as feedstock, generate as a byproduct, or produce as product in the chemical manufacturing process unit any of the HAPs listed in Table 1 of 40 CFR 63, Subpart VVVVVV (GACT 6V). Ancillary equipment (e.g., boilers) is not considered part of the chemical manufacturing process unit. Therefore, the Neal Plant is not subject to GACT 6V.

2.4.4 40 CFR 63, SUBPART ZZZZ – NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINES (RICE)

In accordance with 40 CFR 63.6590(b)(3), the fire pumps and water intake pump at the Neal Plant (H9202A, H9202B, and H516) are not currently subject to any requirements under 40 CFR 63, Subparts A and ZZZZ given that the associated internal combustion engines (EG-1, EG-2, and EG-3) meet the definition of emergency stationary reciprocating internal combustion engines (i.e., these pumps are operated only during emergency situations and for required testing and maintenance). However, USEPA recently promulgated amendments to Subpart ZZZZ[6] providing management practices for existing emergency generators at area sources. Therefore, Braskem will implement the appropriate standards for EG-1, EG-2, and EG-3 by the compliance date of May 3, 2013. Specifically, Braskem will implement the work practice standards of 40 CFR 63.6603 and 40 CFR 63.6625, as appropriate.

[6] 75 FR 9648, March 3, 2010

2.5 ACID RAIN REGULATIONS

Title IV (40 CFR 72 *et seq.*) of the Clean Air Act Amendments of 1990 established the Acid Rain Program to substantially reduce SO_2 and NO_X emissions from electric utility plants. Affected units are specifically listed in Tables 1 and 2 of 40 CFR 73.10 under Phase I and Phase II of the program. Under Phase III implementation, the Acid Rain Program applies to fossil fuel-fired combustion sources that drive generators for the purposes of generating electricity for sale. The Neal Plant is not a listed source in Tables 1 or 2 of 40 CFR 73.10, nor does the facility generate electricity. Accordingly, all subparts of the Acid Rain Program are categorically not applicable to the Neal Plant.

2.6 COMPLIANCE ASSURANCE MONITORING

Under the CAM provisions of 40 CFR 64, facilities are required to prepare and submit monitoring plans for certain emission units with the application for the first renewal of the Title V Operating Permit. The CAM Plans provide an on-going and reasonable assurance of compliance with emission limits. Under the general applicability criteria, this regulation only applies to emission units that use a control device to achieve compliance with an emission limit and whose pre-controlled emission levels exceed the major source thresholds under the Title V permitting program.

Braskem is submitting, in Attachment H, monitoring plans for any control devices at the Neal Plant that meet the CAM applicability criteria.

2.7 CHEMICAL ACCIDENT PREVENTION

Risk Management Plan (RMP) requirements are incorporated in the Neal Plant's Title V operating permit per Condition 3.1.9. According to Condition 3.1.9,

> *Should this stationary source, as defined in 40 C.F.R. § 68.3, become subject to Part 68, then the owner or operator shall submit a risk management plan (RMP) by the date specified in 40 C.F.R. § 68.10 and shall certify compliance with the requirements of Part 68 as part of the annual compliance certification as required by 40 C.F.R. Part 70 or 71.*
> *[40 C.F.R. 68]*

The Neal Plant is subject to the RMP provisions for propane and propylene. Per 40 CFR 68.190, sources subject to RMP provisions are required to update and resubmit RMPs at least every 5 years following the initial submittal. Braskem submitted its initial RMP in June 1999 and submitted the most recent RMP renewal in June 2009. The Neal Plant is in compliance with all requirements of 40 CFR 68.

2.8 STRATOSPHERIC OZONE PROTECTION REGULATIONS

The requirements provided in Title VI of the Clean Air Act, entitled Protection of Stratospheric Ozone, are contained in 40 CFR 82. Because Braskem maintains, services, or disposes appliances utilizing Class I or Class II ozone depleting substances, 40 CFR 82 Subpart F, *Recycling and Emissions Reduction*, applies to such activities at the Neal Plant. Subpart F generally requires persons completing the repairs, service, or disposal to be properly certified and follow specific work

practices during repair, service, and disposal activities. All repairs, service, and disposal of ozone depleting substances from any chillers and air conditioners at the facility are completed by a certified technician.

2.9 WEST VIRGINIA SIP REGULATIONS

This section of the renewal application identifies specific West Virginia SIP regulations relevant to the Neal Plant.

2.9.1 45CSR2 – TO PREVENT AND CONTROL PARTICULATE MATTER AIR POLLUTION FROM COMBUSTION OF FUEL IN INDIRECT HEAT EXCHANGERS

This rule contains requirements for particulate matter emissions from the combustion of fuel in indirect heat exchangers.[7] Pursuant to 45CSR2-3.1, the boilers at the Neal Plant shall not discharge smoke and/or particulate matter into the open air greater than ten (10) percent opacity based on a six minute block average.

Per 45CSR2-8.4.b:

> *"The owner or operator of a fuel burning unit(s) which combusts only natural gas shall be exempt from the requirements of subdivision 8.1.a and subsection 8.2."*

45CSR2-8.1.a and 8.2 specify the testing and monitoring requirements for the owner and operator of fuel burning units. Since the boilers at the Neal Plant combust only natural gas, Braskem is exempt from the testing and monitoring requirements of this rule.

A Type 'b' fuel burning unit, per the definitions provided in 45CSR2-2.10.b, is any fuel burning unit other than hand-fired or stoker-fired fuel burning units or units that generate steam or other vapor to produce electric power for sale. Therefore, the boilers at the Neal Plant are Type 'b' fuel burning units. Pursuant to 45CSR2-4.3, the allowable emission rate for these boilers shall be determined by the following formula:

$$R_e = \left(1 - \frac{H_{et} - H_e}{H_{et}}\right) \times R_{et}$$

Where,

R_e is the total allowable emission rate in pounds per hour for the new fuel burning unit(s);
H_{et} is the total design heat input in MMBtu/hr of the existing and new similar units;
R_{et} is the total allowable emission rate in pounds per hour corresponding to H_{et}; and
H_e is the total design heat input in MMBtu/hr for the new fuel burning unit(s).

Furthermore, per 45CSR2-4.1.b, the product of 0.09 and the total design heat input in MMBtu of all similar fuel burning units at the Neal Plant shall not 600 pounds per hour (lb/hr).

[7] The B101 propane heater at the Neal Plant is a process heater which does not meet the definition of "indirect heat exchanger" provided in 45CSR2-2.14. Therefore, B101 is not subject to the requirements of 45CSR2.

Braskem will maintain records of operating schedules and monthly natural gas usage within the natural gas boilers. Furthermore, the boilers must also meet the requirements for start-ups, shutdowns, and malfunctions provided in 45CSR2-9.

2.9.2 45CSR6 – To Prevent and Control Air Pollution from Combustion of Refuse

The provisions of 45CSR6 include emissions standards for particulate and opacity generated in incineration units. The OSBL Flare and ISBL Flare are subject to these provisions; however, compliance with the more stringent operating requirements for flares provided in NSPS A and NSPS DDD streamlines compliance with the particulate and opacity emission limits of 45CSR6.

2.9.3 45CSR7 – To Prevent and Control Particulate Matter Air Pollution from Manufacturing Processes and Associated Operations

The material handling operations conducted in the FNS area as well as one operation in the Polymerization (A-91) area meet the definition of manufacturing processes contained in 45CSR7-2.38. Therefore, they are required comply with the standards provided in 45CSR7-3 and 45CSR7-4 for emissions of opacity and particulate matter, respectively. Braskem personnel conduct monthly visible emissions checks to demonstrate compliance with the standards of 45CSR7. In the event that visible emissions are observed at a given source during three (3) consecutive monthly checks, Braskem personnel will conduct an opacity observation in accordance with the testing requirements of 45CSR7A. Furthermore, additional monitoring practices will be established for a few of the FNS emission sources in accordance with the CAM requirements of 40 CFR 64. Please see Attachment H for further information.

2.9.4 45CSR10 – To Prevent and Control Air Pollution from the Emission of Sulfur Oxides

This rule prevents and controls emissions of sulfur oxides (SO_X) from fuel burning sources, manufacturing process sources, and the combustion of refinery and/or process gas streams. According to Table 45-10A of 45CSR10, Wayne County is a priority III county. Braskem will comply with the hourly SO_2 emission limit calculated as specified in 45CSR10-3.3. This emission limit is calculated by multiplying 3.2 lb/MMBtu by the hourly heat input of a fuel burning unit to obtain an hourly SO_2 emission limit.

Per 45CSR10-10.3:

> *"The owner or operator of a fuel burning unit(s) which combusts natural gas, wood or distillate oil, alone or in combination, shall be exempt from the requirements of section 8…"*

Because the boilers at the Neal Plant combust only natural gas, Braskem is exempt from the testing, monitoring, and reporting requirements of 45CSR10-8 and 45CSR10A.

2.9.5 45CSR13 – Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation

This rule is generally applicable to the Neal Plant. Currently, the Neal Plant has two construction permits R13-1830F and R13-2819T. Additionally, the Neal Plant has submitted application R13-1830G for the permanent incorporation of B603 and the permanent shutdown of B602. As stated above, the Neal Plant has also permanently shut down a few sources in Area 91 and in the FNS area. Therefore, Braskem will submit a Class I Administrative Update for the removal of these sources from the R13 permit.

Additionally, Braskem utilizes three IC engines to drive water pumps in the event of a fire emergency at the Neal Plant. Braskem had historically designated these engines as insignificant fire suppression systems under Item 26 of the WVDEP Insignificant Activities Checklist. Upon further evaluation conducted during the preparation of this renewal application, Sunoco determined that these engines require G60-C Class II general permit registrations pursuant to 45CSR13. Therefore, Braskem is submitting the necessary application forms for registration of these engines under a separate cover letter.

It should be noted that the Neal Plant does not hold a 45CSR14 or 45CSR19 permit nor is the Neal Plant required to have a 45CSR14 or 45CSR19 permit.

2.9.6 45CSR16 – Standards of Performance for New Stationary Sources

The provisions of 45CSR16 incorporate by reference the NSPS standards contained in 40 CFR 60. Braskem will continue to comply with NSPS DDD and NSPS VV as described in subsections 2.3.1 and 2.3.2 of this report.

2.9.7 45CSR21 – Regulation to Prevent and Control Air Pollution from the Emission of VOC

Operations at the Neal Plant are subject to the standards for VOC emissions provided in Section 37 – Leaks from Synthetic Organic Chemical, Polymer, and Resin Manufacturing Equipment and Section 38 – Manufacture of High-Density Polyethylene, Polypropylene, and Polystyrene Resins of 45CSR21. Specifically, the OSBL Flare and ISBL Flare are required to comply with the operating standards contained in 45CSR21-38.3.a.3. Braskem demonstrates compliance with Sections 37 and 38 of 45CSR21 through compliance with NSPS VV and NSPS DDD.[8]

Additionally, the parts washers at the Neal Plant are subject to the requirements of Section 30 – Solvent Metal Cleaning. Per guidance from WVDEP, these requirements are not considered substantive requirements. Therefore, the parts washers have been included in the insignificant activity list provided in the general application form.

[8] As described in 45CSR21-37.1.a., the standards for equipment leaks apply to all equipment in VOC service at a polymer manufacturing facility. For Areas 10 and 16, Sunoco Chemicals demonstrates compliance with the standards of 45CSR21 through compliance with NSPS VV and NSPS DDD as described in CO-R21-97-44.

2.9.8 45CSR22 – AIR QUALITY MANAGEMENT FEE PROGRAM

This rule is generally applicable to the Neal Plant. In addition to permit to construct fees, 45CSR22-4.1a requires the Neal Plant to obtain a certificate to operate, which the Neal Plant obtains annually upon submittal of Certified Emission Statement.

2.9.9 45CSR28 – AIR POLLUTANT EMISSIONS BANKING AND TRADING

Braskem will request credits per 45CSR28 in association with the permanent shutdown of B602 and its associated equipment.

2.9.10 45CSR29 – RULE REQUIRING THE SUBMISSION OF EMISSION STATEMENTS FOR VOC EMISSIONS AND OXIDES OF NITROGEN EMISSIONS

45CSR29 requires the submission of emission statements for stationary sources of NO_X or VOC located in Putnam, Kanawha, Cabell, Wayne, Wood, and Greenbrier Counties. Operations at the Neal Plant exceed the emissions thresholds provided in 45CSR29-3.2. Braskem submits the Certified Emission Statement as well as emission inventory on an annual basis. Therefore, Braskem submits an annual emissions statement in accordance with the provisions of 45CSR29-4 and 45CSR29-5.

2.9.11 45CSR31 – CONFIDENTIAL INFORMATION

Some of the information (e.g., process descriptions and process flow diagrams) contained in this application is confidential business information since the release of it to competitors would allow them to determine process technology and provide an unfair competitive advantage. Therefore, Braskem is submitting a Confidential Business Information Claim as Appendix B in accordance with 45CSR31.

2.9.12 45CSR34 – EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

The provisions of 45CSR34 incorporate by reference the MACT standards contained in 40 CFR 63. As described in section 2.4.4 of this report, MACT ZZZZ is the only standard potentially applicable to operations at the Neal Plant; however, the emergency engines are considered to be subject to MACT ZZZZ with no requirements. Therefore, 45CSR34 triggers no unique regulatory applicability.

2.9.13 45CSR42 – GREENHOUSE GAS EMISSIONS INVENTORY

The provisions of 45CSR42 require the Neal Plant to report all greenhouse gases (GHGs) emitted above *de minimis* levels on an annual basis. The Neal Plant submits the required information with the annual emission inventory for criteria pollutants and HAPs. However, please note that the GHGs reported are not subject to the fees under 45CSR30 per 45CSR42-4.6.

3. WVDAQ APPLICATION FOR A TITLE V OPERATING PERMIT RENEWAL

West Virginia Department of Environmental Protection, Division of Air Quality, application for a renewal of a Title V Operating Permit.

The permit application forms in Attachments A through H and the supplemental information provided in Appendices A and B are being submitted as required by WVDEP for this Title V Operating Permit renewal application.

Cem
Oil Tanks
Oil Tanks
BOYD
WAYNE
Cem
Cem
Ebenezer Ch
PIPELINE
Campbell Run
Radio Tower
BM 554
BM 554
PIPELINE
Neal
Sunoco Chemicals
Neal Facility
BM 569
BM 570
Substation
Cem
Savage Branch

Figure E-1. Facility Plot Plan

REDACTED COPY - CLAIM OF CONFIDENTIALITY

NOTES

1. The locations of underground utility or flow lines are based on above-ground structures, locations of underground utilities/flow lines only exist when approved excavations have occurred. Locations of underground utilities/flow lines and structures were made during the preparation of this drawing to include buried utilities/structures.

2. A portion of the property is located in the 100 year flood plain as determined by Federal Emergency Management Agency Flood Insurance Rate Map Community-Panel Number 540000 0013 B dated September 18, 1987.

Sunoco Chemicals
Kanawha Plant
Nitro, WV 25143

PLOT PLAN OF
SUNOCO CHEMICAL - 2006
SHEET 1 OF 2

G-6175

SCALE: 1"=100'-0" DRAWN BY: LAWSON DATE: 03/04/01 CHECKED: 1 OF 2

NO.	DATE	DESCRIPTION	APPROVED
1			
2			

REDACTED COPY - CLAIM OF CONFIDENTIALITY

NOTES

1. The locations of underground utilities as shown hereon are based on above-ground structures. Locations of underground utilities/structures may vary from locations shown hereon. Additional buried utilities/structures may be encountered. No excavations were made during the progress of this survey to locate buried utilities/structures.

2. A portion of the subject property is in zone AE (areas where base flood elevations are determined), and a portion of the subject property is in zone X (Areas determined to be outside 500-year flood plain), as shown on Flood Insurance Rate Map Community-Panel Number 540200 0113 B, dated September 18, 1987

REVISIONS				
BY	REV	DESCRIPTION	DATE	APPROVED
---	---	---	---	---
LR	1	ASDCS SUBSTATION FILL AREA	07/3/02	-----

SUNOCO Chemicals

NEAL PLANT
200 NEL TANDY RD
KENOVA, WV 25530

PLOT PLAN OF
SUNOCO CHEMICAL - 2006
SHEET 2 OF 2

SIZE	EQUIP. NO.	DWG NO.	REV.
D	------	G-6175	1

SCALE: 1"=100'-0" DRWN BY: LRWATCH DATE: 07/14/03 SHEET: 2 OF 2

PROCESS FLOW DIAGRAMS - REDACTED - CLAIM OF CONFIDENTIALITY

REVISIONS				
REV	BY	DESCRIPTION	DATE	APPROVED
				_____
				_____
				_____
				_____

SUNOCO Chemicals

PROCESS FLOW DIAGRAMS

NEAL PLANT
200 BIG SANDY RD.
KENOVA, WV. 25530

SIZE:	EQUIP. NO.:	DWG NO.:	REV.:
D	_____		

SCALE:	DWN. BY:	DATE:	SHEET:
NONE			__ __

ATTACHMENT D - Emission Units Table

(includes all emission units at the facility except those designated as insignificant activities in Section 4, Item 24 of the General Forms)

Emission Unit ID[1]	Emission Point ID[1]	Emission Unit Description	Year Installed/ Modified	Design Capacity	Control Device[1]
Please refer to Table D-1 for the emission units table.					

[1]For 45CSR13 permitted sources, the numbering system used for the emission points, control devices, and emission units should be consistent with the numbering system used in the 45CSR13 permit. For grandfathered sources, the numbering system should be consistent with registrations or emissions inventory previously submitted to DAQ. For emission points, control devices, and emissions units which have not been previously labeled, use the following 45CSR13 numbering system: 1S, 2S, 3S,... or other appropriate description for emission units; 1C, 2C, 3C,... or other appropriate designation for control devices; 1E, 2E, 3E, ... or other appropriate designation for emission points.

Table D-1. Emission Units Table

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
001 - Utilities					
001-02	01E	B600 -Natural Gas Steam Boiler: Model# 1VP-10B, Serial# 6380	1961	77 MMBtu/hr	Low NO_X Burners (Installed in 1995)
001-03	70E	H-081: Nebraska Natural Gas Steam Boiler, Model# NS-A-20, Serial# D-3226	1993	6.3 MMBtu/hr	NA
001-04	70E	H-082: Nebraska Natural Gas Steam Boiler, Model# NS-A-20, Serial# D-3227	1993	6.3 MMBtu/hr	NA
Cooling Tower	Fugitive	Facility Cooling Tower			NA
EG-1	EG-1E	H9202A Emergency Generator	1988	330 hp	NA
EG-2	EG-2E	H9202B Emergency Generator	1988	330 hp	NA
EG-3	EG-3E	H516 Emergency Generator	1998	507 hp	NA
002 - Raw Material Prep (Areas 10, 11, 15, & 16)					
B101	B101E	Nitrogen Heater	1960	300 TPY Propane (1.7 MMBtu/hr)	NA
OSBL Flare (see Table 1 of the Flares CAM Plan for a list of controlled emission units)	B542E	OSBL Flare	Const. - 10/6/60 Modif. - 5/1/88	40,000 lb/hr	APCD
LDAR Components (A-10, A-11, A-15, and A-16)	Fugitive	Raw Material Prep Fugitive Emissions	--	--	Fugitive
Unpaved Roads	Fugitive	Facility-Wide Unpaved Roads	1960	--	NA
Paved Roads	Fugitive	Facility-Wide Paved Roads	1960	--	NA
003 - Polymerization (Area 11)					
ISBL Flare (see Table 2 of the Flares CAM Plan for a list of controlled emission units)	91E	ISBL Flare	1988	366,000 lb/hr	APCD
LDAR Components (A-91)	Fugitive	Poly Fugitive Emissions	--	--	Fugitive
005 - Product Finishing (Area 8)					
G-8816	52E	WPA Feeders - Bag Filter	--	--	APCD
L-8903	52E	L-8903 Feeder #2	1994	75,000 lb/hr	G-8812 - Bag Filter
L-8904	52E	L-8904 Feeder #3	1994	75,000 lb/hr	G-8812 - Bag Filter
L-8905	52E	L-8905 Feeder #5	1994	75,000 lb/hr	G-8812 - Bag Filter
L-8906	52E	L-8906 Feeder #6	1994	75,000 lb/hr	G-8812 - Bag Filter
L-8907	52E	L-8907 Feeder #7	1994	75,000 lb/hr	G-8812 - Bag Filter
L-8908	52E	L-8908 Feeder #4	1994	75,000 lb/hr	G-8812 - Bag Filter
L-8829	52E	L-8829 Blender/Conveyor	1994	75,000 lb/hr	G-8812 - Bag Filter
L-8856	56E	WPB Pellet Dryer	1994	75,000 lb/hr	NA
G-738	58E	WPB South Dust Collector	--	--	APCD
Matcon-Buls Loading Booth	58E	Matcon-Buls Loading Booth (2nd Floor)	1988	1,500 lb/hr	G-738 - South Dust Collector
Drum Weigh Station	58E	Drum Weigh Station (3rd Floor)	1988	1,500 lb/hr	G-738 - South Dust Collector
D-8808	58E	D-8808 Feeder to R1 New Line B Ribbon Blender (3rd Floor)	1988	1,500 lb/hr	G-738 - South Dust Collector
D-8809	58E	D-8809 Feeder to R1 New Line B Ribbon Blender (3rd Floor)	1988	1,500 lb/hr	G-738 - South Dust Collector
L-8829	58E	L-8829 Feeder to R1 New Line B Ribbon Blender (3rd Floor)	1988	1,500 lb/hr	G-738 - South Dust Collector
Matcon-Buls Unloading Booth	58E	Matcon-Buls Unloading Booth (3rd Floor)	1988	1,500 lb/hr	G-738 - South Dust Collector
Unnamed Cyclone #2	71E	Portable Blower Unit #2 - Unnamed Cyclone #2	--	--	APCD
Portable Blower Unit #2	71E	Portable Blower Unit #2	1980	8,000 lb/hr	Unnamed Cyclone #2
L-816B	68E	WP2 Extruder	1980	1,000 lb/hr	NA
WP2 Pellet Loading Hopper	69E	WP2 Pellet Loading Hopper	1980	1,000 lb/hr	NA
006 - Product Storage (Area 8)					
D-9003	24E	D-9003 Pellet Silo	1990	75,000 lb/hr	G-9001 - Bag Filter
D-9002	24E	D-9002 Pellet Silo	1990	75,000 lb/hr	G-9001 - Bag Filter
G-9002	26E	G-9002 Silo/Blender Bag Filter	--	--	APCD
D-9001	26E	D-9001 Pellet Silo	1990	75,000 lb/hr	G-9002 - Bag Filter
D-9004	26E	D-9004 Pellet Silo	1990	75,000 lb/hr	G-9002 - Bag Filter
G-9003	72E	G-9003 Blenders Bag Filter	--	--	APCD
D-9005	72E	D-9005 Pellet Silo	1994	75,000 lb/hr	G-9003 - Bag Filter
D-9012	72E	D-9012 Pellet Silo	1994	75,000 lb/hr	G-9003 - Bag Filter
G-9004	38E	G-9004 Blenders Bag Filter	--	--	APCD
D-9006	38E	D-9006 Pellet Silo	1994	75,000 lb/hr	G-9004 - Bag Filter
D-9011	38E	D-9011 Pellet Silo	1994	75,000 lb/hr	G-9004 - Bag Filter
G-9501	42E	Flotriator Bag Filter	--	--	APCD
L-9501	42E	Flotriator	1984	60,000 lb/hr	G-9501 - Bag Filter

Table D-1. Emission Units Table

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
006 - Product Storage (Area 8) (cont'd)					
G-9005	49E	G-9005 Blenders Bag Filter	--	--	APCD
D-9007	49E	D-9007 Pellet Silo	1994	75,000 lb/hr	G-9005 - Bag Filter
D-9010	49E	D-9010 Pellet Silo	1994	75,000 lb/hr	G-9005 - Bag Filter
G-9006	50E	G-9006 Blenders Bag Filter	--	--	APCD
D-9008	50E	D-9008 Pellet Silo	1994	75,000 lb/hr	G-9006 - Bag Filter
D-9009	50E	D-9009 Pellet Silo	1994	75,000 lb/hr	G-9006 - Bag Filter
G-9503	51E	Pelletron Bag Filter	--	--	APCD
L-9503	51E	Pelletron	1994	60,000 lb/hr	G-9503 - Bag Filter
G-0908	59E	Returned Rail Car Unloading Cyclone Cartridge Filter	--	--	APCD
G-0911	59E	Returned Rail Car Unloading Cyclone Bag Filter	--	--	G-0908 - Cartridge Filter
G-0904	59E	Returned Rail Car Unloading Cyclone	1980	5,479 lb/hr	G-0911 - Bag Filter
D-670 (SB-1)	60E	SB-1 Super Blender	1978	5,479 lb/hr	NA
D-672 (SB-2)	61E	SB-2 Super Blender	1981	5,479 lb/hr	NA
SB-3	62E	Truck Loading Pellet Silo	1979	33,000 lb/hr	NA

ATTACHMENT E - Emission Unit Form

Emission Unit Description Please refer to Table E-1. General EU Data Group 001

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
Group 001	Utilities	

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Please refer to Table E-1. General EU Data Group 001

Manufacturer:	**Model number:**	**Serial number:**
Construction date: MM/DD/YYYY	**Installation date:** MM/DD/YYYY	**Modification date(s):** MM/DD/YYYY

Design Capacity (examples: furnaces - tons/hr, tanks - gallons):

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes ___ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating:	**Type and Btu/hr rating of burners:**

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value

Emissions Data Please refer to Appendix A.

Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)		
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)		
Particulate Matter (PM_{10})		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

Please refer to Appendix A for emission calculations.

Applicable Requirements
List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included. Please refer to Table E-1. General EU Data Group 001
X Permit Shield
For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.) Please refer to Table E-1. General EU Data Group 001
Are you in compliance with all applicable requirements for this emission unit? X Yes ___No If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description Please refer to Table E-2. General EU Data Group 002

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
Group 002	Raw Material Prep (Areas 10, 11, 15, and 16)	

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Please refer to Table E-2. General EU Data Group 002

Manufacturer:	**Model number:**	**Serial number:**
Construction date: MM/DD/YYYY	**Installation date:** MM/DD/YYYY	**Modification date(s):** MM/DD/YYYY

Design Capacity (examples: furnaces - tons/hr, tanks - gallons):

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes ___ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating:	**Type and Btu/hr rating of burners:**

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value

Emissions Data Please refer to Appendix A.

Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)		
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)		
Particulate Matter (PM_{10})		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

Please refer to Appendix A for emission calculations.

Applicable Requirements
List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included. Please refer to Table E-2. General EU Data Group 002
X Permit Shield
For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.) Please refer to Table E-2. General EU Data Group 002
Are you in compliance with all applicable requirements for this emission unit? X Yes[1] ___No If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

[1] Please note that the Neal Plant has the required Flares' monitoring and record keeping systems in place; however, the Neal Plant has reported event-driven deviations of the associated monitoring and record keeping requirements.

ATTACHMENT E - Emission Unit Form

Emission Unit Description Please refer to Table E-3. General EU Data Group 003

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
Group 003	Polymerization (Area 91)	

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Please refer to Table E-3. General EU Data Group 003

Manufacturer:	**Model number:**	**Serial number:**
Construction date: MM/DD/YYYY	**Installation date:** MM/DD/YYYY	**Modification date(s):** MM/DD/YYYY

Design Capacity (examples: furnaces - tons/hr, tanks - gallons):

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes ___ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating:	**Type and Btu/hr rating of burners:**

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value

Emissions Data Please refer to Appendix A.		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)		
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)		
Particulate Matter (PM_{10})		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

Please refer to Appendix A for emission calculations.

Applicable Requirements
List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included. Please refer to Table E-3. General EU Data Group 003
X Permit Shield
For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.) Please refer to Table E-3. General EU Data Group 003
Are you in compliance with all applicable requirements for this emission unit? X Yes [1] ___No If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

[1] Please note that the Neal Plant has the required Flares' monitoring and record keeping systems in place; however, the Neal Plant has reported event-driven deviations of the associated monitoring and record keeping requirements.

ATTACHMENT E - Emission Unit Form

Emission Unit Description Please refer to Table E-5. General EU Data Group 005

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
Group 005	Product Finishing (Area 8)	

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Please refer to Table E-5. General EU Data Group 005

Manufacturer:	**Model number:**	**Serial number:**
Construction date: MM/DD/YYYY	**Installation date:** MM/DD/YYYY	**Modification date(s):** MM/DD/YYYY

Design Capacity (examples: furnaces - tons/hr, tanks - gallons):

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes ___ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating:	**Type and Btu/hr rating of burners:**

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value

Emissions Data Please refer to Appendix A.

Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)		
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)		
Particulate Matter (PM_{10})		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

Please refer to Appendix A for emission calculations.

Applicable Requirements
List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included. Please refer to Table E-5. General EU Data Group 005
X Permit Shield
For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.) Please refer to Table E-5. General EU Data Group 005
Are you in compliance with all applicable requirements for this emission unit? X Yes ___No If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description Please refer to Table E-6. General EU Data Group 006

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
Group 006	Product Storage (Area 8)	

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Please refer to Table E-6. General EU Data Group 006

Manufacturer:	**Model number:**	**Serial number:**
Construction date: MM/DD/YYYY	**Installation date:** MM/DD/YYYY	**Modification date(s):** MM/DD/YYYY

Design Capacity (examples: furnaces - tons/hr, tanks - gallons):

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes ___ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating:	**Type and Btu/hr rating of burners:**

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value

Emissions Data Please refer to Appendix A.		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)		
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)		
Particulate Matter (PM_{10})		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

Please refer to Appendix A for emission calculations.

Applicable Requirements
List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included. Please refer to Table E-6. General EU Data Group 006
X Permit Shield
For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.) Please refer to Table E-6. General EU Data Group 006
Are you in compliance with all applicable requirements for this emission unit? X Yes ___No If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

Table E-1. Group 001 - Utilities

Emission Unit ID	Emission Point ID	Emission Unit Description	Control Device	Manufacturer	Model #	Serial #	Construction Date	Installation Date	Modification Date	Design Capacity	Maximum Hourly Throughput	Unit	Maximum Annual Throughput	Unit	Maximum Operating Schedule
001-02	01E	Boiler #1 -Natural Gas Steam Boiler: Model# 1VP-10B, Serial# 6380	Low NO_X Burners (Installed in 1995)	Combustion Engineering, Inc.	1VP-10B	6380	1961	1961	1995	77 MMBtu/hr	77	MMBtu/hr	674,520	MMBtu/yr	8,760
001-03	70E	H-081: Nebraska Natural Gas Steam Boiler, Model# NS-A-20, Serial# D-3226	NA	Nebraska Boiler	NS-A-20	D-3226	1993	1993		6.3 MMBtu/hr	6.3	MMBtu/hr	55,188	MMBtu/yr	8,760
001-04	70E	H-082: Nebraska Natural Gas Steam Boiler, Model# NS-A-20, Serial# D-3227	NA	Nebraska Boiler	NS-A-20	D-3227	1993	1993		6.3 MMBtu/hr	6.3	MMBtu/hr	55,188	MMBtu/yr	8,760
EG-1	EG-1E	H9202A Emergency Generator	NA	Caterpillar	3406 B-DIT			1988		330 hp	2.25	ft^3/hr	1.13E-03	$MMft^3/yr$	500
EG-2	EG-2E	H9202B Emergency Generator	NA	Caterpillar	3406 B-DIT			1988		330 hp	2.25	ft^3/hr	1.13E-03	$MMft^3/yr$	500
EG-3	EG-3E	H516 Emergency Generator	NA	Caterpillar	3408 DITA			1998		507 hp	3.46	ft^3/hr	1.73E-03	$MMft^3/yr$	500
Cooling Tower	Fugitive	Facility Cooling Tower	NA					1961							8,760

Table E-1. Group 001 - Utilities

Emission Unit ID	Emission Point ID	Emission Unit Description	Applicable Requirements	Compliance Demonstration	Does this Unit Combust Fuel?	Direct / Indirect?	Type and Rating of Burners (Btu/hr)	Fuel Types	Usage	Max. Sulfur Content	Max. Ash Content	BTU Value
001-02	01E	Boiler #1 -Natural Gas Steam Boiler: Model# 1VP-10B, Serial# 6380	**45CSR2-3.1, R13-1830 Condition 4.1.14.** opacity shall not exceed 10% **45CSR2-4.1.b., R13-1830 Condition 4.1.14.** 6.93 lb/hr PM **45CSR2-9.1, 45CSR2-9.2, R13-1830 Condition 4.1.14.** opacity provisions for SSM **45CSR10-3.3.f., R13-1830 Condition 4.1.17.** 246.4 lb/hr SO_2	**45CSR2A-7.1.a.1, 45CSR2A-7.1.b, 45CSR2-8.3.c.,** **R13-1830 Condition 4.1.14.** records of fuel usage, operating schedule **45CSR2-8.1.b.,** **R13-1830 Condition 4.1.14.** PM testing, as requested by WVDEP **45CSR2-9.3, R13-1830 Condition 4.1.14.** malfunction reports **45CSR2-10.1, 45CSR10-9.1,** **R13-1830 Conditions 4.1.14. and 4.1.17.** exceptions for fuel shortages	Y	Indirect	77 MMBtu/hr	Natural Gas	661.3 MMscf/yr 75 Mscf/hr	NA	NA	1,020 Btu/scf
001-03	70E	H-081: Nebraska Natural Gas Steam Boiler, Model# NS-A-20, Serial# D-3226	**45CSR2-3.1, R13-1830 Condition 4.1.14.** opacity shall not exceed 10% **45CSR2-9.1, 45CSR2-9.2, R13-1830 Condition 4.1.14.** opacity provisions for SSM **R13-1830 Condition 4.1.6.** fire only natural gas maximum steam production per boiler: 5,000 lb/hr, or maximum heat input per boiler: 6.3 MMBtu/hr **R13-1830 Condition 4.1.7.** maximum usage per boiler: 46.8 x 10^6 ft^3 of natural gas per year **R13-1830 Condition 4.1.1.70E** 0.09 lb/hr, 0.36 tpy PM_{10} 0.01 lb/hr, 0.02 tpy SO_2 1.24 lb/hr, 4.68 tpy NO_X 1.04 lb/hr, 3.94 tpy CO 0.14 lb/hr, 0.26 tpy VOC	**45CSR2-10.1, R13-1830 Condition 4.1.14.** exceptions for fuel shortages **R13-1830 Condition 4.4.4.** records of monthly, rolling 12-month natural gas usage and records of monthly NO_X emissions	Y	Indirect	6.3 MMBtu/hr	Natural Gas	46.8 MMscf/yr 6.2 Mscf/hr	NA	NA	1,020 Btu/scf
001-04	70E	H-082: Nebraska Natural Gas Steam Boiler, Model# NS-A-20, Serial# D-3227			Y	Indirect	6.3 MMBtu/hr	Natural Gas	46.8 MMscf/yr 6.2 Mscf/hr	NA	NA	1,020 Btu/scf
EG-1	EG-1E	H9202A Emergency Generator	Sunoco Chemicals will comply with all terms and conditions of the **Class II General Permit G60-C** which include the following. **Condition 5.1.1.** operate according to manufacturer's recommendations **Condition 5.1.2.** emissions shall not exceed PTE listed in general permit registration **Condition 5.1.3.** rolling, 12-month fuel consumption shall not exceed limit listed in general permit registration	The permittee will comply with all terms and conditions of the **Class II General Permit G60-C** which include the following. **Condition 5.4.1.** maintain records of fuel type, hours of operation	Y	Direct		Diesel	1.13E-03 $MMft^3/yr$ 2.25 ft^3/hr			19,300 Btu/lb
EG-2	EG-2E	H9202B Emergency Generator	Sunoco Chemicals will comply with all terms and conditions of the **Class II General Permit G60-C** which include the following. **Condition 5.1.1.** operate according to manufacturer's recommendations **Condition 5.1.2.** emissions shall not exceed PTE listed in general permit registration **Condition 5.1.3.** rolling, 12-month fuel consumption shall not exceed limit listed in general permit registration	Sunoco Chemicals will comply with all terms and conditions of the **Class II General Permit G60-C** which include the following. **Condition 5.4.1.** maintain records of fuel type, hours of operation	Y	Direct		Diesel	1.13E-03 $MMft^3/yr$ 2.25 ft^3/hr			19,300 Btu/lb
EG-3	EG-3E	H516 Emergency Generator	The permittee will comply with all applicable terms and conditions of the **Class II General Permit G60-C** which include the following. **Condition 5.1.1.** operate according to manufacturer's recommendations **Condition 5.1.2.** emissions shall not exceed PTE listed in general permit registration **Condition 5.1.3.** rolling, 12-month fuel consumption shall not exceed limit listed in general permit registration	Sunoco Chemicals will comply with all applicable terms and conditions of the **Class II General Permit G60-C** which include the following. **Condition 5.4.1.** maintain records of fuel type, hours of operation	Y	Direct		Diesel	1.73E-03 $MMft^3/yr$ 3.46 ft^3/hr			19,300 Btu/lb
Cooling Tower	Fugitive	Facility Cooling Tower			N							

Table E-2. Group 002 - Raw Material Preparation (A-10, A-11, A-15 and A-16)

Emission Unit ID	Emission Point ID	Emission Unit Description	Control Device	Manufacturer	Model #	Serial #	Construction Date	Installation Date	Modification Date	Design Capacity	Maximum Hourly Throughput	Unit	Maximum Annual Throughput	Unit	Maximum Operating Schedule
B101	B101E	Nitrogen Heater	NA				1960	1960		300 TPY Propane (1.7 MMBtu/hr)	1.7	MMBtu/hr	14,892	MMBtu/yr	8,760
OSBL Flare[a]	B542E	OSBL Flare	APCD				10/6/1960	10/6/1960	5/1/1988	40,000 lb/hr[b]	40,000	lb/hr	175,200	tpy	8,760
LDAR Components (A-10, A-11, A-15, and A-16)	Fugitive	Raw Material Prep Fugitive Emissions	Fugitive				--	--		--	--				8,760
Facility-Wide Unpaved Roadways	Fugitive	Facility-Wide Unpaved Roads	NA				1960	1960		--	--				8,760
Facility-Wide Paved Roadways	Fugitive	Facility-Wide Paved Roads	NA				1960	1960		--	--				8,760

a. Although the OSBL Flare is a control device, it is included here since the applicable permit limits as well as regulatory requirements apply to the flare. Please see Table 1 of the Flares CAM Plan for the list of emission sources that vent to the OSBL Flare.

b. The OSBL Flare is designed to remain smokeless up to a capacity of 40,000 lb/hr.

Table E-2. Group 002 - Raw Material Preparation (A-10, A-11, A-15 and A-16)

Emission Unit ID	Emission Point ID	Emission Unit Description	Applicable Requirements	Compliance Demonstration	Does this Unit Combust Fuel?	Direct / Indirect?	Type and Rating of Burners (Btu/hr)	Fuel Types	Usage	Max. Sulfur Content	Max. Ash Content	BTU Value
B101	B101E	Nitrogen Heater			Y	Indirect	1.7 MMBtu/hr	Propane	57,600 gal/yr 6.58 gal/hr	NA	NA	91,500 Btu/gal
OSBL Flare[a]	B542E	OSBL Flare	**45CSR21-37, 45CSR21-38, 45CSR16, 40 CFR 60, Subpart DDD, R13-1830 Conditions 4.1.10., 4.1.11., 4.1.12., and 4.1.13.** incorporation of NSPS DDD as well as NSPS VV **40 CFR 60.562-1(a)(1)(i)(C), R13-1830 Conditions 4.1.11.** control continuous and intermittent VOC emissions in a flare meeting the requirements of 40 CFR 60.18; opacity standards do not apply during periods of startup, shutdown, or malfunction **45CSR6-4.1 and 4.3, R13-1830 Condition 4.1.15** compliance with NSPS A and DDD and R13-1830 limits streamlines compliance with 45CSR6-4.1 and 4.3 **R13-1830 Condition 4.1.1.B542E** 22.48 lb/hr, 3.69 tpy VOC 59.41 lb/hr, 9.78 tpy CO 10.94 lb/hr, 1.91 tpy NO_X 6.10 lb/hr, 1.01 tpy PM_{10} **R13-1830 Condition 4.1.2.** maximum non-SSM VOC load to OSBL Flare: 2,500,000 pounds per year **R13-1830 Condition 4.1.19.** emissions associated with the analyzer speed loops must be controlled by the flares.	**45CSR16, 40 CFR 60.563(a)(2), (b)(2), 60.563(c), (d)** operate monitoring equipment according to manufacturer's specifications continuously monitor and record the presence of the flare or each pilot light operate flares according to their designs monthly monitoring of car-sealed valves capable of diverting vent streams from flare **45CSR16, 40 CFR 60.565(e)** records of pilot light monitoring records of extinguished flare events **45CSR16, 40 CFR 60.565(g), (h), (i)** records of changes in feedstock, catalyst, or product recovery equipment records of any change in process operation that increases the uncontrolled emission rate of the process line results of performance tests **45CSR16, 40 CFR 60.565(k)** semiannual reporting of extinguished flare events, diverted vent stream events **R13-1830 Condition 4.5.1** emergency reports **R13-1830 Condition 4.5.2** excess emission reports	While the OSBL Flare (control device) burns fuel, the actual emission sources do not. Therefore, fuel burning information has not been included in Table E-2.							
LDAR Components (A-10, A-11, A-15, and A-16)	Fugitive	Raw Material Prep Fugitive Emissions	**45CSR16, 45CSR37, 40 CFR 60, Subpart DDD, R13-1830 Conditions 4.1.10., 4.1.11., 4.1.12., and 4.1.13.** Per 40 CFR 60.562-2, incorporation of NSPS VV **CO-R21-97-44** Extension of LDAR requirements to Areas 10 and 16	**45CSR16, 45CSR37, 40 CFR 60, Subpart DDD, R13-1830 Conditions 4.1.10., 4.1.11., 4.1.12., and 4.1.13.** Per 40 CFR 60.562-2, incorporation of monitoring, recordkeeping, and reporting requirements of NSPS VV.	N							
Facility-Wide Unpaved Roadways	Fugitive	Facility-Wide Unpaved Roads			N							
Facility-Wide Paved Roadways	Fugitive	Facility-Wide Paved Roads			N							

a. Although the OSBL Flare is a control device, it is included here since the applicable permit limits as well as regulatory requirements apply to the flare. Please see Table 1 of the Flares CAM Plan for the list of emission sources that vent to the OSBL Flare.

b. The OSBL Flare is designed to remain smokeless up to a capacity of 40,000 lb/hr.

Table E-3. Group 003 - Polymerization (A-91)

Emission Unit ID	Emission Point ID	Emission Unit Description	Control Device	Manufacturer	Model #	Serial #	Construction Date	Installation Date	Modification Date	Design Capacity	Maximum Hourly Throughput	Unit	Maximum Annual Throughput	Unit	Maximum Operating Schedule	Applicable Requirements	Compliance Demonstration	Does this Unit Combust Fuel?
ISBL Flare[a]	91E	ISBL Flare	APCD				1988	1988		366,000 lb/hr	366,000	lb/hr	1,603,080	tpy	8,760	**45CSR21-38, 45CSR16, 40 CFR 60, Subpart DDD, R13-1830 Conditions 4.1.11., 4.1.12., and 4.1.13.** incorporation of NSPS DDD **40 CFR 60.562-1(a)(2)(i), R13-1830 Condition 4.1.11.** control intermittent VOC emissions in a flare that is A. designed for no visible emissions (except for periods of 5 minutes during 2 consecutive hours), B. operated with a flame present at all times, and C. designed to maintain a stable flame; opacity standards do not apply during periods of startup, shutdown, or malfunction **45CSR6-4.1 and 4.3, R13-1830 Condition 4.1.15** compliance with NSPS DDD and R13-1830 limits streamlines compliance with 45CSR6-4.1 and 4.3 **R13-1830 Condition 4.1.1.91E** 6.68 lb/hr, 3.69 tpy VOC 17.65 lb/hr, 9.78 tpy CO 3.27 lb/hr, 1.91 tpy NO_X 1.81 lb/hr, 1.01 tpy PM_{10} **R13-1830 Condition 4.1.3.** maximum non-SSM VOC load to ISBL Flare: 2,500,000 pounds per year **R13-1830 Condition 4.1.5.** hourly polypropylene resin production limit: 75,000 lb/hr rolling, 12-month polypropylene resin production limit: 325,000 tpy	**45CSR16, 40 CFR 60.563(a)(2), (b)(2), 60.563(c), (d)** operate monitoring equipment according to manufacturer's specifications continuously monitor and record the presence of the flare or each pilot light operate flares according to their designs monthly monitoring of car-sealed valves capable of diverting vent streams from flare **45CSR16, 40 CFR 60.565(e)** records of pilot light monitoring records of extinguished flare events **45CSR16, 40 CFR 60.565(g) and (h)** records of changes in feedstock, catalyst, or product recovery equipment records of any change in process operation that increases the uncontrolled emission rate of the process line **45CSR16, 40 CFR 60.565(k)** semiannual reporting of extinguished flare events, diverted vent stream events **R13-1830 Condition 4.5.1** emergency reports **R13-1830 Condition 4.5.2** excess emission reports	While the ISBL Flare (control device) burns fuel, the actual emission sources do not. Therefore, fuel burning information has not been included in Table E-3.
LDAR Components (A-91)	Fugitive	Poly Fugitive Emissions	Fugitive				--	--		--	--				8,760	**45CSR16, 45CSR37, 40 CFR 60, Subpart DDD, R13-1830 Conditions 4.1.10., 4.1.11., 4.1.12., and 4.1.13.** Per 40 CFR 60.562-2, incorporation of NSPS VV	**45CSR16, 45CSR37, 40 CFR 60, Subpart DDD, R13-1830 Conditions 4.1.10., 4.1.11., 4.1.12., and 4.1.13.** Per 40 CFR 60.562-2, incorporation of monitoring, recordkeeping, and reporting requirements of NSPS VV.	N

[a] Although the ISBL Flare is a control device, it is included here since the applicable permit limits as well as regulatory requirements apply to the flare. Please see Table 2 of the Flares CAM Plan for the list of emission sources that vent to the ISBL Flare.

