

Fact Sheet



*For Draft/Proposed Renewal Permitting Action Under 45CSR30 and
Title V of the Clean Air Act*

Permit Number: **R30-09900010-2012**
Application Received: **June 25, 2010**
Plant Identification Number: **099-00010**
Permittee: **Braskem America, Inc.**
Facility Name: **Neal Plant**
Mailing Address: **200 Big Sandy Road, Kenova, WV 25530**

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

Facility Description

Material Preparation

Braskem America, Inc. receives part of its propylene feed stock from railroad tank cars. The propylene is unloaded. Each of the unloading stations consists of compressors and vapor and liquid unloading hoses and pipelines.

Area 10 receives and stores propylene from the rail unloading stations. In addition, the Neal Plant receives a refinery grade propylene off-gas stream from the Marathon Oil Refinery via an underground pipeline. This material is stored in Area 10 prior to distillation. Propane from the distillation process in Area 11 is sent back to Marathon Oil for credit. Some of the propane is used to fuel a Nitrogen Heater. The polymerization grade propylene is the product of the distillation unit and is the feed for the polymerization unit.

The purpose of the Distillation Unit is to convert the chemical and refinery grade propylene feed from Area 10 to polymerization grade propylene for the Polymerization Unit. In addition to increasing the propylene content of the feed stock, the other important function of the Distillation Unit is the removal of catalyst poisons through a system of “Dryers”. Catalyst poisons removed include: carbon monoxide; sulfur compounds; water; and arsine.

Propane and other heavy ends are substantially removed in the propylene splitters E102 and E103 providing a 95+% purified propylene stream. The propylene splitter physically consists of two columns; however, in function they operate as one unit. Two of the poison removal dryers, D-1105A and D-1105B, are regenerated periodically. These dryers are regenerated by circulation of hot nitrogen in a closed loop cycle. There is a small purge to the flare header to remove the poisons. This flow is pressure controlled by the G104 Nitrogen Compressor Knock Out Drum. The B101 Nitrogen Heater, which is fueled with propane from the F1032 tank, is used to heat the nitrogen. One of these dryers will be in service while the other dryer is being regenerated.

The OSBL flare (B542), which vents to emission point B542E provides emergency relief for Area 11 (Distillation), Area 10 (LPG Storage), and the Railroad Unloading Area. The primary source of non-emergency emissions will be from the regeneration, of the D-1105A and D-1105B propylene dryer vessels. These vessels will remove water, sulfur compounds, and other catalyst poisons. One vessel will be regenerated each week and as needed. In preparation for regeneration the liquid propylene is drained from the vessel and recovered. Then the vessel is depressurized to the flare before the introduction of hot nitrogen to adsorb the contaminants. The total propylene sent to the flare consists of propylene gas sent during depressurization prior to nitrogen heat and propylene that was absorbed in the alumina and vaporized during the hot nitrogen regeneration. The propylene is purged to the flare along with the contaminants during the closed loop regeneration through G104 by pressure control.

Polymerization

The Neal Plant is a licensee of the Himont “Spheripol” process for manufacturing polypropylene.

An oil/grease mixture is made in the D-105 Oil/Grease Mixing Tank. The solid catalyst (titanium tetrachloride) is mixed with the oil/grease mixture in the D-106 Catalyst Tank. The TEAL (triethyl aluminum), which is a co-catalyst, is unloaded from cylinders and stored in the D-111 TEAL Storage Drum and the D-101 TEAL Surge Drum. The donor (which controls the formation of waxy products) is unloaded from drums into the D-110 A/B Donor Storage Tank. The three catalyst components (supported titanium, aluminum alkyl (TEAL) and donor) are fed to the D-2-1 Precontacting Pot in a controlled ratio.

The catalyst complex is formed in the Precontacting Pot and coated with a thin layer of polypropylene in the R-200 Prepolymerization Reactor. The R-200 is cooled with refrigerated water to limit the reaction. The prepolymerized material is sent to the two loop reactors (R-201 and R-202) where the polymerization process is completed. The D-202 Reactor Surge Drum is used to keep the loop reactors' liquid full.

Hydrogen is used to control the length of the polymer chains. The more hydrogen fed to the reactors, the shorter the length of the polymer chains.