Table E-4. Group 005 - Product Finishing (A-8)

Emission Unit ID	Emission Point ID	Emission Unit Description	Control Device	Manufacturer	Model #	Serial #	Construction Date	Installation Date	Modification Date	Design Capacity	Maximum Hourly Throughput	Unit	Maximum Annual Throughput	Unit	Maximum Operating Schedule	Applicable Requirements	Compliance Demonstration	Does this Unit Combust Fuel?
L-8903	52E	L-8903 Feeder #2	G-8812 - Bag Filter	K-Tron	KML-T80V		1994	1994		75,000 lb/hr	75,000	lb/hr	325,000	tpy	8,760	**45CSR7-3.1., R13-1830 Condition 4.1.16** opacity shall not exceed 20% **45CSR7-4.1., Condition 4.1.1.** Compliance with R13-1830 limits streamlines compliance with 45CSR7-4.1. **R13-1830 Condition 4.1.1.52E** 0.02 lb/hr, 0.09 tpy PM_{10}	**45CSR7-9.1., R13-1830 Condition 4.5.3.** notification of opacity exceedances **R13-1830 Condition 4.2.1.** monthly visible emissions checks **R13-1830 Condition 4.3.4.** procedures for opacity observations **R13-1830 Condition 4.4.1.** records of monitoring **R13-1830 Condition 4.4.2.** records of maintenance of air pollution control equipment **R13-1830 Condition 4.4.3.** records of malfunction of air pollution control equipment **R13-1830 Condition 4.4.6.** records of monthly visible emissions checks	N
L-8904	52E	L-8904 Feeder #3	G-8812 - Bag Filter	K-Tron	KML-T50V		1994	1994		75,000 lb/hr	75,000	lb/hr	325,000	tpy	8,760			N
L-8905	52E	L-8905 Feeder #5	G-8812 - Bag Filter	K-Tron	K2ML-T35		1994	1994		75,000 lb/hr	75,000	lb/hr	325,000	tpy	8,760			N
L-8906	52E	L-8906 Feeder #6	G-8812 - Bag Filter				1994	1994		75,000 lb/hr	75,000	lb/hr	325,000	tpy	8,760			N
L-8907	52E	L-8907 Feeder #7	G-8812 - Bag Filter				1994	1994		75,000 lb/hr	75,000	lb/hr	325,000	tpy	8,760			N
L-8908	52E	L-8908 Feeder #4	G-8812 - Bag Filter	K-Tron	KML-T50V		1994	1994		75,000 lb/hr	75,000	lb/hr	325,000	tpy	8,760			N
L-8829	52E	L-8829 Blender/Conveyor	G-8812 - Bag Filter				1994	1994		75,000 lb/hr	75,000	lb/hr	325,000	tpy	8,760			N
Matcon-Buls Loading Booth	58E	Matcon-Buls Loading Booth (2nd Floor)	G-738 - South Dust Collector				1988	1988		1,500 lb/hr	1,500	lb/hr	6,570	tpy	8,760	**45CSR7-3.1., R13-1830 Condition 4.1.16** opacity shall not exceed 20% **45CSR7-4.1., Condition 4.1.1.** Compliance with R13-1830 limits streamlines compliance with 45CSR7-4.1. **R13-1830 Condition 4.1.1.58E** 0.18 lb/hr, 0.79 tpy PM_{10}		N
Drum Weigh Station	58E	Drum Weigh Station (3rd Floor)	G-738 - South Dust Collector				1988	1988		1,500 lb/hr	1,500	lb/hr	6,570	tpy	8,760			N
D-8808	58E	D-8808 Feeder to R1 New Line B Ribbon Blender (3rd Floor)	G-738 - South Dust Collector				1988	1988		1,500 lb/hr	1,500	lb/hr	6,570	tpy	8,760			N
D-8809	58E	D-8809 Feeder to R1 New Line B Ribbon Blender (3rd Floor)	G-738 - South Dust Collector				1988	1988		1,500 lb/hr	1,500	lb/hr	6,570	tpy	8,760			N
L-8829	58E	L-8829 Feeder to R1 New Line B Ribbon Blender (3rd Floor)	G-738 - South Dust Collector	Andritz Sprout-Bauer, Inc.	DA30-18	1994-00756	1988	1988		1,500 lb/hr	1,500	lb/hr	6,570	tpy	8,760			N
Matcon-Buls Unloading Booth	58E	Matcon-Buls Unloading Booth (3rd Floor)	G-738 - South Dust Collector				1988	1988		1,500 lb/hr	1,500	lb/hr	6,570	tpy	8,760			N
Portable Blower Unit #2	71E	Portable Blower Unit #2	Unnamed Cyclone #2				1980	1980		8,000 lb/hr	8,000	lb/hr	35,040	tpy	8,760	**45CSR7-3.1., R13-1830 Condition 4.1.16** opacity shall not exceed 20% **45CSR7-4.1., Condition 4.1.1.** Compliance with R13-1830 limits streamlines compliance with 45CSR7-4.1. **R13-1830 Condition 4.1.1.71E** 0.80 lb/hr, 3.50 tpy PM_{10}		N
L-8856	56E	WPB Pellet Dryer	NA				1994	1994		75,000 lb/hr	75,000	lb/hr	325,000	tpy	8,760	**45CSR7-3.1., R13-1830 Condition 4.1.16** opacity shall not exceed 20% **45CSR7-4.1., Condition 4.1.1.** Compliance with R13-1830 limits streamlines compliance with 45CSR7-4.1. **R13-1830 Condition 4.1.1.56E** 5.00 lb/hr, 21.90 tpy PM_{10}	**45CSR7-9.1., R13-1830 Condition 4.5.3.** notification of opacity exceedances **R13-1830 Condition 4.2.1.** monthly visible emissions checks **R13-1830 Condition 4.3.4.** procedures for opacity observations **R13-1830 Condition 4.4.1.** records of monitoring **R13-1830 Condition 4.4.6.** records of monthly visible emissions checks	N
L-816B	68E	WP2 Extruder	NA				1980	1980		1,000 lb/hr	1,000	lb/hr	4,380	tpy	8,760	**45CSR7-3.1., R13-1830 Condition 4.1.16** opacity shall not exceed 20% **45CSR7-4.1., Condition 4.1.1.** Compliance with R13-1830 limits streamlines compliance with 45CSR7-4.1. **R13-1830 Condition 4.1.1.68E** 0.12 lb/hr, 0.53 tpy PM_{10}		N
WP2 Pellet Loading Hopper	69E	WP2 Pellet Loading Hopper	NA				1980	1980		1,000 lb/hr	1,000	lb/hr	4,380	tpy	8,760	**45CSR7-3.1., R13-1830 Condition 4.1.16** opacity shall not exceed 20% **45CSR7-4.1., Condition 4.1.1.** Compliance with R13-1830 limits streamlines compliance with 45CSR7-4.1. **R13-1830 Condition 4.1.1.69E** 0.12 lb/hr, 0.53 tpy PM_{10}		N

Table E-5. Group 006 - Product Storage (A-8)

Emission Unit ID	Emission Point ID	Emission Unit Description	Control Device	Manufacturer	Model #	Serial #	Construction Date	Installation Date	Modification Date	Design Capacity	Maximum Hourly Throughput	Unit	Maximum Annual Throughput	Unit	Maximum Operating Schedule	Applicable Requirements	Compliance Demonstration	Does this Unit Combust Fuel?
D-9003	24E	D-9003 Pellet Silo	G-9001 - Bag Filter				1990	1990		75,000 lb/hr	75,000	lb/hr	325,000	tpy	8,760	**45CSR7-3.1., R13-1830 Condition 4.1.16** opacity shall not exceed 20% **45CSR7-4.1., Condition 4.1.1.** Compliance with R13-1830 limits streamlines compliance with 45CSR7-4.1. **R13-1830 Condition 4.1.1.24E** 0.02 lb/hr, 0.09 tpy PM_{10}	**45CSR7-9.1., R13-1830 Condition 4.5.3.** notification of opacity exceedances **R13-1830 Condition 4.2.1.** monthly visible emissions checks **R13-1830 Condition 4.3.4.** procedures for opacity observations **R13-1830 Condition 4.4.1.** records of monitoring **R13-1830 Condition 4.4.2.** records of maintenance of air pollution control equipment **R13-1830 Condition 4.4.3.** records of malfunction of air pollution control equipment **R13-1830 Condition 4.4.6.** records of monthly visible emissions checks	N
D-9002	24E	D-9002 Pellet Silo	G-9001 - Bag Filter				1990	1990		75,000 lb/hr	75,000	lb/hr	325,000	tpy	8,760			N
D-9001	26E	D-9001 Pellet Silo	G-9002 - Bag Filter				1990	1990		75,000 lb/hr	75,000	lb/hr	325,000	tpy	8,760	**45CSR7-3.1., R13-1830 Condition 4.1.16** opacity shall not exceed 20% **45CSR7-4.1., Condition 4.1.1.** Compliance with R13-1830 limits streamlines compliance with 45CSR7-4.1. **R13-1830 Condition 4.1.1.26E** 0.02 lb/hr, 0.09 tpy PM_{10}		N
D-9004	26E	D-9004 Pellet Silo	G-9002 - Bag Filter				1990	1990		75,000 lb/hr	75,000	lb/hr	325,000	tpy	8,760			N
D-9005	72E	D-9005 Pellet Silo	G-9003 - Bag Filter				1994	1994		75,000 lb/hr	75,000	lb/hr	325,000	tpy	8,760	**45CSR7-3.1., R13-1830 Condition 4.1.16** opacity shall not exceed 20% **45CSR7-4.1., Condition 4.1.1.** Compliance with R13-1830 limits streamlines compliance with 45CSR7-4.1. **R13-1830 Condition 4.1.1.72E** 0.02 lb/hr, 0.09 tpy PM_{10}		N
D-9012	72E	D-9012 Pellet Silo	G-9003 - Bag Filter				1994	1994		75,000 lb/hr	75,000	lb/hr	325,000	tpy	8,760			N
D-9006	38E	D-9006 Pellet Silo	G-9004 - Bag Filter				1994	1994		75,000 lb/hr	75,000	lb/hr	325,000	tpy	8,760	**45CSR7-3.1., R13-1830 Condition 4.1.16** opacity shall not exceed 20% **45CSR7-4.1., Condition 4.1.1.** Compliance with R13-1830 limits streamlines compliance with 45CSR7-4.1. **R13-1830 Condition 4.1.1.38E** 0.02 lb/hr, 0.09 tpy PM_{10}		N
D-9011	38E	D-9011 Pellet Silo	G-9004 - Bag Filter				1994	1994		75,000 lb/hr	75,000	lb/hr	325,000	tpy	8,760			N
L-9501	42E	Flotriator	G-9501 - Bag Filter				1984	1984		60,000 lb/hr	60,000	lb/hr	262,800	tpy	8,760	**45CSR7-3.1., R13-1830 Condition 4.1.16** opacity shall not exceed 20% **45CSR7-4.1., Condition 4.1.1.** Compliance with R13-1830 limits streamlines compliance with 45CSR7-4.1. **R13-1830 Condition 4.1.1.42E** 0.02 lb/hr, 0.09 tpy PM_{10}		N
D-9007	49E	D-9007 Pellet Silo	G-9005 - Bag Filter				1994	1994		75,000 lb/hr	75,000	lb/hr	325,000	tpy	8,760	**45CSR7-3.1., R13-1830 Condition 4.1.16** opacity shall not exceed 20% **45CSR7-4.1., Condition 4.1.1.** Compliance with R13-1830 limits streamlines compliance with 45CSR7-4.1. **R13-1830 Condition 4.1.1.49E** 0.02 lb/hr, 0.09 tpy PM_{10}		N
D-9010	49E	D-9010 Pellet Silo	G-9005 - Bag Filter				1994	1994		75,000 lb/hr	75,000	lb/hr	325,000	tpy	8,760			N
D-9008	50E	D-9008 Pellet Silo	G-9006 - Bag Filter				1994	1994		75,000 lb/hr	75,000	lb/hr	325,000	tpy	8,760	**45CSR7-3.1., R13-1830 Condition 4.1.16** opacity shall not exceed 20% **45CSR7-4.1., Condition 4.1.1.** Compliance with R13-1830 limits streamlines compliance with 45CSR7-4.1. **R13-1830 Condition 4.1.1.50E** 0.02 lb/hr, 0.09 tpy PM_{10}		N
D-9009	50E	D-9009 Pellet Silo	G-9006 - Bag Filter				1994	1994		75,000 lb/hr	75,000	lb/hr	325,000	tpy	8,760			N
L-9503	51E	Pelletron	G-9503 - Bag Filter				1994	1994		60,000 lb/hr	60,000	lb/hr	262,800	tpy	8,760	**45CSR7-3.1., R13-1830 Condition 4.1.16** opacity shall not exceed 20% **45CSR7-4.1., Condition 4.1.1.** Compliance with R13-1830 limits streamlines compliance with 45CSR7-4.1. **R13-1830 Condition 4.1.1.51E** 3.14 lb/hr, 13.75 tpy PM_{10}		N
G-0904	59E	Returned Rail Car Unloading Cyclone	G-0911 - Bag Filter / G-0908 - Cartridge Filter				1980	1980		5,479 lb/hr	5,479	lb/hr	23,998	tpy	8,760	**45CSR7-3.1., R13-1830 Condition 4.1.16** opacity shall not exceed 20% **45CSR7-4.1., Condition 4.1.1.** Compliance with R13-1830 limits streamlines compliance with 45CSR7-4.1. **R13-1830 Condition 4.1.1.59E** 0.55 lb/hr, 2.40 tpy PM_{10}		N
D-670 (SB-1)	60E	SB-1 Super Blender	NA				1978	1978		5,479 lb/hr	5,479	lb/hr	23,998	tpy	8,760	**45CSR7-3.1., R13-1830 Condition 4.1.16** opacity shall not exceed 20% **45CSR7-4.1., Condition 4.1.1.** Compliance with R13-1830 limits streamlines compliance with 45CSR7-4.1. **R13-1830 Condition 4.1.1.60E** 0.55 lb/hr, 2.40 tpy PM_{10}	**45CSR7-9.1., R13-1830 Condition 4.5.3.** notification of opacity exceedances **R13-1830 Condition 4.2.1.** monthly visible emissions checks **R13-1830 Condition 4.3.4.** procedures for opacity observations **R13-1830 Condition 4.4.1.** records of monitoring **R13-1830 Condition 4.4.6.** records of monthly visible emissions checks	N
D-672 (SB-2)	61E	SB-2 Super Blender	NA				1981	1981		5,479 lb/hr	5,479	lb/hr	23,998	tpy	8,760	**45CSR7-3.1., R13-1830 Condition 4.1.16** opacity shall not exceed 20% **45CSR7-4.1., Condition 4.1.1.** Compliance with R13-1830 limits streamlines compliance with 45CSR7-4.1. **R13-1830 Condition 4.1.1.61E** 0.55 lb/hr, 2.40 tpy PM_{10}		N
SB-3	62E	Truck Loading Pellet Silo	NA				1979	1979		33,000 lb/hr	33,000	lbl/hr	144,540	tpy	8,760	**45CSR7-3.1., R13-1830 Condition 4.1.16** opacity shall not exceed 20% **45CSR7-4.1., Condition 4.1.1.** Compliance with R13-1830 limits streamlines compliance with 45CSR7-4.1. **R13-1830 Condition 4.1.1.62E** 2.38 lb/hr, 10.42 tpy PM_{10}		N

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: OSBL Flare	**List all emission units associated with this control device.** Please refer to Table G-1.	
Manufacturer:	**Model number:**	**Installation date:**
Please refer to Table G-1.		

Type of Air Pollution Control Device: Refer to Forms Data Spreadsheet, Attachment G

___ Baghouse/Fabric Filter ___ Venturi Scrubber ___ Multiclone

___ Carbon Bed Adsorber ___ Packed Tower Scrubber ___ Single Cyclone

___ Carbon Drum(s) ___ Other Wet Scrubber ___ Cyclone Bank

___ Catalytic Incinerator ___ Condenser ___ Settling Chamber

___ Thermal Incinerator ___ Flare ___ Other (describe) _____

___ Wet Plate Electrostatic Precipitator ___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Please refer to Table G-1.		

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

Please refer to Table G-1.

Is this device subject to the CAM requirements of 40 C.F.R. 64? _X_ Yes ___ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Please refer to Table G-1.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: ISBL Flare	**List all emission units associated with this control device.** Please refer to Table G-1.	
Manufacturer:	**Model number:**	**Installation date:**
Please refer to Table G-1.		

Type of Air Pollution Control Device: Refer to Forms Data Spreadsheet, Attachment G

___ Baghouse/Fabric Filter ___ Venturi Scrubber ___ Multiclone

___ Carbon Bed Adsorber ___ Packed Tower Scrubber ___ Single Cyclone

___ Carbon Drum(s) ___ Other Wet Scrubber ___ Cyclone Bank

___ Catalytic Incinerator ___ Condenser ___ Settling Chamber

___ Thermal Incinerator ___ Flare ___ Other (describe) _____

___ Wet Plate Electrostatic Precipitator ___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Please refer to Table G-1.		

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

Please refer to Table G-1.

Is this device subject to the CAM requirements of 40 C.F.R. 64? _X_ Yes ___ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Please refer to Table G-1.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: G-8812	**List all emission units associated with this control device.** Please refer to Table G-1.	
Manufacturer:	**Model number:**	**Installation date:**
Please refer to Table G-1.		

Type of Air Pollution Control Device: Refer to Forms Data Spreadsheet, Attachment G

___ Baghouse/Fabric Filter ___ Venturi Scrubber ___ Multiclone

___ Carbon Bed Adsorber ___ Packed Tower Scrubber ___ Single Cyclone

___ Carbon Drum(s) ___ Other Wet Scrubber ___ Cyclone Bank

___ Catalytic Incinerator ___ Condenser ___ Settling Chamber

___ Thermal Incinerator ___ Flare ___ Other (describe) _____

___ Wet Plate Electrostatic Precipitator ___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Please refer to Table G-1.		

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

Please refer to Table G-1.

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes _X_ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Please refer to Table G-1.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: G-738	**List all emission units associated with this control device.** Please refer to Table G-1.	
Manufacturer:	**Model number:**	**Installation date:**
Please refer to Table G-1.		

Type of Air Pollution Control Device: Refer to Forms Data Spreadsheet, Attachment G

___ Baghouse/Fabric Filter ___ Venturi Scrubber ___ Multiclone

___ Carbon Bed Adsorber ___ Packed Tower Scrubber ___ Single Cyclone

___ Carbon Drum(s) ___ Other Wet Scrubber ___ Cyclone Bank

___ Catalytic Incinerator ___ Condenser ___ Settling Chamber

___ Thermal Incinerator ___ Flare ___ Other (describe) _____

___ Wet Plate Electrostatic Precipitator ___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Please refer to Table G-1.		

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

Please refer to Table G-1.

Is this device subject to the CAM requirements of 40 C.F.R. 64? __ Yes _ X __ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Please refer to Table G-1.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: Unnamed Cyclone #2	**List all emission units associated with this control device.** Please refer to Table G-1.	
Manufacturer:	**Model number:**	**Installation date:**
Please refer to Table G-1.		

Type of Air Pollution Control Device: Refer to Forms Data Spreadsheet, Attachment G

___ Baghouse/Fabric Filter ___ Venturi Scrubber ___ Multiclone

___ Carbon Bed Adsorber ___ Packed Tower Scrubber ___ Single Cyclone

___ Carbon Drum(s) ___ Other Wet Scrubber ___ Cyclone Bank

___ Catalytic Incinerator ___ Condenser ___ Settling Chamber

___ Thermal Incinerator ___ Flare ___ Other (describe) _____

___ Wet Plate Electrostatic Precipitator ___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Please refer to Table G-1.		

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

Please refer to Table G-1.

Is this device subject to the CAM requirements of 40 C.F.R. 64? __ Yes _ X __ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Please refer to Table G-1.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: G-9001	**List all emission units associated with this control device.** Please refer to Table G-1.	
Manufacturer:	**Model number:**	**Installation date:**
Please refer to Table G-1.		

Type of Air Pollution Control Device: Refer to Forms Data Spreadsheet, Attachment G

___ Baghouse/Fabric Filter ___ Venturi Scrubber ___ Multiclone

___ Carbon Bed Adsorber ___ Packed Tower Scrubber ___ Single Cyclone

___ Carbon Drum(s) ___ Other Wet Scrubber ___ Cyclone Bank

___ Catalytic Incinerator ___ Condenser ___ Settling Chamber

___ Thermal Incinerator ___ Flare ___ Other (describe) _____

___ Wet Plate Electrostatic Precipitator ___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Please refer to Table G-1.		

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

Please refer to Table G-1.

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes _X_ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Please refer to Table G-1.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: G-9002	**List all emission units associated with this control device.** Please refer to Table G-1.	
Manufacturer:	**Model number:**	**Installation date:**
Please refer to Table G-1.		

Type of Air Pollution Control Device: Refer to Forms Data Spreadsheet, Attachment G

___ Baghouse/Fabric Filter ___ Venturi Scrubber ___ Multiclone

___ Carbon Bed Adsorber ___ Packed Tower Scrubber ___ Single Cyclone

___ Carbon Drum(s) ___ Other Wet Scrubber ___ Cyclone Bank

___ Catalytic Incinerator ___ Condenser ___ Settling Chamber

___ Thermal Incinerator ___ Flare ___ Other (describe) _____

___ Wet Plate Electrostatic Precipitator ___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Please refer to Table G-1.		

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

Please refer to Table G-1.

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes _X_ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Please refer to Table G-1.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: G-9003	**List all emission units associated with this control device.** Please refer to Table G-1.	
Manufacturer:	**Model number:**	**Installation date:**
Please refer to Table G-1.		

Type of Air Pollution Control Device: Refer to Forms Data Spreadsheet, Attachment G

___ Baghouse/Fabric Filter ___ Venturi Scrubber ___ Multiclone

___ Carbon Bed Adsorber ___ Packed Tower Scrubber ___ Single Cyclone

___ Carbon Drum(s) ___ Other Wet Scrubber ___ Cyclone Bank

___ Catalytic Incinerator ___ Condenser ___ Settling Chamber

___ Thermal Incinerator ___ Flare ___ Other (describe) _____

___ Wet Plate Electrostatic Precipitator ___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Please refer to Table G-1.		

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

Please refer to Table G-1.

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes _X_ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Please refer to Table G-1.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: G-9004	**List all emission units associated with this control device.** Please refer to Table G-1.	
Manufacturer:	**Model number:**	**Installation date:**
Please refer to Table G-1.		

Type of Air Pollution Control Device: Refer to Forms Data Spreadsheet, Attachment G

___ Baghouse/Fabric Filter ___ Venturi Scrubber ___ Multiclone

___ Carbon Bed Adsorber ___ Packed Tower Scrubber ___ Single Cyclone

___ Carbon Drum(s) ___ Other Wet Scrubber ___ Cyclone Bank

___ Catalytic Incinerator ___ Condenser ___ Settling Chamber

___ Thermal Incinerator ___ Flare ___ Other (describe) _____

___ Wet Plate Electrostatic Precipitator ___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Please refer to Table G-1.		

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

Please refer to Table G-1.

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes _X_ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Please refer to Table G-1.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: G-9501	**List all emission units associated with this control device.** Please refer to Table G-1.	
Manufacturer:	**Model number:**	**Installation date:**
Please refer to Table G-1.		

Type of Air Pollution Control Device: Refer to Forms Data Spreadsheet, Attachment G

___ Baghouse/Fabric Filter ___ Venturi Scrubber ___ Multiclone

___ Carbon Bed Adsorber ___ Packed Tower Scrubber ___ Single Cyclone

___ Carbon Drum(s) ___ Other Wet Scrubber ___ Cyclone Bank

___ Catalytic Incinerator ___ Condenser ___ Settling Chamber

___ Thermal Incinerator ___ Flare ___ Other (describe) _____

___ Wet Plate Electrostatic Precipitator ___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Please refer to Table G-1.		

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

Please refer to Table G-1.

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes _X_ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Please refer to Table G-1.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: G-9005	**List all emission units associated with this control device.** Please refer to Table G-1.	
Manufacturer:	**Model number:**	**Installation date:**
Please refer to Table G-1.		

Type of Air Pollution Control Device: Refer to Forms Data Spreadsheet, Attachment G

___ Baghouse/Fabric Filter ___ Venturi Scrubber ___ Multiclone

___ Carbon Bed Adsorber ___ Packed Tower Scrubber ___ Single Cyclone

___ Carbon Drum(s) ___ Other Wet Scrubber ___ Cyclone Bank

___ Catalytic Incinerator ___ Condenser ___ Settling Chamber

___ Thermal Incinerator ___ Flare ___ Other (describe) _____

___ Wet Plate Electrostatic Precipitator ___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Please refer to Table G-1.		

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

Please refer to Table G-1.

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes _X_ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Please refer to Table G-1.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: G-9006	**List all emission units associated with this control device.** Please refer to Table G-1.	
Manufacturer:	**Model number:**	**Installation date:**
Please refer to Table G-1.		

Type of Air Pollution Control Device: Refer to Forms Data Spreadsheet, Attachment G

___ Baghouse/Fabric Filter ___ Venturi Scrubber ___ Multiclone

___ Carbon Bed Adsorber ___ Packed Tower Scrubber ___ Single Cyclone

___ Carbon Drum(s) ___ Other Wet Scrubber ___ Cyclone Bank

___ Catalytic Incinerator ___ Condenser ___ Settling Chamber

___ Thermal Incinerator ___ Flare ___ Other (describe) _____

___ Wet Plate Electrostatic Precipitator ___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Please refer to Table G-1.		

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

Please refer to Table G-1.

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes _X_ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Please refer to Table G-1.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: G-9503	**List all emission units associated with this control device.** Please refer to Table G-1.	
Manufacturer:	**Model number:**	**Installation date:**
Please refer to Table G-1.		

Type of Air Pollution Control Device: Refer to Forms Data Spreadsheet, Attachment G

___ Baghouse/Fabric Filter ___ Venturi Scrubber ___ Multiclone

___ Carbon Bed Adsorber ___ Packed Tower Scrubber ___ Single Cyclone

___ Carbon Drum(s) ___ Other Wet Scrubber ___ Cyclone Bank

___ Catalytic Incinerator ___ Condenser ___ Settling Chamber

___ Thermal Incinerator ___ Flare ___ Other (describe) _____

___ Wet Plate Electrostatic Precipitator ___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Please refer to Table G-1.		

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

Please refer to Table G-1.

Is this device subject to the CAM requirements of 40 C.F.R. 64? __ Yes _ X __ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Please refer to Table G-1.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: G-0908	**List all emission units associated with this control device.** Please refer to Table G-1.	
Manufacturer:	**Model number:**	**Installation date:**
Please refer to Table G-1.		

Type of Air Pollution Control Device: Refer to Forms Data Spreadsheet, Attachment G

___ Baghouse/Fabric Filter ___ Venturi Scrubber ___ Multiclone

___ Carbon Bed Adsorber ___ Packed Tower Scrubber ___ Single Cyclone

___ Carbon Drum(s) ___ Other Wet Scrubber ___ Cyclone Bank

___ Catalytic Incinerator ___ Condenser ___ Settling Chamber

___ Thermal Incinerator ___ Flare ___ Other (describe) _____

___ Wet Plate Electrostatic Precipitator ___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Please refer to Table G-1.		

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

Please refer to Table G-1.

Is this device subject to the CAM requirements of 40 C.F.R. 64? __ Yes _ X _ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Please refer to Table G-1.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: G-0911	**List all emission units associated with this control device.** Please refer to Table G-1.	
Manufacturer:	**Model number:**	**Installation date:**
Please refer to Table G-1.		

Type of Air Pollution Control Device: Refer to Forms Data Spreadsheet, Attachment G

___ Baghouse/Fabric Filter ___ Venturi Scrubber ___ Multiclone

___ Carbon Bed Adsorber ___ Packed Tower Scrubber ___ Single Cyclone

___ Carbon Drum(s) ___ Other Wet Scrubber ___ Cyclone Bank

___ Catalytic Incinerator ___ Condenser ___ Settling Chamber

___ Thermal Incinerator ___ Flare ___ Other (describe) _____

___ Wet Plate Electrostatic Precipitator ___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Please refer to Table G-1.		

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

Please refer to Table G-1.

Is this device subject to the CAM requirements of 40 C.F.R. 64? __ Yes _X_ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Please refer to Table G-1.

Table G-1. Air Pollution Control Device Information

Emission Point ID	Control Device ID	Control Device Description	Emission Unit IDs	Manufacturer	Model #	Installation Date	Type	Controlled Pollutants	Capture Efficiency	Control Efficiency	Characteristic Design Parameters	CAM Required?	Parameters / Methods Indicating Performance
B542E	OSBL Flare	OSBL Flare	Refer to Table 1 of the Flares CAM Plan.	John Zink	STF-S-18C	Const. - 10/6/60 Modif. - 5/1/88	Flare	VOC	100%	98%	max flow: 6,000 cfm , avg flow: 0.1 cfm @ 70F, flare tip diameter: 18", flare gas temp: 70F	Yes	Continuous monitoring of each pilot light flame
91E	ISBL Flare	ISBL Flare	Refer to Table 2 of the Flares CAM Plan.	John Zink	STF-U-20	3/1/1988	Flare	VOC	100%	98%	Four-stage combustion (3 burners in stage 1, 5 burners in stage 2, 10 burners in stage 3, U-20 burner in stage 4), max flow: 41,422 cfm, flare gas temp: 70F	Yes	Continuous monitoring of each pilot light flame
52E	G-8812	WPB Feeders - Bag Filter	L-8903, L-8904, L-8905, L-8906, L-8907, L-8908, L-8829 Blender/Conveyor	Pacific Engineering		11/12/1987	Baghouse/Fabric Filter	Total Particulate	100%	99.9%	36 bags, 3-5"	No	Monthly visible emissions checks
58E	G-738	WPB South Dust Collector	Matcon-Buls Loading Booth, Drum Weigh Station, D-8808, D-8809, L-8829 Feeders, Matcon-Buls Unloading Booth	Mikropul	25S-10-TR-c-30	1991	Baghouse/Fabric Filter	Total Particulate	100%	98%		No	Monthly visible emissions checks
71E	Unnamed Cyclone #2	Portable Blower Unit #2 - Unnamed Cyclone #2	Portable Blower Unit #2				Multiclone	Total Particulate	100%	80%		No	Monthly visible emissions checks
24E	G-9001	G-9001 Silos Bag Filter	D-9002, D-9003 Pellet Silos	Allied Flotronics			Baghouse/Fabric Filter	Total Particulate	100%	99.9%		No	Monthly visible emissions checks
26E	G-9002	G-9002 Silo/Blender Bag Filter	D-9001, D-9004 Pellet Silos	Allied Flotronics			Baghouse/Fabric Filter	Total Particulate	100%	99.9%		No	Monthly visible emissions checks
72E	G-9003	G-9003 Blenders Bag Filter	D-9005, D-9012 Pellet Silos	Allied Flotronics	FTFR 54-96 VAC/PRES	6/5/1987	Baghouse/Fabric Filter	Total Particulate	100%	99.9%		No	Monthly visible emissions checks
38E	G-9004	G-9004 Blenders Bag Filter	D-9006, D-9011 Pellet Silos	Allied Flotronics			Baghouse/Fabric Filter	Total Particulate	100%	99.9%		No	Monthly visible emissions checks
42E	G-9501	Floriator Bag Filter	L-9501				Multiclone	Total Particulate	100%	99.9%		No	Monthly visible emissions checks
49E	G-9005	G-9005 Blenders Bag Filter	D-9007, D-9010 Pellet Silos	Allied Flotronics	FTFR 54-96 VAC/PRES	6/5/1987	Baghouse/Fabric Filter	Total Particulate	100%	99.9%		No	Monthly visible emissions checks
50E	G-9006	G-9006 Blenders Bag Filter	D-9008, D-9009 Pellet Silos	Allied Flotronics			Baghouse/Fabric Filter	Total Particulate	100%	99.9%		No	Monthly visible emissions checks
51E	G-9503	Pelletron Bag Filter	L-9503		100-PJD		Baghouse/Fabric Filter	Total Particulate	100%	98%		No	Monthly visible emissions checks
59E[a]	G-0908	Returned Rail Car Unloading Cyclone Cartridge Filter	G-0904	Alllied Flotronics		10/7/1986	Baghouse/Fabric Filter	Total Particulate	100%	99.9%		No	Monthly visible emissions checks
	G-0911	Returned Rail Car Unloading Cyclone Bag Filter		Allied Flotronics	FTFR 36-48	11/6/1986	Baghouse/Fabric Filter	Total Particulate	100%	98%			

[a.] Emissions from the returned railcar unloading cyclone (G-0904) are routed to the bag filter (G-0911) which vents to the cartridge filter (G-0908) which ultimately vents to emission point 59E.

ATTACHMENT H - Compliance Assurance Monitoring (CAM) Plan Form

For definitions and information about the CAM rule, please refer to 40 CFR Part 64. Additional information (including guidance documents) may also be found at http://www.epa.gov/ttn/emc/cam.html

CAM APPLICABILITY DETERMINATION

1) Does the facility have a PSEU (Pollutant-Specific Emissions Unit considered separately with respect to **EACH** regulated air pollutant) that is subject to CAM (40 CFR Part 64), which must be addressed in this CAM plan submittal? To determine applicability, a PSEU must meet **all** of the following criteria (*If No, then the remainder of this form need not be completed*): ☒ YES ☐ NO

a. The PSEU is located at a major source that is required to obtain a Title V permit;

b. The PSEU is subject to an emission limitation or standard for the applicable regulated air pollutant that is NOT exempt;

LIST OF EXEMPT EMISSION LIMITATIONS OR STANDARDS:

- NSPS (40 CFR Part 60) or NESHAP (40 CFR Parts 61 and 63) proposed after 11/15/1990.
- Stratospheric Ozone Protection Requirements.
- Acid Rain Program Requirements.
- Emission Limitations or Standards for which a WVDEP Division of Air Quality Title V permit specifies a continuous compliance determination method, as defined in 40 CFR §64.1.
- An emission cap that meets the requirements specified in 40 CFR §70.4(b)(12).

c. The PSEU uses an add-on control device (as defined in 40 CFR §64.1) to achieve compliance with an emission limitation or standard;

d. The PSEU has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than the Title V Major Source Threshold Levels; AND

e. The PSEU is NOT an exempt backup utility power emissions unit that is municipally-owned.

BASIS OF CAM SUBMITTAL

2) Mark the appropriate box below as to why this CAM plan is being submitted as part of an application for a Title V permit:

☒ RENEWAL APPLICATION. **ALL** PSEUs for which a CAM plan has NOT yet been approved need to be addressed in this CAM plan submittal.

☐ INITIAL APPLICATION (submitted after 4/20/98). **ONLY** large PSEUs (i. e., PSEUs with potential post-control device emissions of an applicable regulated air pollutant that are equal to or greater than Major Source Threshold Levels) need to be addressed in this CAM plan submittal.

☐ SIGNIFICANT MODIFICATION TO LARGE PSEUs. **ONLY** large PSEUs being modified after 4/20/98 need to be addressed in this cam plan submittal. For large PSEUs with an approved CAM plan, Only address the appropriate monitoring requirements affected by the significant modification.

3) [a] BACKGROUND DATA AND INFORMATION					
Complete the following table for **all** PSEUs that need to be addressed in this CAM plan submittal. This section is to be used to provide background data and information for each PSEU In order to supplement the submittal requirements specified in 40 CFR §64.4. If additional space is needed, attach and label accordingly.					
PSEU DESIGNATION	DESCRIPTION	POLLUTANT	CONTROL DEVICE	[b] EMISSION LIMITATION or STANDARD	[c] MONITORING REQUIREMENT
Please refer to Table H-1.					
EXAMPLE Boiler No. 1	Wood-Fired Boiler	PM	Multiclone	45CSR§2-4.1.c.; 9.0 lb/hr	Monitor pressure drop across multiclone: Weekly inspection of multiclone

[a] If a control device is common to more than one PSEU, one monitoring plan may be submitted for the control device with the affected PSEUs identified and any conditions that must be maintained or monitored in accordance with 40 CFR §64.3(a). If a single PSEU is controlled by more than one control device similar in design and operation, one monitoring plan for the applicable control devices may be submitted with the applicable control devices identified and any conditions that must be maintained or monitored in accordance with 40 CFR §64.3(a).

[b] Indicate the emission limitation or standard for any applicable requirement that constitutes an emission limitation, emission standard, or standard of performance (as defined in 40 CFR §64.1).

[c] Indicate the monitoring requirements for the PSEU that are required by an applicable regulation or permit condition.

CAM MONITORING APPROACH CRITERIA			
Complete this section for **EACH** PSEU that needs to be addressed in this CAM plan submittal. This section may be copied as needed for each PSEU. This section is to be used to provide monitoring data and information for EACH indicator selected for EACH PSEU in order to meet the monitoring design criteria specified in 40 CFR §64.3 and §64.4. if more than two indicators are being selected for a PSEU or if additional space is needed, attach and label accordingly with the appropriate PSEU designation, pollutant, and indicator numbers.			
4a) PSEU Designation:	**4b) Pollutant:**	**4c) [a] Indicator No. 1:**	**4d) [a] Indicator No. 2:**
91E	Please refer to Flares CAM Plan.		

5a) GENERAL CRITERIA Describe the MONITORING APPROACH used to measure the indicators:	Please refer to Flares CAM Plan.
[b] Establish the appropriate INDICATOR RANGE or the procedures for establishing the indicator range which provides a reasonable assurance of compliance:	
5b) PERFORMANCE CRITERIA Provide the SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, such as detector location, installation specifications, and minimum acceptable accuracy:	
[c] For new or modified monitoring equipment, provide VERIFICATION PROCEDURES, including manufacturer's recommendations, TO CONFIRM THE OPERATIONAL STATUS of the monitoring:	
Provide QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES that are adequate to ensure the continuing validity of the data, (i.e., daily calibrations, visual inspections, routine maintenance, RATA, etc.):	
[d] Provide the MONITORING FREQUENCY:	
Provide the DATA COLLECTION PROCEDURES that will be used:	
Provide the DATA AVERAGING PERIOD for the purpose of determining whether an excursion or exceedance has occurred:	

[a] Describe all indicators to be monitored which satisfies 40 CFR §64.3(a). Indicators of emission control performance for the control device and associated capture system may include measured or predicted emissions (including visible emissions or opacity), process and control device operating parameters that affect control device (and capture system) efficiency or emission rates, or recorded findings of inspection and maintenance activities.

[b] Indicator Ranges may be based on a single maximum or minimum value or at multiple levels that are relevant to distinctly different operating conditions, expressed as a function of process variables, expressed as maintaining the applicable indicator in a particular operational status or designated condition, or established as interdependent between more than one indicator. For CEMS, COMS, or PEMS, include the most recent certification test for the monitor.

[c] The verification for operational status should include procedures for installation, calibration, and operation of the monitoring equipment, conducted in accordance with the manufacturer's recommendations, necessary to confirm the monitoring equipment is operational prior to the commencement of the required monitoring.

[d] Emission units with post-control PTE ≥ 100 percent of the amount classifying the source as a major source (i.e., Large PSEU) must collect four or more values per hour to be averaged. A reduced data collection frequency may be approved in limited circumstances. Other emission units must collect data at least once per 24 hour period.

RATIONALE AND JUSTIFICATION

Complete this section for **EACH** PSEU that needs to be addressed in this CAM plan submittal. This section may be copied as needed for each PSEU. This section is to be used to provide rationale and justification for the selection of EACH indicator and monitoring approach and EACH indicator range in order to meet the submittal requirements specified in 40 CFR §64.4.

6a) PSEU Designation:	6b) Regulated Air Pollutant:
91E	Please refer to Flares CAM Plan

7) **INDICATORS AND THE MONITORING APPROACH**: Provide the rationale and justification for the selection of the indicators and the monitoring approach used to measure the indicators. Also provide any data supporting the rationale and justification. Explain the reasons for any differences between the verification of operational status or the quality assurance and control practices proposed, and the manufacturer's recommendations. (If additional space is needed, attach and label accordingly with the appropriate PSEU designation and pollutant):

Please Refer to Flares CAM Plan.

8) **INDICATOR RANGES**: Provide the rationale and justification for the selection of the indicator ranges. The rationale and justification shall indicate how **EACH** indicator range was selected by either a COMPLIANCE OR PERFORMANCE TEST, a TEST PLAN AND SCHEDULE, or by ENGINEERING ASSESSMENTS. Depending on which method is being used for each indicator range, include the specific information required below for that specific indicator range. (If additional space is needed, attach and label accordingly with the appropriate PSEU designation and pollutant):

- COMPLIANCE OR PERFORMANCE TEST (Indicator ranges determined from control device operating parameter data obtained during a compliance or performance test conducted under regulatory specified conditions or under conditions representative of maximum potential emissions under anticipated operating conditions. Such data may be supplemented by engineering assessments and manufacturer's recommendations). The rationale and justification shall INCLUDE a summary of the compliance or performance test results that were used to determine the indicator range, and documentation indicating that no changes have taken place that could result in a significant change in the control system performance or the selected indicator ranges since the compliance or performance test was conducted.

- TEST PLAN AND SCHEDULE (Indicator ranges will be determined from a proposed implementation plan and schedule for installing, testing, and performing any other appropriate activities prior to use of the monitoring). The rationale and justification shall INCLUDE the proposed implementation plan and schedule that will provide for use of the monitoring as expeditiously as practicable after approval of this CAM plan, except that in no case shall the schedule for completing installation and beginning operation of the monitoring exceed 180 days after approval.

- ENGINEERING ASSESSMENTS (Indicator Ranges or the procedures for establishing indicator ranges are determined from engineering assessments and other data, such as manufacturers' design criteria and historical monitoring data, because factors specific to the type of monitoring, control device, or PSEU make compliance or performance testing unnecessary). The rationale and justification shall INCLUDE documentation demonstrating that compliance testing is not required to establish the indicator range.

RATIONALE AND JUSTIFICATION:

Please Refer to Flares CAM Plan.

CAM MONITORING APPROACH CRITERIA			
Complete this section for **EACH** PSEU that needs to be addressed in this CAM plan submittal. This section may be copied as needed for each PSEU. This section is to be used to provide monitoring data and information for EACH indicator selected for EACH PSEU in order to meet the monitoring design criteria specified in 40 CFR §64.3 and §64.4. if more than two indicators are being selected for a PSEU or if additional space is needed, attach and label accordingly with the appropriate PSEU designation, pollutant, and indicator numbers.			
4a) PSEU Designation:	**4b) Pollutant:**	**4c) [a] Indicator No. 1:**	**4d) [a] Indicator No. 2:**
B542E	Please refer to Flares CAM Plan.		

5a) GENERAL CRITERIA Describe the MONITORING APPROACH used to measure the indicators:	Please refer to Flares CAM Plan.
[b] Establish the appropriate INDICATOR RANGE or the procedures for establishing the indicator range which provides a reasonable assurance of compliance:	
5b) PERFORMANCE CRITERIA Provide the SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, such as detector location, installation specifications, and minimum acceptable accuracy:	
[c] For new or modified monitoring equipment, provide VERIFICATION PROCEDURES, including manufacturer's recommendations, TO CONFIRM THE OPERATIONAL STATUS of the monitoring:	
Provide QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES that are adequate to ensure the continuing validity of the data, (i.e., daily calibrations, visual inspections, routine maintenance, RATA, etc.):	
[d] Provide the MONITORING FREQUENCY:	
Provide the DATA COLLECTION PROCEDURES that will be used:	
Provide the DATA AVERAGING PERIOD for the purpose of determining whether an excursion or exceedance has occurred:	

[a] Describe all indicators to be monitored which satisfies 40 CFR §64.3(a). Indicators of emission control performance for the control device and associated capture system may include measured or predicted emissions (including visible emissions or opacity), process and control device operating parameters that affect control device (and capture system) efficiency or emission rates, or recorded findings of inspection and maintenance activities.

[b] Indicator Ranges may be based on a single maximum or minimum value or at multiple levels that are relevant to distinctly different operating conditions, expressed as a function of process variables, expressed as maintaining the applicable indicator in a particular operational status or designated condition, or established as interdependent between more than one indicator. For CEMS, COMS, or PEMS, include the most recent certification test for the monitor.

[c] The verification for operational status should include procedures for installation, calibration, and operation of the monitoring equipment, conducted in accordance with the manufacturer's recommendations, necessary to confirm the monitoring equipment is operational prior to the commencement of the required monitoring.

[d] Emission units with post-control PTE ≥ 100 percent of the amount classifying the source as a major source (i.e., Large PSEU) must collect four or more values per hour to be averaged. A reduced data collection frequency may be approved in limited circumstances. Other emission units must collect data at least once per 24 hour period.

RATIONALE AND JUSTIFICATION

Complete this section for **EACH** PSEU that needs to be addressed in this CAM plan submittal. This section may be copied as needed for each PSEU. This section is to be used to provide rationale and justification for the selection of EACH indicator and monitoring approach and EACH indicator range in order to meet the submittal requirements specified in 40 CFR §64.4.

6a) PSEU Designation:	6b) Regulated Air Pollutant:
B542E	Please refer to Flares CAM Plan

7) **INDICATORS AND THE MONITORING APPROACH**: Provide the rationale and justification for the selection of the indicators and the monitoring approach used to measure the indicators. Also provide any data supporting the rationale and justification. Explain the reasons for any differences between the verification of operational status or the quality assurance and control practices proposed, and the manufacturer's recommendations. (If additional space is needed, attach and label accordingly with the appropriate PSEU designation and pollutant):

Please Refer to Flares CAM Plan.

8) **INDICATOR RANGES**: Provide the rationale and justification for the selection of the indicator ranges. The rationale and justification shall indicate how **EACH** indicator range was selected by either a COMPLIANCE OR PERFORMANCE TEST, a TEST PLAN AND SCHEDULE, or by ENGINEERING ASSESSMENTS. Depending on which method is being used for each indicator range, include the specific information required below for that specific indicator range. (If additional space is needed, attach and label accordingly with the appropriate PSEU designation and pollutant):

- COMPLIANCE OR PERFORMANCE TEST (Indicator ranges determined from control device operating parameter data obtained during a compliance or performance test conducted under regulatory specified conditions or under conditions representative of maximum potential emissions under anticipated operating conditions. Such data may be supplemented by engineering assessments and manufacturer's recommendations). The rationale and justification shall INCLUDE a summary of the compliance or performance test results that were used to determine the indicator range, and documentation indicating that no changes have taken place that could result in a significant change in the control system performance or the selected indicator ranges since the compliance or performance test was conducted.

- TEST PLAN AND SCHEDULE (Indicator ranges will be determined from a proposed implementation plan and schedule for installing, testing, and performing any other appropriate activities prior to use of the monitoring). The rationale and justification shall INCLUDE the proposed implementation plan and schedule that will provide for use of the monitoring as expeditiously as practicable after approval of this CAM plan, except that in no case shall the schedule for completing installation and beginning operation of the monitoring exceed 180 days after approval.

- ENGINEERING ASSESSMENTS (Indicator Ranges or the procedures for establishing indicator ranges are determined from engineering assessments and other data, such as manufacturers' design criteria and historical monitoring data, because factors specific to the type of monitoring, control device, or PSEU make compliance or performance testing unnecessary). The rationale and justification shall INCLUDE documentation demonstrating that compliance testing is not required to establish the indicator range.

RATIONALE AND JUSTIFICATION:

Please Refer to Flares CAM Plan.

Table H-1. PSEU Background Data and Information

PSEU Designation	Emission Unit Description	Pollutant	Control Device	Emission Limit	Permit Condition/Standard	Monitoring Requirement
002 - Raw Material Prep (Areas 10, 11, 15 & 16)						
B542E	OSBL Flare[a]	VOC	OSBL Flare	22.48 lb/hr 3.69 tpy	6.1.9.	Continuous monitoring of pilot light flames
003 - Polymerization (Area 91)						
91E	ISBL Flare[b]	VOC	ISBL Flare	6.68 lb/hr 3.69 tpy	6.1.9.	Continuous monitoring of pilot light flames

[a.] Emissions controlled by the OSBL Flare include Area 10, Area 11, Area 15, Area RR, Area 91, and certain LDAR equipment (e.g., pressure relief devices, pumps, and comperssors). Please see Flares CAM Plan for additional information.

[b.] Emissions controlled by the ISBL Flare include Area 91. Please see Flares CAM Plan for additional information.

FLARES COMPLIANCE ASSURANCE MONITORING PLAN

BRASKEM PP AMERICAS, INC. – NEAL PLANT ■ KENOVA, WV

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June 2010

Project 093601.0059

1. EMISSION UNITS

Identification: OSBL Flare (B542E) and ISBL Flare (91E)

TABLE 1. EMISSION UNITS CONTROLLED BY THE OSBL FLARE

Process Area	Equipment ID / Source Description	Venting Frequency
A-10, A-11, A-16	Maintenance bleeds and emergency relief	Intermittent and Startup, Shutdown, and Malfunction (SSM)
A-10, A-11	Pump seal pots	Continuous
A-11	J1101	Continuous
A-91	P302 compressor seal vent	Continuous
A-91	P501 compressor seal vent	Continuous
A-91	P503 compressor seal vent	Continuous
A-10	J1001 compressor seal vent	Continuous
A-10	J1003 compressor seal vent	Continuous
A-16	J1401 A, B, C, and D unloading compressors seal vents	Continuous
A-10	FAA-1002 (JA-1001 discharge pot)	Continuous
A-10	FAA-1003 (JA-1003 discharge pot)	Continuous
A-11	Back purge and speed loop vents on analyzers ARA-101 – ARA-106	Continuous
A-91	Back purge and speed loop vents on analyzer ARA-111	Continuous
A-91	Back purge and speed loop vents on analyzers AR201 and AR321	Continuous
A-91	Back purge and speed loop vents on analyzers AR3212A and AR3212B	Continuous
A-11	DA-1A-105 A/B dryer regenerations	Continuous

TABLE 2. EMISSION UNITS CONTROLLED BY THE ISBL FLARE

Process Area	Equipment ID / Source Description	Venting Frequency
A-91	Maintenance bleeds and emergency relief	Intermittent and SSM

2. APPLICABLE REGULATIONS, EMISSIONS LIMITS, AND MONITORING REQUIREMENTS

Regulation/ Emission Limit:	Title V Permit (R30-09900010-2006; MM01) Condition 6.1.9. Maximum hourly volatile organic compounds (VOC) emissions from 91E shall not exceed 6.68 pounds per hour (lbs/hr), and maximum annual VOC emissions from 91E shall not exceed 3.69 tons per year (tpy). Maximum hourly VOC emissions from B542E shall not exceed 22.48 lbs/hr, and maximum annual VOC emissions from B542E shall not exceed 3.69 tpy.
Current Monitoring Requirements:	Continuously monitor and record the presence of the flare or each pilot light flame through the use of a thermocouple or similar device. [Condition 6.2.1, 40 CFR 60.563(a)(2), 40 CFR 60.563(b)(2), and 40 CFR 60.18(f)(2)]

3. CONTROL TECHNOLOGY

Flare

The key elements of the Compliance Assurance Monitoring (CAM) monitoring approach, including the indicators to be monitored, indicator ranges, and performance criteria are presented in the following table. As encompassed by Table 3, the presence of the flare or each pilot light flame is the proposed indicator to assure compliance with the VOC emission limits.

TABLE 3. EMISSION POINTS 91E AND B542E CAM SUMMARY – VOC EMISSION LIMITS

Indicator	
Parameter	Presence of the flare or each pilot light flame
Measurement Approach	Braskem utilizes thermocouples to continuously monitor each of the pilot lights on the ISBL Flare and acoustic sensors to continuously monitor each of the pilot lights on the OSBL Flare.
Indicator Range	
Parameter Range	An excursion is defined as the absence of all pilot lights as reported by the acoustic sensors on the OSBL Flare or the absence of each pilot light as reported by the thermocouples on the ISBL Flare.
Performance Criteria	
Data Representativeness	Braskem has installed thermocouples to monitor the presence of each of the four pilot light flames on the ISBL Flare and acoustic sensors to monitor the presence of each of the three pilot light flames on the OSBL Flare. These monitors continuously record the presence or absence of the pilot light flames in the Neal Plant's PI system.
Verification of Operational Status	An alarm will alert Neal Plant personnel in the event that the pilot lights on the ISBL Flare or OSBL Flare have been extinguished. Additionally, Neal Plant personnel will utilize a camera to verify that the ISBL and OSBL Flares' pilot light flames are present after an alarm has occurred. [1] Upon confirmation that flare pilots have been extinguished, Neal Plant personnel will re-ignite the pilots. If Neal Plant personnel are unable to re-ignite the flare pilots, management personnel will attempt to implement further corrective actions or will recommend a process unit shutdown.
QA/QC Practices and Criteria	In accordance with the manufacturer's specifications, qualified personnel conduct inspections of the thermocouples and acoustic sensors to ensure that the monitors are operating properly.
Monitoring Frequency, Data Collection Procedures	The thermocouples and acoustic sensors continuously record the presence or absence of the pilot light flames in the Neal Plant's PI system. The data from the thermocouples and acoustic sensors are continuously recorded by the Neal Plant's PI system. For the purposes of CAM, continuous records will be considered to be a single reading in each fifteen (15)-minute period.[2]
Data Averaging Period	None

[1] Neal Plant personnel use a camera to verify that the ISBL Flare and OSBL Flare pilot light flames are present at least daily. At times, the pilot flames are detected via the camera after those instances in which a sensor indicated the absence of one or more pilot flames and re-ignition was not required.

[2] This is consistent with the definition of "continuous" specified in 40 CFR 60.563(a)(3), 60.564(i), 60.13(e)(2) for flow monitoring devices, temperature monitoring equipment, and continuous monitoring systems, respectively.

1. BACKGROUND

The OSBL Flare was installed in 1961 and manages the fugitive equipment leaks and non-fugitive VOC emissions from Process Areas A-10, A-11, A-15, and A-16, and certain emissions from Process Area 91 of the Neal Plant. The ISBL Flare was installed in 1988 and, while primarily an emergency flare, does manage certain of the non-fugitive VOC emissions from Process Area 91. Emissions due to maintenance of equipment are also vented to the OSBL and ISBL Flares. In the event of an emergency, the process equipment may release to the appropriate flare. Emergency emissions are not included in the VOC loading limits or emission estimates.

2. RATIONALE FOR PERFORMANCE INDICATOR SELECTION

The presence of the pilot flames indicates that the OSBL Flare and ISBL Flare are operating in such a manner as to achieve regulatory required destruction efficiencies. Therefore, Braskem believes that continuous verification of the presence of the flare flame pilot lights provides reasonable assurance that the OSBL Flare and ISBL Flare[3] are operating properly and that the VOC emissions are in compliance with the relevant emission limits provided in Condition 6.1.9. of the Title V operating permit. For the purposes of CAM, continuous records will be considered to be a single reading in each 15-minute period.

3. RATIONALE FOR INDICATOR RANGE SELECTION

Pursuant to provisions of 40 CFR 60, Subpart DDD (NSPS DDD), Braskem must control all continuous VOC emissions from the polypropylene production unit by operating the OSBL Flare in accordance with the general provisions for flares contained in 40 CFR 60, Subpart A (NSPS A). As described in 40 CFR 60.18(c)(2) and (f)(2), the Neal Plant is required to monitor the presence of the flare pilot flames using thermocouples or equivalent devices.

NSPS DDD was proposed before November 15, 1990, and does not contain what constitute exempt emission limits pursuant to the CAM requirements of 40 CFR 64.2(b)(1). However, the requirements for flares provided in NSPS A are analogously incorporated by reference into such regulations as 40 CFR 60, Subpart WWW, as well as several Maximum Achievable Control Technology (MACT) standards that were proposed after November 15, 1990. These requirements would meet the definition of exempt emission limits under CAM. Therefore, Braskem believes that the requirement to verify the presence of pilot light flames contained in NSPS A may be proposed as a feasible indicator range for demonstrating compliance with the relevant emission limits provided in Condition 6.1.9. of the Title V operating permit.

[3] Because the ISBL Flare utilizes staged combustion, Braskem will continuously verify the presence of the pilot lights on each stage.

Although the requirements for intermittent VOC emissions provided in NSPS DDD do not require the ISBL Flare to comply with NSPS A, Braskem is required to continuously monitor each pilot light flame associated with the ISBL Flare in accordance with 40 CFR 60.563(b)(2). These monitoring requirements are equivalent to NSPS A. Therefore, Braskem is proposing this monitoring as a feasible indicator range for demonstrating compliance with the relevant emission limits provided in Condition 6.1.9. of the Title V operating permit.

As noted above, the presence of the pilot flames indicates that the OSBL Flare and ISBL Flare are operating in such a manner as to achieve appropriate destruction efficiencies. The thermocouples and the acoustic sensors continuous monitoring of the presence of the pilot lights on the ISBL Flare and OSBL Flare, respectively, will be recorded by the Neal Plant's PI system. Any excursions will be cause for investigation and will be properly documented and reported.

Potential Emissions Calculations
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2.C	B603 NATURAL GAS COMBUSTION HAP EMISSIONS
3	EMERGENCY GENERATORS PTE
4	ISBL FLARE AND OSBL FLARE PTE
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6	COOLING TOWER PTE
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Table 1.A-Emissions Summary

Emission Unit ID	Emission Point ID	Emission Unit Description	Control Device	PM_{10} lb/hr	$PM_{2.5}$ lb/hr	PM lb/hr	SOx lb/hr	NOx lb/hr	CO lb/hr	VOC lb/hr	Lead lb/hr	Total HAPs lb/hr	Hexane[a] lb/hr	PM_{10} tons/yr	$PM_{2.5}$ tons/yr	PM tons/yr	SO_x tons/yr	NO_x tons/yr	CO tons/yr	VOC tons/yr	Lead tons/yr	Total HAPs tons/yr	Hexane[a] tons/yr
001 - Utilities																							
001-02	01E	Boiler #1 -Natural Gas Steam Boiler: Model# 1VP-10B, Serial# 6380	Low NO_X Burners 1995	0.57	0.57	0.57	0.05	7.55	6.34	0.42	3.8E-05	0.14	0.14	2.51	2.51	2.51	0.20	33.06	27.77	1.82	1.7E-04	0.62	0.60
001-03	70E	H-081: Nebraska Natural Gas Steam Boiler, Model# NS-A-20, Serial# D-3226	NA	0.04	0.04	0.04	0.00	0.53	0.45	0.03	2.7E-06	0.01	0.01	0.18	0.18	0.18	0.01	2.34	1.97	0.13	1.2E-05	0.04	0.04
001-04	70E	H-082: Nebraska Natural Gas Steam Boiler, Model# NS-A-20, Serial# D-3227	NA	0.04	0.04	0.04	0.00	0.53	0.45	0.03	2.7E-06	0.01	0.01	0.18	0.18	0.18	0.01	2.34	1.97	0.13	1.2E-05	0.04	0.04
B603	73E	B603 - Boiler #3 (Natural Gas Boiler)	NA	0.74	0.74	0.74	0.06	9.67	19.30	0.53	4.8E-05	0.18	0.17	2.66	2.66	2.66	0.21	35.00	69.83	1.93	1.8E-04	0.66	0.63
Water Intake and Fire Pumps	EG-1, EG-2, and EG-3	IC Engines	NA	2.57	2.57	2.57	2.39	36.18	7.80	2.93	NA	0.03	NA	0.64	0.64	0.64	0.60	9.04	9.04	0.73	NA	0.01	NA
Cooling Towers	Fugitive	Cooling Tower	NA	4.90	4.90	4.90	NA	NA	NA	0.81	NA	NA	NA	21.45	21.45	21.45	NA	NA	NA	3.55	NA	NA	NA
002 - Raw Material Prep																							
Analyzer Building 111	Insignificant Activity	Material Prep Analyzer Area Analyzer Building 111	NA	NA	NA	NA	NA	NA	NA	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.49	NA	NA	NA
B101	B101E	Nitrogen Heater	NA	4.6E-03	4.6E-03	4.6E-03	0.01	0.09	0.05	0.01	NA	1.1E-03	1.1E-03	0.02	0.02	0.02	0.05	0.37	0.22	0.03	NA	4.9E-03	4.7E-03
OSBL Flare	B542E	OSBL Flare	NA	0.23	0.23	0.23	1.3E-03	0.59	2.16	0.80	1.1E-06	4.0E-03	4.0E-03	1.01	1.01	1.01	0.006	2.58	9.47	3.49	4.9E-06	1.7E-02	1.7E-02
Speed Loops	B542E	Analyzer Speed Loops	OSBL Flare	5.3E-03	5.3E-03	5.3E-03	NA	9.5E-03	0.05	0.02	NA	NA	NA	0.02	0.02	0.02	NA	0.04	0.23	0.09	NA	NA	NA
Back Purges	B542E	Analyzer Back Purges	OSBL Flare	4.2E-03	4.2E-03	4.2E-03	NA	7.4E-03	0.04	0.02	NA	NA	NA	0.02	0.02	0.02	NA	0.03	0.18	0.07	NA	NA	NA
Speed Loops & Back Purges	B542E	Total Controlled Analyzer Emissions	OSBL Flare	9.4E-03	9.4E-03	9.4E-03	NA	0.02	0.09	0.03	NA	NA	NA	0.04	0.04	0.04	NA	0.07	0.40	0.15	NA	NA	NA
D1105A	B542E	Propylene Dryer	OSBL Flare	5.4E-03	5.4E-03	5.4E-03	NA	9.6E-03	0.05	0.02	NA	NA	NA	0.02	0.02	0.02	NA	0.04	0.23	0.09	NA	NA	NA
D1105B	B542E	Propylene Dryer	OSBL Flare	2.8E-04	2.8E-04	2.8E-04	NA	5.1E-04	2.8E-03	1.0E-03	NA	NA	NA	1.2E-03	1.2E-03	1.2E-03	NA	2.2E-03	1.2E-02	4.6E-03	NA	NA	NA
LDAR Components	Fugitive	Distillation Area (A-11)	NA	NA	NA	NA	NA	NA	NA	Included in Facility-Wide LDAR Emissions	NA	NA	NA	NA	NA	NA	NA	NA	NA	Included in Facility-Wide LDAR Emissions	NA	NA	NA
LDAR Components	Fugitive	Nitrogen Heater Area (A-15)	NA	NA	NA	NA	NA	NA	NA	Included in Facility-Wide LDAR Emissions	NA	NA	NA	NA	NA	NA	NA	NA	NA	Included in Facility-Wide LDAR Emissions	NA	NA	NA
LDAR Components	Fugitive	Railroad Unloading Area (A-RR)	NA	NA	NA	NA	NA	NA	NA	Included in Facility-Wide LDAR Emissions	NA	NA	NA	NA	NA	NA	NA	NA	NA	Included in Facility-Wide LDAR Emissions	NA	NA	NA
LDAR Components	Fugitive	Propylene Storage Area (A-10)	NA	NA	NA	NA	NA	NA	NA	Included in Facility-Wide LDAR Emissions	NA	NA	NA	NA	NA	NA	NA	NA	NA	Included in Facility-Wide LDAR Emissions	NA	NA	NA
LDAR Components	Fugitive	Raw Material Prep Total	NA	NA	NA	NA	NA	NA	NA	Included in Facility-Wide LDAR Emissions	NA	NA	NA	NA	NA	NA	NA	NA	NA	Included in Facility-Wide LDAR Emissions	NA	NA	NA
Facility-Wide Paved Roadways	Fugitive	Facility-Wide Paved Roadways	NA	0.19	0.03	0.99	NA	NA	NA	NA	NA	NA	NA	0.83	0.11	4.33	NA	NA	NA	NA	NA	NA	NA
Facility-Wide Unpaved Roadways	Fugitive	Facility-Wide Unpaved Roadways	NA	0.50	0.05	1.95	NA	NA	NA	NA	NA	NA	NA	2.19	0.22	8.54	NA	NA	NA	NA	NA	NA	NA
Parts Washers	Insignificant Activity	Emissions from Parts Washers	NA	NA	NA	NA	NA	NA	NA	0.84	NA	1.7E-03	NA	NA	NA	NA	NA	NA	NA	3.68	NA	0.01	NA

Table 1.A-Emissions Summary

Emission Unit ID	Emission Point ID	Emission Unit Description	Control Device	PM_{10} lb/hr	$PM_{2.5}$ lb/hr	PM lb/hr	SOx lb/hr	NOx lb/hr	CO lb/hr	VOC lb/hr	Lead lb/hr	Total HAPs lb/hr	Hexane[a] lb/hr	PM_{10} tons/yr	$PM_{2.5}$ tons/yr	PM tons/yr	SO_x tons/yr	NO_x tons/yr	CO tons/yr	VOC tons/yr	Lead tons/yr	Total HAPs tons/yr	Hexane[a] tons/yr
003 - Polymerization																							
Analyzer Building 60	Insignificant Activity	Polymerization Area Analyzer Building 60	NA	NA	NA	NA	NA	NA	NA	0.04	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.19	NA	NA	NA
Analyzer Building 68	Insignificant Activity	Polymerization Area Analyzer Building 68	NA	NA	NA	NA	NA	NA	NA	0.02	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.08	NA	NA	NA
ISBL Flare	91E	ISBL Flare	NA	0.23	0.23	0.23	2.9E-04	0.45	2.24	0.84	2.4E-07	8.6E-04	8.6E-04	1.02	1.02	1.02	0.00	1.98	9.81	3.6921	1.0E-06	3.8E-03	3.8E-03
Facility-Wide LDAR Components	Fugitive	Facility-Wide LDAR Emissions	NA	NA	NA	NA	NA	NA	NA	32.53	NA	NA	NA	NA	NA	NA	NA	NA	NA	142.48	NA	NA	NA
D103	Insignificant Activity	Hydraulic Oil Guard	NA	NA	NA	NA	NA	NA	NA	2.7E-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.18E-04	NA	NA	NA
D105	Insignificant Activity	Oil/Grease Mixing Tank	NA	NA	NA	NA	NA	NA	NA	1.5E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.43E-04	NA	NA	NA
D106A	Insignificant Activity	Catalyst Tank	NA	NA	NA	NA	NA	NA	NA	6.7E-05	NA	2.3E-05	0.00	NA	NA	NA	NA	NA	NA	2.93E-04	NA	1.03E-04	3.51E-05
D106B	Insignificant Activity	Catalyst Tank	NA	NA	NA	NA	NA	NA	NA	6.7E-05	NA	2.3E-05	0.00	NA	NA	NA	NA	NA	NA	2.93E-04	NA	1.03E-04	3.51E-05
D107	Insignificant Activity	Hydraulic Oil Surge Drum	NA	NA	NA	NA	NA	NA	NA	6.0E-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.64E-04	NA	NA	NA
D110A	Insignificant Activity	Donor Storage Tank	NA	NA	NA	NA	NA	NA	NA	6.0E-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.64E-04	NA	NA	NA
D110B	Insignificant Activity	Donor Storage Tank	NA	NA	NA	NA	NA	NA	NA	6.0E-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.64E-04	NA	NA	NA
F-698	Insignificant Activity	Used Oil Tank	NA	NA	NA	NA	NA	NA	NA	4.2E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.02	NA	NA	NA
005 - Product Finishing																							
L-8903 L-8904 L-8905 L-8906 L-8907 L-8908 L-8829	52E	L-8903 Feeder #2 L-8904 Feeder #3 L-8905 Feeder #5 L-8906 Feeder #6 L-8907 Feeder #7 L-8908 Feeder #4 L-8829 Blender/Conveyor	G-8816 - Bag Filter	0.02	0.02	0.02	NA	NA	NA	NA	NA	NA	NA	0.09	0.09	0.09	NA	NA	NA	NA	NA	NA	NA
L-8856	56E	WPB Pellet Dryer	NA	5.00	5.00	5.00	NA	NA	NA	NA	NA	NA	NA	21.90	21.90	21.90	NA	NA	NA	NA	NA	NA	NA
Additives Prep	58E	Matcon-Buls Loading Booth (2nd Floor) Matcon-Buls Unloading Booth (3rd Floor) Drum Weigh Station (3rd Floor) D-8808 Feeder to R1 New Line B Ribbon Blender (3rd Floor) D-8809 Feeder to R1 New Line B Ribbon Blender (3rd Floor) L-8829 Feeder to R1 New Line B Ribbon Blender (3rd Floor)	G-738 - South Dust Collector	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	#REF!	#REF!	#REF!	NA	NA	NA	NA	NA	NA	NA
G-494 G-495	65E	G-494 WP1 Cyclone G-495 WP2 Cyclone	G-800 Dust Collector Unnamed After Filter	0.12	0.12	0.12	NA	NA	NA	NA	NA	NA	NA	0.53	0.53	0.53	NA	NA	NA	NA	NA	NA	NA
L-816B	68E	WP2 Extruder	NA	0.12	0.12	0.12	NA	NA	NA	NA	NA	NA	NA	0.53	0.53	0.53	NA	NA	NA	NA	NA	NA	NA
WP2 Pellet Loading Hopper	69E	WP2 Pellet Loading Hopper	NA	0.12	0.12	0.12	NA	NA	NA	NA	NA	NA	NA	0.53	0.53	0.53	NA	NA	NA	NA	NA	NA	NA
Portable Blower Unit #2	71E	Portable Blower Unit #2	NA	NA	NA	NA	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA	#REF!	#REF!	#REF!	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA
F-8809A	Insignificant Activity	Peroxide Tank	NA	NA	NA	NA	NA	NA	NA	7.6E-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.33E-05	NA	NA	NA
F-8809B	Insignificant Activity	Peroxide Tank	NA	NA	NA	NA	NA	NA	NA	7.6E-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.33E-05	NA	NA	NA
	Insignificant Activity	F-8809A/B Peroxide Tank Loading	NA	NA	NA	NA	NA	NA	NA	7.6E-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.33E-05	NA	NA	NA

Table 1.A-Emissions Summary

Emission Unit ID	Emission Point ID	Emission Unit Description	Control Device	PM_{10} lb/hr	$PM_{2.5}$ lb/hr	PM lb/hr	SOx lb/hr	NOx lb/hr	CO lb/hr	VOC lb/hr	Lead lb/hr	Total HAPs lb/hr	Hexane[a] lb/hr	PM_{10} tons/yr	$PM_{2.5}$ tons/yr	PM tons/yr	SO_x tons/yr	NO_x tons/yr	CO tons/yr	VOC tons/yr	Lead tons/yr	Total HAPs tons/yr	Hexane[a] tons/yr
VOC Emissions from Product Finishing	Fugitive	VOC Emissions from Product Finishing	NA	NA	NA	NA	NA	NA	NA	Included in Facility-Wide LDAR Emissions	NA	NA	NA	NA	NA	NA	NA	NA	NA	Included in Facility-Wide LDAR Emissions	NA	NA	NA
006 - Product Storage																							
D-9002 D-9003	24E	D-9002 Pellet Silo D-9003 Pellet Silo	G-9001 - Bag Filter	0.02	0.02	0.02	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA	0.09	0.09	0.09	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA
D-9001 D-9004	26E	D-9001 Pellet Silo D-9004 Pellet Silo	G-9002 - Bag Filter	0.02	0.02	0.02	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA	0.09	0.09	0.09	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA
D-9006 D-9011	38E	D-9006 Pellet Silo D-9011 Pellet Silo	G-9004 - Bag Filter	0.02	0.02	0.02	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA	0.09	0.09	0.09	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA
L-9501	42E	Flotriator	G-9501 - Bag Filter	0.02	0.02	0.02	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA	0.09	0.09	0.09	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA
D-9007 D-9010	49E	D-9007 Pellet Silo D-9010 Pellet Silo	G-9005 - Bag Filter	0.02	0.02	0.02	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA	0.09	0.09	0.09	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA
D-9008 D-9009	50E	D-9008 Pellet Silo D-9009 Pellet Silo	G-9006 - Bag Filter	0.02	0.02	0.02	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA	0.09	0.09	0.09	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA
L-9503	51E	Pelletron	G-9503 - Bag Filter	NA	NA	NA	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA	#REF!	#REF!	#REF!	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA
G-0904	59E	Returned Rail Car Unloading Cyclone	G-0911 - Bag Filter G-0908 - Cartridge Filter	NA	NA	NA	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA	#REF!	#REF!	#REF!	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA
D-670 (SB-1)	60E	SB-1 Super Blender	NA	0.55	0.55	0.55	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA	2.40	2.40	2.40	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA
D-672 (SB-2)	61E	SB-2 Super Blender	NA	0.55	0.55	0.55	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA	2.40	2.40	2.40	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA
SB-3	62E	Truck Loading Pellet Silo	NA	2.38	2.38	2.38	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA	10.42	10.42	10.42	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA
D-9005 D-9012	72E	D-9005 Pellet Silo D-9012 Pellet Silo	G-9003 - Bag Filter	0.02	0.02	0.02	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA	0.09	0.09	0.09	NA	NA	NA	Included in VOC Emissions from Product Storage and Loading	NA	NA	NA
VOC Emissions from Product Storage and Loading	Fugitive	VOC Emissions from Product Storage and Loading	NA	NA	NA	NA	NA	NA	NA	Included in Facility-Wide LDAR Emissions	NA	NA	NA	NA	NA	NA	NA	NA	NA	Included in Facility-Wide LDAR Emissions	NA	NA	NA
			Total Potential Emissions:	**19.02**	**18.41**	**21.27**	**2.51**	**55.62**	**38.93**	**40.00**	**0.00**	**0.38**	**0.34**	**#REF!**	**#REF!**	**#REF!**	**1.09**	**86.85**	**130.73**	**162.68**	**3.70E-04**	**1.42**	**1.34**

[a] Hexane is the single largest HAP emitted.

Table 1.B-Total HAPs Summary

	Natural Gas Propane Combustion (tpy)	Flare HAPs (tpy)	Parts Washer HAPs (tpy)	B603 HAPs (tpy)	Total Facility-Wide HAP Emissions (Not Including Emergency Generators) (tpy)
1,3-Butadiene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2-Methylnaphthalene	9.12E-06	0.00E+00	0.00E+00	8.40E-06	1.75E-05
3-Methylchloranthrene*	6.84E-07	0.00E+00	0.00E+00	6.30E-07	1.31E-06
7,12-Dimethylbenz(a)anthracene*	6.08E-06	0.00E+00	0.00E+00	5.60E-06	1.17E-05
Acenaphthene	6.84E-07	0.00E+00	0.00E+00	6.30E-07	1.31E-06
Acenaphthylene	6.84E-07	0.00E+00	0.00E+00	6.30E-07	1.31E-06
Acetaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acrolein	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Anthracene	9.12E-07	0.00E+00	0.00E+00	8.40E-07	1.75E-06
Arsenic	7.60E-05	0.00E+00	0.00E+00	7.00E-05	1.46E-04
Benzene	7.98E-04	0.00E+00	0.00E+00	7.35E-04	1.53E-03
Benzo(a)anthracene*	6.84E-07	0.00E+00	0.00E+00	0.00E+00	6.84E-07
Benzo(a)pyrene*	4.56E-07	0.00E+00	0.00E+00	4.20E-07	8.76E-07
Benzo(b,j,k)fluoranthene*	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzo(g,h,i)perylene	4.56E-07	0.00E+00	0.00E+00	4.20E-07	8.76E-07
Beryllium	4.56E-06	0.00E+00	0.00E+00	4.20E-06	8.76E-06
Cadmium	4.18E-04	0.00E+00	0.00E+00	3.85E-04	8.03E-04
Chromium	5.32E-04	0.00E+00	0.00E+00	4.90E-04	1.02E-03
Chrysene*	6.84E-07	0.00E+00	0.00E+00	6.30E-07	1.31E-06
Cobalt	3.19E-05	0.00E+00	0.00E+00	2.94E-05	6.13E-05
Dibenzo(a,h)anthracene*	4.56E-07	0.00E+00	0.00E+00	4.20E-07	8.76E-07
Dichlorobenzene	4.56E-04	0.00E+00	0.00E+00	4.20E-04	8.76E-04
Fluoranthene*	1.14E-06	0.00E+00	0.00E+00	1.05E-06	2.19E-06
Fluorene	1.06E-06	0.00E+00	0.00E+00	9.80E-07	2.04E-06
Formaldehyde (HCOH)	2.85E-02	0.00E+00	0.00E+00	2.63E-02	5.48E-02
Hexane	6.84E-01	2.12E-02	0.00E+00	6.30E-01	1.34E+00
Indeno(1,2,3-cd)pyrene*	6.84E-07	0.00E+00	0.00E+00	6.30E-07	1.31E-06
Lead	1.90E-04	5.90E-06	0.00E+00	1.75E-04	3.71E-04
Manganese	1.44E-04	0.00E+00	0.00E+00	1.33E-04	2.77E-04
Mercury	9.88E-05	0.00E+00	0.00E+00	9.10E-05	1.90E-04
Naphthalene	2.32E-04	0.00E+00	0.00E+00	2.14E-04	4.45E-04
Nickel	7.98E-04	0.00E+00	0.00E+00	7.35E-04	1.53E-03
Phenanthrene	6.46E-06	0.00E+00	0.00E+00	0.00E+00	6.46E-06
POM	3.35E-05	0.00E+00	0.00E+00	0.00E+00	3.35E-05
Propylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pyrene	1.90E-06	0.00E+00	0.00E+00	1.75E-06	3.65E-06
Selenium	9.12E-06	0.00E+00	0.00E+00	8.40E-06	1.75E-05
Tetrachloroethylene	0.00E+00	0.00E+00	7.36E-03	0.00E+00	7.36E-03
Toluene	1.29E-03	0.00E+00	0.00E+00	1.19E-03	2.48E-03
Xylenes	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 2.A-NG AND Propane Emissions

Pollutant	Natural Gas Combustion [AP-42, Table 1.4-1 and Table 1.4-2 (7/98), FIRE v6.25] (lb\mmscf)	Propane Combustion Emission Factors [AP-42 Table 1.5-1] (lb/10^3 gal)	Gas Boiler (ton/yr)	H-081 East FNS Gas Boiler (ton/yr)	H-082 West FNS Gas Boiler (ton/yr)	B-101 Nitrogen Furnace (Propane) (ton/yr)
CO	84	7.5	2.78E+01	1.97E+00	1.97E+00	2.16E-01
NO_x	100	13	3.31E+01	2.34E+00	2.34E+00	3.74E-01
NH_3	3.2	NA	1.06E+00	7.49E-02	7.49E-02	NA
SO_2	0.6	1.59	1.98E-01	1.40E-02	1.40E-02	4.57E-02
Lead	0.0005	NA	1.65E-04	1.17E-05	1.17E-05	NA
PM	7.6	0.7	2.51E+00	1.78E-01	1.78E-01	2.02E-02
PM_{10}	7.6	0.7	2.51E+00	1.78E-01	1.78E-01	2.02E-02
$PM_{2.5}$	7.6	0.7	2.51E+00	1.78E-01	1.78E-01	2.02E-02
VOC	5.5	1	1.82E+00	1.29E-01	1.29E-01	2.88E-02
TOC	11	1	3.64E+00	2.57E-01	2.57E-01	2.88E-02
Potential fuel consumption:			661.3	46.8	46.8	57.6
Fuel combusted units:			mmscf	mmscf	mmscf	10^3 gal

AP-42 (10/96) propane heating value (Btu/gal)	91,500
AP-42 (7/98) natural gas heating value (Btu/scf)	1,020
AP-42 (10/96) diesel heating value (Btu/lb)	19,300
Equivalent natural gas combusted in B-101 (mmscf)	5.2

Diesel density (lb/gal):	7.1

HAPs	CAS No.	Natural Gas Combustion [AP-42, Sec. 1.4, Table 1.4-3 and Table 1.4-4 (7/98)] (lb/mmscf)	Diesel Combustion [AP-42, Sec. 3.3, Table 3.3-2(10/96)] (lb/MMBtu)	Gas Boiler Emissions (ton/yr)	H081 East FNS Gas Boiler (ton/yr)	H021 West FNS Gas Boiler (ton/yr)	B-101 Nitrogen Furnace (ton/yr)
2-Methylnaphthalene	91-57-6	2.4E-05	NA	7.94E-06	5.62E-07	5.62E-07	6.20E-08
3-Methylchloranthrene*	56-49-5	1.8E-06	NA	5.95E-07	4.21E-08	4.21E-08	4.65E-09
7,12-Dimethylbenz(a)anthracene*	57-97-6	1.6E-05	NA	5.29E-06	3.74E-07	3.74E-07	4.13E-08
Acenaphthene	83-32-9	1.8E-06	NA	5.95E-07	4.21E-08	4.21E-08	4.65E-09
Acenaphthylene	203-96-8	1.8E-06	NA	5.95E-07	4.21E-08	4.21E-08	4.65E-09
Anthracene	120-12-7	2.4E-06	1.87E-06	7.94E-07	5.62E-08	5.62E-08	6.20E-09
Benzo(a)anthracene*	56-55-3	1.8E-06	1.68E-06	5.95E-07	4.21E-08	4.21E-08	4.65E-09
Benzene	71-43-2	2.1E-03	9.33E-04	6.94E-04	4.91E-05	4.91E-05	5.43E-06
Benzo(a)pyrene*	50-32-8	1.2E-06	1.88E-07	3.97E-07	2.81E-08	2.81E-08	3.10E-09
Benzo(b)fluoranthene*	205-99-2	1.8E-06	9.91E-08	5.95E-07	4.21E-08	4.21E-08	4.65E-09
Benzo(g,h,i)perylene	191-24-2	1.2E-06	4.89E-07	3.97E-07	2.81E-08	2.81E-08	3.10E-09
Benzo(k)fluoranthene*	205-82-3	1.8E-06	1.55E-07	5.95E-07	4.21E-08	4.21E-08	4.65E-09
Chrysene*	218-01-9	1.8E-06	3.53E-07	5.95E-07	4.21E-08	4.21E-08	4.65E-09
Dibenzo(a,h)anthracene*	53-70-3	1.2E-06	5.83E-07	3.97E-07	2.81E-08	2.81E-08	3.10E-09
Dichlorobenzene	25321-22-6	1.2E-03	NA	3.97E-04	2.81E-05	2.81E-05	3.10E-06
Fluoranthene*	206-44-0	3.0E-06	7.61E-06	9.92E-07	7.02E-08	7.02E-08	7.75E-09
Fluorene	86-73-7	2.8E-06	NA	9.26E-07	6.55E-08	6.55E-08	7.23E-09
Formaldehyde (HCOH)	50-00-0	7.5E-02	1.18E-03	2.48E-02	1.76E-03	1.76E-03	1.94E-04
Hexane	110-54-3	1.8	NA	5.95E-01	4.21E-02	4.21E-02	4.65E-03
Indeno(1,2,3-cd)pyrene*	193-39-5	1.8E-06	3.75E-07	5.95E-07	4.21E-08	4.21E-08	4.65E-09
Naphthalene	91-20-3	6.1E-04	8.48E-05	2.02E-04	1.43E-05	1.43E-05	1.58E-06
Phenanthrene	85-01-8	1.7E-05	2.94E-05	5.62E-06	3.98E-07	3.98E-07	4.39E-08
Pyrene	129-00-0	5.0E-06	NA	1.65E-06	1.17E-07	1.17E-07	1.29E-08
Toluene	108-88-3	3.4E-03	4.09E-04	1.12E-03	7.96E-05	7.96E-05	8.78E-06
Arsenic	7440-38-2	2.0E-04	NA	6.61E-05	4.68E-06	4.68E-06	5.17E-07
Beryllium	7440-41-7	1.2E-05	NA	3.97E-06	2.81E-07	2.81E-07	3.10E-08
Cadmium	7440-43-9	1.1E-03	NA	3.64E-04	2.57E-05	2.57E-05	2.84E-06
Chromium	7440-47-3	1.4E-03	NA	4.63E-04	3.28E-05	3.28E-05	3.62E-06
Cobalt	7440-48-4	8.4E-05	NA	2.78E-05	1.97E-06	1.97E-06	2.17E-07
Lead	7439-92-1	5.0E-04	NA	1.65E-04	1.17E-05	1.17E-05	1.29E-06
Manganese	7439-96-5	3.8E-04	NA	1.26E-04	8.89E-06	8.89E-06	9.82E-07
Mercury	7439-97-6	2.6E-04	NA	8.60E-05	6.08E-06	6.08E-06	6.72E-07
Nickel	7440-02-0	2.1E-03	NA	6.94E-04	4.91E-05	4.91E-05	5.43E-06
Selenium	7782-49-2	2.4E-05	NA	7.94E-06	5.62E-07	5.62E-07	6.20E-08
POM	-	8.8E-05	NA	2.92E-05	2.06E-06	2.06E-06	2.28E-07
1,3-Butadiene	106-99-0	NA	3.91E-05	NA	NA	NA	NA
Acetaldehyde	75-07-0	NA	7.67E-04	NA	NA	NA	NA
Polycyclic Aromatic Compounds Category (PACs)	-	NA	1.10E-05	NA	NA	NA	NA
Xylenes	-	NA	2.85E-04	NA	NA	NA	NA
Propylene	115-07-1	NA	2.58E-03	NA	NA	NA	NA
Acrolein	107-02-8	NA	9.25E-05	NA	NA	NA	NA

Table 2.B-B603 Emission Calcs

EMISSION FACTORS

Client Supplied

NO_x with 5% FGR	0.1	lb/mmBTU	Rental Boiler Specifications (Tampella Boiler), available @ http://www.rentalboilers.com/rental_equipment/rentalDisp.asp?id=11&cat=1 (7/9/08)
CO, C_{co}	200	ppm	Rental Boiler Specifications (Tampella Boiler), available @ http://www.rentalboilers.com/rental_equipment/rentalDisp.asp?id=11&cat=1 (7/9/08)

[1] FGR stands for Fuel Gas Reciculation system.

AP-42 "Natural Gas Combustion 1.4" - Emission Factors and Data

VOC	5.5	lb/mmscf	AP-42 "Natural Gas Combustion 1.4" (7/98), Table 1.4-2
PM	7.6	lb/mmscf	AP-42 "Natural Gas Combustion 1.4" (7/98), Table 1.4-2 (Total PM)
PM_{10}	7.6	lb/mmscf	AP-42 "Natural Gas Combustion 1.4" (7/98), Table 1.4-2 (Total PM)
SO_2	0.6	lb/mmscf	AP-42 "Natural Gas Combustion 1.4" (7/98), Table 1.4-2
Hydrocarbons (Total Organic Compounds)	11	lb/mmscf	AP-42 "Natural Gas Combustion 1.4" (7/98), Table 1.4-2
Lead	0.0005	lb/mmscf	

UNIT CONVERSIONS

Exact Conversions

1 ft =	0.30	m	Exact (NIST)
1 m^3 =	1000	L	Exact (NIST)
1 lb =	453.59	g	Exact (NIST)

Derived Conversions

1 ft^3 =	28.32	L	= 1000 L/m^3× (0.3048 m)^3 [exact]

CALCULATIONS

Process Data and Assumptions

Hourly Natural Gas Consumption Rate, N	96,720	scf/hr	Rental Boiler Specifications (Tampella Boiler), available @ http://www.rentalboilers.com/rental_equipment/rentalDisp.asp?id=11&cat=1 (7/9/08)
Natural Gas Heating Value, H	1000	BTU/scf	Rental Boiler Specifications (Tampella Boiler), available @ http://www.rentalboilers.com/rental_equipment/rentalDisp.asp?id=11&cat=1 (7/9/08)
Heat Input Capacity, I	96.72	mmBTU/hr	=N[scf/hr]×H[BTU/scf]/1000000
Standard Condition Temperature, T_s	273.15	K	
Exhaust Exit Temperature, T	585	F	Provided by ESI, Inc. Call with Doug White on 7/10/08.
	580.37	K	= (T[F]+459.67)×5/9
Stack Oulet Pressure, P	101,325	Pa	1 atmopshere = 101.325 kPa, NIST

40 CFR 60, Test Method 19 Calculation

Wet F Factor for Natural Gas, F_w	10,610	wscf/mmBTU	40 CFR 60, Appendix A-7, Test Method 19, Table 19-2
O_2 Concentration at the Exhaust, C	3	%	Assumed
Moisture Fraction of Ambient Air, B_{wa}	0.027	%	40 CFR 60, Appendix A-7, Method 19, Section 12.2.2.1.1
Emission Volumetric Flow Rate, V	1,237,190.50	scf/hr	=I[mmBTU/hr]×F_w×20.9÷(20.9×(1-B_{wa})-C[%]), based on 40 CFR 60, Appendix A-7, Section 12.2.3.1, Eq.19-2
	35,033,333.48	L/hr	=V[scf/hr]× 28.31685 [L/scf]
	43,811.76	acfm	=V[scf/hr]× (T[K]÷T_s[K]) ÷ 60 [min/hr]

Calculate the CO Emission Factor

CO Molecular Weight, M	28	g/mol	
Gas Constant, R	8.31	m^3 * Pa/(mol*K)	
CO Volumetric Emission Rate, F	7006.67	L/hr	=V[L/hr]×C_{co}
CO Emission Factor, EF_{co}	8752.84	g/hr	=P[Pa]×F[L/hr]×M[g/mol]÷(T_s[K]×R[m^3 * Pa/(mol*K)]) × 1 m^3/1000 L
	19.30	lb/hr	=EF_{co}[g/hr]×[lb/g]

Resulting Emission Factors

NOx, with FGR	100	lb/mmscf	= Emission Factor [lb/hr] / N [scf/hr] * 1,000,000 [scf/mmscf]
CO	199.5	lb/mmscf	= Emission Factor [lb/hr] / N [scf/hr] * 1,000,000 [scf/mmscf]
VOC	5.5	lb/mmscf	
PM/PM_{10}	7.6	lb/mmscf	
SO_2	0.6	lb/mmscf	
Hydrocarbons (Total Organic Compounds)	11	lb/mmscf	
Lead	0.0005	lb/mmscf	

EMISSION CALCULATION

Requested Maximum Natural Gas Combustion Rate	700.06	MMscf/yr

	Potential Hourly Emissions (lb/hr)	Potential Daily Emissions[a] (lb/day)	Annual Combustion Rate Limited to 700.06 MMscf	
			(lb/yr)	(tpy)
NO_x , with FGR	9.67	232	70,005.94	35.00
CO	19.30	463	139,669.51	69.83
VOC	0.53	13	3,850.33	1.93
PM/PM_{10}	0.74	18	5,320.45	2.66
$PM_{2.5}$[b]	0.74	18	5,320.45	2.66
SO_2	0.06	1.39	420.04	0.21
Hydrocarbons (Total Organic Compounds)	1.06	25.53	7,700.65	3.85
Lead	4.84E-05	1.16E-03	3.50E-01	1.75E-04

[a] Daily emissions are based maximum combustion rate and 24 hours per day.
[b] Assume the worst case scenario that all PM is $PM_{2.5}$.

Table 2.C-B603 HAP Emission Calcs

Requested Maximum Natural Gas Combustion Rate (MMscf/yr)	700.06

HAPs	CAS No.	Natural Gas Emission Factor[a] (lb/MMscf)	HAP Emissions lb/hr	HAP Emissions (tons/yr)	
2-Methylnaphthalene	91-57-6	2.4E-05	2.3E-06	8.40E-06	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
3-Methylchloranthrene	56-49-5	1.8E-06	1.7E-07	6.30E-07	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
7,12-Dimethylbenz(a)anthracene	57-97-6	1.6E-05	1.5E-06	5.60E-06	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Acenaphthene	83-32-9	1.8E-06	1.7E-07	6.30E-07	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Acenaphthylene	203-96-8	1.8E-06	1.7E-07	6.30E-07	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Anthracene	120-12-7	2.4E-06	2.3E-07	8.40E-07	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Benz(a)anthracene	56-55-3	1.8E-06	1.7E-07	6.30E-07	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Benzene	71-43-2	2.1E-03	2.0E-04	7.35E-04	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Benzo(a)pyrene	50-32-8	1.2E-06	1.2E-07	4.20E-07	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Benzo(b)fluoranthene	205-99-2	1.8E-06	1.7E-07	6.30E-07	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Benzo(g,h,i)perylene	191-24-2	1.2E-06	1.2E-07	4.20E-07	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Benzo(k)fluoranthene	205-82-3	1.8E-06	1.7E-07	6.30E-07	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Chrysene	218-01-9	1.8E-06	1.7E-07	6.30E-07	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Dibenzo(a,h)anthracene	53-70-3	1.2E-06	1.2E-07	4.20E-07	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Dichlorobenzene	25321-22-6	1.2E-03	1.2E-04	4.20E-04	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Fluoranthene	206-44-0	3.0E-06	2.9E-07	1.05E-06	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Fluorene	86-73-7	2.8E-06	2.7E-07	9.80E-07	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Formaldehyde (HCOH)	50-00-0	7.5E-02	7.3E-03	2.63E-02	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Hexane	110-54-3	1.8E+00	1.7E-01	6.30E-01	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Indeno(1,2,3-cd)pyrene	193-39-5	1.8E-06	1.7E-07	6.30E-07	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Naphthalene	91-20-3	6.1E-04	5.9E-05	2.14E-04	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Phenanathrene	85-01-8	1.7E-05	1.6E-06	5.95E-06	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Pyrene	129-00-0	5.0E-06	4.8E-07	1.75E-06	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Toluene	108-88-3	3.4E-03	3.3E-04	1.19E-03	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Arsenic	7440-38-2	2.0E-04	1.9E-05	7.00E-05	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Beryllium	7440-41-7	1.2E-05	1.2E-06	4.20E-06	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Cadmium	7440-43-9	1.1E-03	1.1E-04	3.85E-04	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Chromium	7440-47-3	1.4E-03	1.4E-04	4.90E-04	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Cobalt	7440-48-4	8.4E-05	8.1E-06	2.94E-05	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Lead	7439-92-1	5.0E-04	4.8E-05	1.75E-04	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Manganese	7439-96-5	3.8E-04	3.7E-05	1.33E-04	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Mercury	7439-97-6	2.6E-04	2.5E-05	9.10E-05	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Nickel	7440-02-0	2.1E-03	2.0E-04	7.35E-04	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Selenium	7782-49-2	2.4E-05	2.3E-06	8.40E-06	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
Polycyclic Organic Matter (POM)		8.8E-05	8.5E-06	3.09E-05	=Annual NG Consumption [MMscf/yr] × EF [lb/MMscf] ÷ 2000 [lb/ton]
		Total HAPs	1.83E-01	6.61E-01	

[a] Emission factors from AP-42, Tables 1.4-2, 1.4-3, and 1.4-4 (7/98).

Table 3-Generator Emissions

H9202A Generator Emissions - Diesel

Number of Generators	1		
Hours/Day Operated:	3		*Daily hours of operation assumes that the generator would operate for no more than 3 hours during a fire emergency.*
Annual Hours of Operation:	500	hr/yr	*The limited hours of operation for this emergency generator will be enforceable under a general permit registration.*
Generator Capacity (Output):	330	hp	*Horsepower rating reported on unit nameplate for Caterpillar engine H-9202 A/B*
Fuel:	Diesel		

Pollutant	Diesel Emission Factor (lb/hp-hr)	Combined Potential Emissions (lb/hr)	Potential Emissions (tpy)	Potential Emissions (lb/day)	Emission Factor Source
NOx	0.031	10.23	2.56	30.69	AP-42, Table 3.3-1 (10/96)
CO	6.68E-03	2.20	0.55	6.61	AP-42, Table 3.3-1 (10/96)
$PM_{10}/PM_{2.5}$[a]	2.20E-03	0.73	0.18	2.18	AP-42, Table 3.3-1 (10/96)
SO_2	2.05E-03	0.68	0.17	2.03	AP-42, Table 3.3-1 (10/96)
TOC	2.51E-03	0.83	0.21	2.49	AP-42, Table 3.3-1 (10/96)
HAPs[b,c]	2.71E-05	8.95E-03	2.24E-03	2.68E-02	AP-42, Table 3.3-2 (10/96)
Formaldehyde[b]	8.26E-06	2.73E-03	6.81E-04	8.18E-03	AP-42, Table 3.3-2 (10/96)

Note:
AP-42 Section 3.3 is applicable for diesel IC engines.
[a] As provided in the footnote to AP-42 Table 3.3-1., all PM is assumed to be less than 1 µm in size.
[b] The HAP emission factors are converted from lb/MMBtu using a the default brake specific fuel consumption of 7,000 Btu/hp-hr provided in the footnote to AP-42 Table 3.3-1.
[c] Total HAP emissions are calculated as the sum of all speciated HAP emission factors provided in AP-42 Table 3.3-2.

H9202B Generator Emissions - Diesel

Number of Generators	1		
Hours/Day Operated:	3		*Daily hours of operation assumes that the generator would operate for no more than 3 hours during a fire emergency.*
Annual Hours of Operation:	500	hr/yr	*The limited hours of operation for this emergency generator will be enforceable under a general permit registration.*
Generator Capacity (Output):	330	hp	*Horsepower rating reported on unit nameplate for Caterpillar engine H-9202 A/B*
Fuel:	Diesel		

Pollutant	Diesel Emission Factor (lb/hp-hr)	Combined Potential Emissions (lb/hr)	Potential Emissions (tpy)	Potential Emissions (lb/day)	Emission Factor Source
NOx	0.031	10.23	2.56	30.69	AP-42, Table 3.3-1 (10/96)
CO	6.68E-03	2.20	0.55	6.61	AP-42, Table 3.3-1 (10/96)
$PM_{10}/PM_{2.5}$[a]	2.20E-03	0.73	0.18	2.18	AP-42, Table 3.3-1 (10/96)
SO_2	2.05E-03	0.68	0.17	2.03	AP-42, Table 3.3-1 (10/96)
TOC	2.51E-03	0.83	0.21	2.49	AP-42, Table 3.3-1 (10/96)
HAPs[b,c]	2.71E-05	8.95E-03	2.24E-03	2.68E-02	AP-42, Table 3.3-2 (10/96)
Formaldehyde[b]	8.26E-06	2.73E-03	6.81E-04	8.18E-03	AP-42, Table 3.3-2 (10/96)

Note:
AP-42 Section 3.3 is applicable for diesel IC engines.
[a] As provided in the footnote to AP-42 Table 3.3-1., all PM is assumed to be less than 1 µm in size.
[b] The HAP emission factors are converted from lb/MMBtu using a the default brake specific fuel consumption of 7,000 Btu/hp-hr provided in the footnote to AP-42 Table 3.3-1.
[c] Total HAP emissions are calculated as the sum of all speciated HAP emission factors provided in AP-42 Table 3.3-2.

H516 Generator Emissions - Diesel

Number of Generators	1		
Hours/Day Operated:	3		*Daily hours of operation assumes that the generator would operate for no more than 3 hours during a fire emergency.*
Annual Hours of Operation:	500	hr/yr	*The limited hours of operation for this emergency generator will be enforceable under a general permit registration.*
Generator Capacity (Output):	507	hp	*Horsepower rating provided for Caterpillar engine in October 21, 2009, email summarizing generator inventories*
Fuel:	Diesel		

Pollutant	Diesel Emission Factor (lb/hp-hr)	Combined Potential Emissions (lb/hr)	Potential Emissions (tpy)	Potential Emissions (lb/day)	Emission Factor Source
NOx	0.031	15.72	3.93	47.15	AP-42, Table 3.3-1 (10/96)
CO	6.68E-03	3.39	0.85	10.16	AP-42, Table 3.3-1 (10/96)
$PM_{10}/PM_{2.5}$[a]	2.20E-03	1.12	0.28	3.35	AP-42, Table 3.3-1 (10/96)
SO_2	2.05E-03	1.04	0.26	3.12	AP-42, Table 3.3-1 (10/96)
TOC	2.51E-03	1.27	0.32	3.82	AP-42, Table 3.3-1 (10/96)
HAPs[b,c]	2.71E-05	1.37E-02	3.44E-03	4.12E-02	AP-42, Table 3.3-2 (10/96)
Formaldehyde[b]	8.26E-06	4.19E-03	1.05E-03	1.26E-02	AP-42, Table 3.3-2 (10/96)

Note:
AP-42 Section 3.3 is applicable for diesel IC engines.
[a] As provided in the footnote to AP-42 Table 3.3-1., all PM is assumed to be less than 1 µm in size.
[b] The HAP emission factors are converted from lb/MMBtu using a the default brake specific fuel consumption of 7,000 Btu/hp-hr provided in the footnote to AP-42 Table 3.3-1.
[c] Total HAP emissions are calculated as the sum of all speciated HAP emission factors provided in AP-42 Table 3.3-2.

Table 4-Flare Emissions

Emission Factors from AP-42 "Industrial Flares 13.5"		
VOC	0.14	lb/mmBTU
CO	0.37	lb/mmBTU
NO_x	0.068	lb/mmBTU
CO_2	117.65	lb/mmBTU
N_2O	0.0022	lb/mmBTU
CH_4	0.077	lb/mmBTU
PM as Soot	274	µg/L
Heating Value of Propylene	0.021032	mmBTU/lb

PM EF Conversion

1 lb/ft^3 =	16018463.37 µg/L	= 1 lb/ft^3 x 453592370 µg/lb ÷ 28.316846592 L/ft^3
Feed Gas Heat Value	450 BTU/ft^3	AP-42 "Industrial Flares 13.5" pg. 13.5-4 (for non-smoking flare gases)
PM as Soot	0.038011692 lb/mmBTU	= Soot Concentration [µg/L] ÷ Unit Conversion [(lb/ft^3)/(µg/L)] ÷ Feed Gas Heat Value [Btu/ft^3] × 1E6 Btu/mmBtu

Flare Fuel Burning	OSBL Flare[a]	ISBL Flare	D1105A to OSBL	D1105B to OSBL	Analyzer Speed Loops to OSBL	Analyzer Back Purges to OSBL	Units
Fuel Load	2,334,350	2,500,000	59,016	3,096	57,948	45,590	lb/yr
Annual Hours of Operation	NA	NA	NA	NA	NA	NA	hr/yr
VOC	3.437	3.681	0.087	0.005	0.085	0.067	ton/yr
CO	9.083	9.727	0.230	0.012	0.225	0.177	ton/yr
NO_2	1.669	1.788	0.042	0.002	0.041	0.033	ton/yr
CO_2	2888.003	3092.941	73.013	3.830	71.692	56.403	ton/yr
N_2O	0.053	0.057	0.001	0.000	0.001	0.001	ton/yr
CH_4	1.890	2.024	0.048	0.003	0.047	0.037	ton/yr
PM as Soot	0.933	0.999	0.024	0.001	0.023	0.018	ton/yr

[a] This is a subset of the OSBL Flare emissions not including D1105 A/B, Analyzer Speed Loops, and Analyzer Back Purges.

Emission Factors from AP-42 "Natural Gas Combustion 1.4"		
VOC	5.5	lb/mmscf
CO	40	lb/mmscf
NO_X	94	lb/mmscf
PM	7.6	lb/mmscf
PM_{10}	7.6	lb/mmscf
SO_2	0.6	lb/mmscf
Lead	0.0005	lb/mmscf
NH_3	3.2	lb/mmscf
CH_4	2.3	lb/mmscf
N_2O	2.2	lb/mmscf
CO_2	120000	lb/mmscf
Hexane	1.8	lb/mmscf

Flare Pilot	OSBL	ISBL	Units
Natural Gas	3,699	4,171	mscf / yr
VOC	0.010	0.011	ton/yr
CO	0.074	0.083	ton/yr
NO_x	0.174	0.196	ton/yr
PM	0.014	0.016	ton/yr
PM_{10}	0.014	0.016	ton/yr
SO_2	0.001	0.001	ton/yr
Lead	0.000	0.000	ton/yr
NH_3	0.006	0.007	ton/yr
CH_4	0.004	0.005	ton/yr
N_2O	0.004	0.005	ton/yr
CO_2	221.92	250.25	ton/yr
Hexane	0.003	0.004	ton/yr

Supplemental Natural Gas to OSBL Flare	OSBL	Units
Natural Gas	660,000	lb/year
VOC	0.04	ton/yr
CO	0.31	ton/yr
NO_X	0.74	ton/yr
PM	0.06	ton/yr
PM_{10}	0.06	ton/yr
SO_2	0.00	ton/yr
Lead	0.00	ton/yr
NH_3	0.03	ton/yr
Hexane	0.01	ton/yr

Total Flare Emissions	OSBL (ton/yr)	ISBL (ton/yr)	D1105A to OSBL (ton/yr)	D1105B to OSBL (ton/yr)	Analyzer Speed Loops to OSBL (ton/yr)	Analyzer Back Purges to OSBL (ton/yr)
VOC	3.490	3.692	8.69E-02	4.56E-03	8.53E-02	0.067
CO	9.471	9.811	2.30E-01	1.20E-02	2.25E-01	0.177
NO_x	2.582	1.984	4.22E-02	2.21E-03	4.14E-02	0.033
PM	1.007	1.015	2.36E-02	1.24E-03	2.32E-02	1.82E-02
PM_{10}	1.007	1.015	2.36E-02	1.24E-03	2.32E-02	1.82E-02
SO_2	0.006	0.001	NA	NA	NA	NA
Lead	4.85E-06	1.04E-06	NA	NA	NA	NA
NH_3	0.031	0.007	NA	NA	NA	NA
Hexane	0.017	0.004	NA	NA	NA	NA

Table 5-LDAR Emissions

Components		Total # of Components[a]	Averge SOCMI Emission Factor (kg/hr/component)	Averge SOCMI Emission Factor (lb/hr/component)	Total VOC Emission Rate (lb/hr)	Total VOC Emission Rate (tpy)	Efficiency of LDAR Program[b]	Total VOC with LDAR program (tpy)
Pumps	Light Liquid	0	0.0199	0.0439	0.000	0.00	0.00	0.00
	Heavy Liquid	32	0.0086	0.0190	0.608	2.66	0.00	2.66
Valves	Gas	923	0.0060	0.0132	12.148	53.21	0.87	6.92
	Light Liquid	1,988	0.0040	0.0089	17.663	77.36	0.84	12.38
	Heavy Liquid	25	0.0002	0.0005	0.013	0.06	0.00	0.06
Pressure Relief Valves		5	0.1040	0.2293	1.146	5.02	0.00	5.02
Compressors		0	0.2280	0.5027	0.000	0.00	0.00	0.00
Connectors	Gas	2,550	0.0018	0.0040	10.288	45.06	0.00	45.06
	Light Liquid	3,883	0.0018	0.0040	15.666	68.62	0.00	68.62
	Heavy Liquid	100	0.0018	0.0040	0.403	1.77	0.00	1.77
Total					57.935	253.756		**142.480**

[a.] The inventory of fugitive components was provided in a 3/26/10 email from BKM.

[b.] Control efficiencies are provided for units subject to monthly monitoring and a leak definition of 10,000 ppmv under 40 CFR 60, Subpart VV.

Table 6-Cooling Tower

Using Drift Factor based upon AP-42, Table 13.4-1 (Emission Factor Rating "D")

Cooling Tower	Circulation Rate (gpm)	lb PM_{10}/mgal at 12,000 ppm TDS	Maximum Conductivity (uMhos/cm)	Typical TDS (ppm)	Max Annual Hours	PM-10 Emissions (lb/hr)	PM-10 Emissions (tpy)
Neal Plant Cooling Tower[a]	19,300	0.019	3,815	2,671	8760	4.90	21.4

Cooling Tower	Circulation Rate (gpm)	2008 Operating Hours[b]	VOC Emission Factor[c] (lb/MMgal)	VOC Emissions (lb/hr)	VOC Emissions (tpy)
Neal Plant Cooling Tower[a]	19,300	8,760	0.7	0.81	3.6

[a.] Cooling tower data provided by Bob Leighty (Neal utilities) In a conversation with Shawn Hickman on 5/24/06 with the exception of the maximum conductivity which is obtained from the 2008 daily WTP logs.

[b.] Assume cooling tower operation hours equal to distillation operation hours for VOC calculations.

[c.] AP-42, Section 5.1.3 (1/95), Table 5.1-2 controlled VOC emissions. Per agreement with Bernie Marshall, utilize controlled emission factor. Additionally, Bernie Marshall will be recommending that the facility conduct sampling to determine site-specific emission factor.

Table 7-Parts Washers

Material	Total Surface Area of Degreasers (ft^2)	Operating Hours (hr/yr)	Emission Factor[a] ($lb/hr/ft^2$)	Hourly VOC Emissions (lb/hr)	Annual VOC Emissions (tpy)	Annual HAP Emissions[b] (tpy)
Safety Kleen 105 Solvent	11	8,760	0.08	0.84	3.68	0.01

[a.] AP-42 Table 4.6-2 for cold cleaners. Represents emissions of nonmethane VOCs.

[b.] Utilizes the tetrachloroethylene content of 0.2 wt% provided in the MSDS for Recycled Safety Kleen 105 Solvent.

Table 8.A-FNS PM

Emission ID	Emission Point	Source Description	Control Device	Pollutants Emitted	Process Weight Rate (lb/hr)	Potential to Emit		Maximum Operating hours	PTE Note
						(lb/hr)	(tpy)		
D-9002 D-9003	24E	D-9002 Pellet Silo D-9003 Pellet Silo	G-9001 - Bag Filter	Total Particulate	75,000	0.02	0.09	8760	1
D-9001 D-9004	26E	D-9001 Pellet Silo D-9004 Pellet Silo	G-9002 - Bag Filter	Total Particulate	75,000	0.02	0.09	8760	1
D-9006 D-9011	38E	D-9006 Pellet Silo D-9011 Pellet Silo	G-9004 - Bag Filter	Total Particulate	55,000	0.02	0.09	8760	1
L-9501	42E	Flotriator	G-9501 Bag Filter	Total Particulate	60,000	0.02	0.09	8760	1
D-9007 D-9010	49E	D-9007 Pellet Silo D-9010 Pellet Silo	G-9005 - Bag Filter	Total Particulate	75,000	0.02	0.09	8760	1
D-9008 D-9009	50E	D-9008 Pellet Silo D-9009 Pellet Silo	G-9006 - Bag Filter	Total Particulate	75,000	0.02	0.09	8760	1
L-9503	51E	Pelletron	G-9503 - Bag Filter	Total Particulate	60,000	3.14	13.75	8760	2
L-8903 L-8904 L-8905 L-8906 L-8907 L-8908 L-8829	52E	L-8903 Feeder #2 L-8904 Feeder #3 L-8905 Feeder #5 L-8906 Feeder #6 L-8907 Feeder #7 L-8908 Feeder #4 L-8829 Blender/Conveyor	G-8816 - Bag Filter	Total Particulate	75,000	0.02	0.09	8760	1
L-8856	56E	WPB Pellet Dryer	NA	Total Particulate	1,326,000	5.00	21.90	8760	2
Additives Prep	58E	Matcon-Buls Loading Booth (2nd Floor) Matcon-Buls Unloading Booth (3rd Floor) Drum Weigh Station (3rd Floor) D-8808 Feeder to R1 New Line B Ribbon Blender (3rd Floor) D-8809 Feeder to R1 New Line B Ribbon Blender (3rd Floor) L-8829 Feeder to R1 New Line B Ribbon Blender (3rd Floor)	G-738 - South Dust Collector	Total Particulate	1,500	0.18	0.79	8760	2
G-0904	59E	Returned Rail Car Unloading Cyclone	G-0911 - Bag Filter G-0908 - Cartridge Filter	Total Particulate	5,479	0.55	2.40	8760	2

Table 8.A-FNS PM

Emission ID	Emission Point	Source Description	Control Device	Pollutants Emitted	Process Weight Rate (lb/hr)	Potential to Emit		Maximum Operating hours	PTE Note
						(lb/hr)	(tpy)		
D-670 (SB-1)	60E	SB-1 Super Blender	NA	Total Particulate	5,479	0.55	2.40	8760	2
D-672 (SB-2)	61E	SB-2 Super Blender	NA	Total Particulate	5,479	0.55	2.40	8760	2
SB-3	62E	Truck Loading Pellet Silo	NA	Total Particulate	33,000	2.38	10.42	8760	2
G-494 G-495	65E	G-494 WP1 Cyclone G-495 WP2 Cyclone	G-800 Dust Collector Unnamed After Filter	Total Particulate	1,000	0.12	0.53	8,760	2
L-816B	68E	WP2 Extruder	NA	Total Particulate	1,000	0.12	0.53	8,760	2
WP2 Pellet Loading Hopper	69E	WP2 Pellet Loading Hopper	NA	Total Particulate	1,000	0.12	0.53	8,760	2
Portable Blower Unit #2	71E	Portable Blower Unit #2	Unnamed Cyclone #2	Total Particulate	8,000	0.80	3.50	8760	2
D-9005 D-9012	72E	D-9005 Pellet Silo D-9012 Pellet Silo	G-9003 - Bag Filter	Total Particulate	75,000	0.02	0.09	8760	1

PTE Determination Notes

1. Based on R13-1830C emission limit rounded up to nearest one hundredth spot. PTE is consistent with the emission limits specified in the current R13 permit (R13-1830F) and Title V permit.
2. Based on 10% of the allowed PWR emission limit defined in 45 CSR 7. PTE is consistent with the emission limits specified in the current R13 permit (R13-1830F) and Title V permit.

Table 8.B-FNS VOC

Neal FNS VOC Emissions

Polypropylene Finishing and Storage - Pellet Classifiers, Storage Silos, and Product Loading [a]

Potential Hourly Production (lb/hr)	Potential Annual Production (lb/yr)	Polypropylene Pellet Emission Factor[b] (lb VOC/ MM lb pellets)	Potential Hourly VOC Emissions (lb/hr)	Potential Annual VOC Emissions (tpy)
75,000	650,000,000	9.67	0.73	3.14

[a.] VOC emissions have been equally distributed in between VOC Emissions from Product Finishing and VOC Emissions from Product Storage and Loading. The VOC emissions from the Pellet Classifiers have been included in the VOC Emissions from Product Finishing and VOC Emissions from Product Storage and Loading.

[b.] VOC emission factor based on April 1997 Beverage Can test at the Neal Plant

Table 9-Neal IA Tanks

Neal IA Tanks

Emission Unit ID	Emission Point	Emission Unit Description[a]	Tank Size (gal)	Potential Emissions (lb/hr)	Potential Emissions (tons/yr)
F-698		Used Oil Tank	16,500	0.004	0.018
D103		Hydraulic Oil Guard	106	0.00003	0.0001
D105		Oil/Grease Mixing Tank	580	0.00015	0.0006
D106A		Catalyst Tank	264	0.00007	0.0003
D106B		Catalyst Tank	264	0.00007	0.0003
D107		Hydraulic Oil Surge Drum	238	0.00006	0.0003
D110A		Donor Storage Tank	238	0.00006	0.0003
D110B		Donor Storage Tank	238	0.00006	0.0003
F-8809A		Peroxide Tank	30	0.00001	0.0000
F-8809B		Peroxide Tank	30	0.00001	0.0000
		F-8809A/B Peroxide Tank Loading	3.3 gal/hr	0.00001	0.0000
			Total for Organic Tanks	**0.005**	**0.021**

[a.] VOC emissions calculated using Tanks 4.0 for Used Oil Tank, emissions for all other sources are scaled from the Used Oil Tank emissions based on tank size.

Table 10.A-Road Segments

Braskem Neal Road Segments

Segment[a]	Length[a] (ft)	Paved[a]	Number of Vehicles per Rd Segment per Day [b]				Average Wt. (lb/rd segment)	Number of Times Per Day Vehicles Travel Rd Segment[b]				VMT/day	VMT/yr
			Heavy Machinery	Work Trucks	Passenger Cars	Delivery Trucks		Heavy Machinery	Work Trucks	Passenger Cars	Delivery Trucks		
24	401	Yes	0.142857143	6	15		2.01	1	2	4		5.48	1999.85
25	567	Yes	0.142857143	6	15		2.01	1	2	4		7.75	2827.71
26	625	Yes	0.142857143	6	15		2.01	1	2	4		8.54	3116.97
27	625	Yes	0.142857143	6	15		2.01	1	2	4		8.54	3116.97
28	625	Yes	0.142857143	6	15		2.01	1	2	4		8.54	3116.97
29	591	Yes	0.142857143	6	15		2.01	1	2	4		8.08	2947.40
30	422	Yes	0.142857143	6	15	4	2.16	1	2	4	2	6.41	2337.96
31	709	Yes	0.142857143	6	30	4	2.10	1	2	4	2	18.82	6868.73
24A	149	Yes	0.142857143	6	15		2.01	1	2	4		2.04	743.09
24B	432	Yes	0.142857143	6	15		2.01	1	2	4		5.90	2154.45
25A	294	Yes	0.142857143	6	15		2.01	1	2	4		4.02	1466.22
25B	294	Yes	0.142857143	6	15		2.01	1	2	4		4.02	1466.22
26A	423	Yes	0.142857143	6	15		2.01	1	2	4		5.78	2109.56
26B	317	Yes	0.142857143	6	15		2.01	1	2	4		4.33	1580.93
26C	423	Yes	0.142857143	6	15		2.01	1	2	4		5.78	2109.56
26D	423	Yes	0.142857143	6	15		2.01	1	2	4		5.78	2109.56
27A	359	Yes	0.142857143	6	15		2.01	1	2	4		4.91	1790.39
27B	359	Yes	0.142857143	6	15		2.01	1	2	4		4.91	1790.39
27C	359	Yes	0.142857143	6	15		2.01	1	2	4		4.91	1790.39
29A	204	Yes	0.142857143	6	15		2.01	1	2	4		2.79	1017.38
31A	128	Yes	0.142857143	6	15		2.01	1	2	4		1.75	638.35
31B	65	Yes	0.142857143	6	15		2.01	1	2	4		0.89	324.16
31C	208	Yes	0.142857143	6	15		2.01	1	2	4		2.84	1037.33
Ave A	1585	Yes	0.142857143	6	15		2.01	1	2	4		21.66	7904.63
Ave B	1920	Yes	0.142857143	6	30	4	2.10	1	2	4	2	50.96	18600.78
Ave C	2858	Yes	0.142857143	6	15		2.01	1	2	4		39.05	14253.27
Gate Rd	68	Yes	0.142857143	6	15		2.01	1	2	4		0.93	339.13
N. Field Svc Rd	1563	No	0.142857143	6	5		2.01	1	2	4		9.52	3472.98
River House Svc. Rd	319	No	0.142857143	6	5		2.01	1	2	4		1.94	708.82
S. Field Svc Rd	2658	No	0.142857143	6	5		2.01	1	2	4		16.18	5906.07
S. Rail Svc Rd	1162	No	0.142857143	6	5		2.01	1	2	4		7.07	2581.96

	Heavy Machinery	Work Trucks	Passenger Cars	Delivery Trucks
Vehicle Wt (lb) [3]	6000	4000	4000	6000

Footnotes:

a. The Segment Names, Length, & Paved/Unpaved designations were determined from the R-6202.dwg file provided by Braskem.

b. Vehicle per day data is based on information provided by Jim Fain and Melissa Essman and engineering estimates.

c. Vehicle weight for coal truck in and coal trucks out provided by Jim Fain. Vehicle weights of work trucks, passenger cars, and delivery trucks are based on typical vehicles. The heavy machinery vehicle weight is based on equivalent of the typical heavy machinery used at the facility, the Caterpillar skid steer loader weight. (5709 lb).

Table 10.B-Unpaved

Braskem Neal Unpaved Roads

The emissions from rolling stock per vehicle mile traveled (VMT) have been calculated using the equations provided in AP-42 for unpaved roads.

UNPAVED ROADS - source AP-42, Section 13.2.2, Revision Date 11/06.

$$E = k\left(\frac{s}{12}\right)^a\left(\frac{W}{3}\right)^b\left(\frac{(365 - p)}{365}\right)$$

	PM 2.5	PM 10	TSP
k	0.15	1.5	4.9
a	0.9	0.9	0.7
b	0.45	0.45	0.45
P	140	140	140

Nomenclature:

E: Emission Factor
k, a, and b: Particle Size Multiplier and exponents (dimensionless)
s: Silt content of road surface material (%)
W: Mean vehicle weight (tons)
p: Mean # of days with at least 0.01 inches of

The potential annual emission rates are calculated assuming the facility operates 365 days. The value P is from AP-42, Figure 13.2.1-2 (Revision Date: 12/06).

Segment I.D.	s	s Source	W	W Source	TSP Emission Factor (lbs/VMT)	TSP EF Source	PM_{10} Emission Factor (lbs/VMT)	PM10 EF Source	$PM_{2.5}$ Emission Factor (lbs/VMT)	PM2.5 EF Source	VMT/yr	TSP Emissions (lbs/yr)	PM_{10} Emissions (lbs/yr)	PM2.5 Emissions (lbs/yr)	TSP Emissions (tpy)	PM_{10} Emissions (tpy)	$PM_{2.5}$ Emissions (tpy)
N. Field Svc Rd	4.9	AP-42 Table 13.2.2-1 Western Surface Coal Mining Plant Road	2.01	Road Segments Worksheet	1.35	AP-42 Sec 13.2.2.2	0.35	AP-42 Sec 13.2.2.2	0.03	AP-42 Sec 13.2.2.2	3,473	4682.81	1198.41	119.84	2.34	0.60	0.06
River House Svc. Rd	4.9	AP-42 Table 13.2.2-1 Western Surface Coal Mining Plant Road	2.01	Road Segments Worksheet	1.35	AP-42 Sec 13.2.2.2	0.35	AP-42 Sec 13.2.2.2	0.03	AP-42 Sec 13.2.2.2	709	955.74	244.59	24.46	0.48	0.12	0.01
S. Field Svc Rd	4.9	AP-42 Table 13.2.2-1 Western Surface Coal Mining Plant Road	2.01	Road Segments Worksheet	1.35	AP-42 Sec 13.2.2.2	0.35	AP-42 Sec 13.2.2.2	0.03	AP-42 Sec 13.2.2.2	5,906	7963.47	2037.98	203.80	3.98	1.02	0.10
S. Rail Svc Rd	4.9	AP-42 Table 13.2.2-1 Western Surface Coal Mining Plant Road	2.01	Road Segments Worksheet	1.35	AP-42 Sec 13.2.2.2	0.35	AP-42 Sec 13.2.2.2	0.03	AP-42 Sec 13.2.2.2	2,582	3481.40	890.95	89.09	1.74	0.45	0.04
										Total:	12669.83	17083.41	4371.92	437.19	8.54	2.19	0.22

Table 10.C-Paved

Braskem Neal Paved Roads

The emissions from rolling stock per vehicle mile traveled (VMT) have been calculated using the equations provided in AP-42 for paved roads.

PAVED ROADS - source AP-42 section 13.2.1.3 equation (1), Revision Date 11/06.

$$E_{ext} = \left[k \left(\frac{sL}{2} \right)^{0.65} \left(\frac{W}{3} \right)^{1.5} - C \right] \left(1 - \frac{P}{4N} \right)$$

AP-42 section 13.2.1.3 (11/06) provides the range of silt loadings 0.03- 400 grams/sq. meter. The potential annual emission rates are calculated assuming the facility operates 365 days.

Nomenclature:

E_{ext}:	Emission Factor (lbs/VMT)
k:	Particle Size Multiplier (dimensionless)
sL	Silt loading (grams/m^2)
W:	Mean vehicle weight (tons)
C:	Emission Factor for brake, exhaust, and tire wear
P:	Days w/ .01 in of rain
N:	Number of days in averaging period

	PM 2.5	PM 10	TSP
k	0.0024	0.016	0.082
C	0.00036	0.00047	0.00047
P	140	140	140
N	365	365	365

Segment I.D.	Paved\Un	sL	sL Source[a]	W	W Source	TSP Emission Factor (lbs/VMT)	TSP EF Source	PM_{10} Emission Factor (lbs/VMT)	PM10 EF Source	$PM_{2.5}$ Emission Factor (lbs/VMT)	PM2.5 EF Source	VMT/yr	TSP Emissions (lbs/yr)	PM_{10} Emissions (lbs/yr)	$PM_{2.5}$ Emissions (lbs/yr)	TSP Emissions (tpy)	PM_{10} Emissions (tpy)	$PM_{2.5}$ Emissions (tpy)
24	P	7.4	AP-42 Table 13.2.1-4	2.007	Road Segments Worksheet	0.09	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.45E-03	AP-42 13.2.1.3	2,000	189.01	36.20	4.91	0.09	0.02	0.00
25	P	7.4	AP-42 Table 13.2.1-4	2.007	Road Segments Worksheet	0.09	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.45E-03	AP-42 13.2.1.3	2,828	267.25	51.18	6.94	0.13	0.03	0.00
26	P	7.4	AP-42 Table 13.2.1-4	2.007	Road Segments Worksheet	0.09	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.45E-03	AP-42 13.2.1.3	3,117	294.58	56.41	7.65	0.15	0.03	0.00
27	P	7.4	AP-42 Table 13.2.1-4	2.007	Road Segments Worksheet	0.09	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.45E-03	AP-42 13.2.1.3	3,117	294.58	56.41	7.65	0.15	0.03	0.00
28	P	7.4	AP-42 Table 13.2.1-4	2.007	Road Segments Worksheet	0.09	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.45E-03	AP-42 13.2.1.3	3,117	294.58	56.41	7.65	0.15	0.03	0.00
29	P	7.4	AP-42 Table 13.2.1-4	2.007	Road Segments Worksheet	0.09	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.45E-03	AP-42 13.2.1.3	2,947	278.56	53.34	7.23	0.14	0.03	0.00
30	P	7.4	AP-42 Table 13.2.1-4	2.165	Road Segments Worksheet	0.11	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.79E-03	AP-42 13.2.1.3	2,338	247.69	47.53	6.52	0.12	0.02	0.00
31	P	7.4	AP-42 Table 13.2.1-4	2.103	Road Segments Worksheet	0.10	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.66E-03	AP-42 13.2.1.3	6,869	696.73	133.60	18.24	0.35	0.07	0.01
24A	P	7.4	AP-42 Table 13.2.1-4	2.007	Road Segments Worksheet	0.09	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.45E-03	AP-42 13.2.1.3	743	70.23	13.45	1.82	0.04	0.01	0.00
24B	P	7.4	AP-42 Table 13.2.1-4	2.007	Road Segments Worksheet	0.09	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.45E-03	AP-42 13.2.1.3	2,154	203.62	38.99	5.29	0.10	0.02	0.00
25A	P	7.4	AP-42 Table 13.2.1-4	2.007	Road Segments Worksheet	0.09	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.45E-03	AP-42 13.2.1.3	1,466	138.57	26.54	3.60	0.07	0.01	0.00
25B	P	7.4	AP-42 Table 13.2.1-4	2.007	Road Segments Worksheet	0.09	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.45E-03	AP-42 13.2.1.3	1,466	138.57	26.54	3.60	0.07	0.01	0.00
26A	P	7.4	AP-42 Table 13.2.1-4	2.007	Road Segments Worksheet	0.09	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.45E-03	AP-42 13.2.1.3	2,110	199.37	38.18	5.17	0.10	0.02	0.00
26B	P	7.4	AP-42 Table 13.2.1-4	2.007	Road Segments Worksheet	0.09	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.45E-03	AP-42 13.2.1.3	1,581	149.41	28.61	3.88	0.07	0.01	0.00
26C	P	7.4	AP-42 Table 13.2.1-4	2.007	Road Segments Worksheet	0.09	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.45E-03	AP-42 13.2.1.3	2,110	199.37	38.18	5.17	0.10	0.02	0.00
26D	P	7.4	AP-42 Table 13.2.1-4	2.007	Road Segments Worksheet	0.09	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.45E-03	AP-42 13.2.1.3	2,110	199.37	38.18	5.17	0.10	0.02	0.00
27A	P	7.4	AP-42 Table 13.2.1-4	2.007	Road Segments Worksheet	0.09	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.45E-03	AP-42 13.2.1.3	1,790	169.21	32.40	4.39	0.08	0.02	0.00
27B	P	7.4	AP-42 Table 13.2.1-4	2.007	Road Segments Worksheet	0.09	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.45E-03	AP-42 13.2.1.3	1,790	169.21	32.40	4.39	0.08	0.02	0.00
27C	P	7.4	AP-42 Table 13.2.1-4	2.007	Road Segments Worksheet	0.09	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.45E-03	AP-42 13.2.1.3	1,790	169.21	32.40	4.39	0.08	0.02	0.00
29A	P	7.4	AP-42 Table 13.2.1-4.	2.007	Road Segments Worksheet	0.09	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.45E-03	AP-42 13.2.1.3	1,017	96.15	18.41	2.50	0.05	0.01	0.00
31A	P	7.4	AP-42 Table 13.2.1-4	2.007	Road Segments Worksheet	0.09	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.45E-03	AP-42 13.2.1.3	638	60.33	11.55	1.57	0.03	0.01	0.00
31B	P	7.4	AP-42 Table 13.2.1-4	2.007	Road Segments Worksheet	0.09	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.45E-03	AP-42 13.2.1.3	324	30.64	5.87	0.80	0.02	0.00	0.00
31C	P	7.4	AP-42 Table 13.2.1-4	2.007	Road Segments Worksheet	0.09	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.45E-03	AP-42 13.2.1.3	1,037	98.04	18.77	2.54	0.05	0.01	0.00
Ave A	P	7.4	AP-42 Table 13.2.1-4	2.007	Road Segments Worksheet	0.09	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.45E-03	AP-42 13.2.1.3	7,905	747.07	143.07	19.39	0.37	0.07	0.01
Ave B	P	7.4	AP-42 Table 13.2.1-4	2.103	Road Segments Worksheet	0.10	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.66E-03	AP-42 13.2.1.3	18,601	1886.78	361.79	49.40	0.94	0.18	0.02
Ave C	P	7.4	AP-42 Table 13.2.1-4	2.007	Road Segments Worksheet	0.09	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.45E-03	AP-42 13.2.1.3	14,253	1347.08	257.97	34.96	0.67	0.13	0.02
Gate Rd	P	7.4	AP-42 Table 13.2.1-4	2.007	Road Segments Worksheet	0.09	AP-42 13.2.1.3	0.02	AP-42 13.2.1.3	2.45E-03	AP-42 13.2.1.3	339	32.05	6.14	0.83	0.02	0.00	0.00
											Total:	89558.33	8667.28	1660.55	225.64	4.33	0.83	0.11

[a] The lowest mean silt loading provided in Table 13.2.1-4 was used since none of the categories listed in the table describe the Neal Plant and it is not expected that the facility would have a high silt loading.

Confidential Business Information Claim

Company Name	Braskem PP Americas, Inc. (Previously Sunoco Chemicals, Inc.)	
Company Address	200 Big Sandy Road, Kenova, WV 25530	
Responsible Official	David Hext	
Confidential Information Designee in State of WV	Name	David Hext
	Title	Operations Manager
	Address	200 Big Sandy Road, Kenova, WV 25530
	Phone	(304) 453-1371
	Fax	(304) 453-5916
Person/Title *Submitting* Confidential Information	Same as above	

Reason for Submittal of Confidential Information
Title V operating permit renewal application

Identification of Confidential Information	Rationale for Confidential Claim	Confidential Treatment Time Period
Attachment B. Plot Plan, Attachment C. Process Flow Diagrams, and Process Description	Release of the facility plot plan and the process flow diagrams would allow competitors to determine process technology and provide an unfair competitive advantage. Release of the specific information contained in the process description would allow competitors to determine process technology and production capacity and provide an unfair competitive advantage. Confidential information is distributed on a need-to-know basis. Braskem has implemented control measures to determine if diagrams/plot plans are not the originals. Additionally, distribution of confidential information to outside personnel needs to be approved by a supervisor. Upon distribution of the information, a transmittal letter accompanies it stating the following	Permanent

Identification of Confidential Information	Rationale for Confidential Claim	Confidential Treatment Time Period
	The Documents accompanying this transmittal contain confidential information belonging to the sender, which may be legally privileged. The information is intended only for use of the individual or entity named above. If you are not the intended recipient, you are hereby notified that any disclosure, copying, distribution or taking any action in reliance on the comments of this transmittal information is strictly prohibited.	

Responsible Official Signature	
Responsible Official Title	Plant Manager
Date Signed	

NOTE Must be signed and dated in **BLUE INK**.