Ethylene can be added to the propylene feed to produce copolymers. Copolymers exhibit increased impact properties as compared to homopolymers. The Neal Plant currently does not produce copolymer material, but is equipped to handle ethylene trailers and meter ethylene to the reactors. The production of copolymers does not increase the emissions of the polymerization section.

The slurry is sent from the R-202 reactor to the flash drum (DC-301). Unreacted propylene and propane gas is sent to the material recovery section. The powder is sent to the Recycle Gas Filter (DF-301) for additional degassing and then to the Steamer (BE-501).

Catalyst residues are deactivated by direct contact with steam in the Steamer. The moisture in the powder is removed in the dryer (BE-502) with a closed-loop nitrogen system. The powder is conveyed pneumatically with nitrogen to the Powder Surge Silos (D-0801A, D-0801B, D-0801C) where it is inventoried prior to use in the finishing section.

Material Recovery

The slurry discharged from the reactors consists of 50% polypropylene powder and 50% propylene and propane. This large quantity of hydrocarbons is recovered in the material recovery section. The primary flash of hydrocarbons occurs in the Flash Drum (DC-301). The dynamic Separator (PA-301) on the gas outlet from (DC-301) prevents any substantial solid entrainment in the gas stream. The propylene and propane gases are sent from (DC-301) to the bottom of the Recycle Propylene Scrubber (C-301). The purpose of the (C-301) is to remove any entrained powder. A continuous drain from the bottom of the (C-301) to the Recycle Gas Filter prevents solids build-up on the bottom. The condensed propylene/propane is sent to the top of the scrubber by level control of the bottom. The condensed propylene/propane is sent to the Propylene Feed Tank (D-302) and to the (F-101C) tank in the raw material preparation section.

The powder discharged from the Flash Drum is sent to the Recycle Gas Filter (DF-301). (DF-301) is a bag filter. The gas leaving the (DF-301) is washed with paraffin oil in the Recycle Propylene Scrubber (C-302) to remove any fine powder entrainment and to reduce aluminum alkyl content of the recycle gas. The oil must be replaced at regular intervals. The gas leaving the Recycle Propylene Scrubber (C-302) is compressed by the (P-301) Compressor and sent to the Recycle Propylene Scrubber (C-301) for recovery. The compressor suction pressure is controlled by recycling some of the discharge gas to the feed line of (C-302).

The powder from the DF-301 is sent to the Steamer (BE-501) where the stripping of catalyst residues and hydrocarbons is accomplished by direct contact with steam. The steam from (BE-501) is condensed in the Steamer Scrubber (C-501). The overhead gas from the scrubber (C-501) is compressed by either Compressor (P-501) or (P-503) and recovered. The recovered hydrocarbons are sent to the (F-1-1C) tank in the raw material preparation section.

The water in the powder is removed in the Dryer (BE-502), which is a fluid bed dryer operated with closed-loop hot nitrogen. The moisture in the nitrogen stream is removed in the Nitrogen Scrubber (C-502). The Dryer Compressors (P-502A and P-502S) circulate hot nitrogen to the Dryer.

In the event of an electrical failure that stops the reactor circulating pumps or a runaway reaction which could result in reactor high pressure or a reactor plugged with solid polymer, an emergency shutdown is initiated. An emergency shutdown will automatically dump the contents of the (R-200, R-201, and R-202) reactors to the (D-601) High Pressure Blow Down Tank and the (D-602) Low Pressure Blow Down Tank. The excess propylene is transported through the flare header system to the ISBL flare (ES9101) (Emission Point 91E) and burned.

During normal operations, the (P-501) and (P-503) compressors are used to recover hydrocarbons in the flare header. The (P-501/P-503) compressors serve to pull down flare header pressure below the pressure needed to activate the flare and therefore there are no emissions. However, as described above, in an emergency situation when the quantity of gases is more than the compressors can recover, the ISBL flare is used to control emissions.

Product Finishing

At the Neal Plant, this group includes the WP-A, WP-B, WP-1, and WP-2 extruders in the Finishing and Shipping Building and the associated ancillary equipment. The purpose of the product finishing section is to convert the polypropylene powder into a pelletized product. The WP-B extruder is used as the primary extruder; the WP-A is used as a spare and for special production orders.

WP-B Extruder

The WP-B extruder is a Werner & Pfleiderer 300ZSK extruder which is rated for a maximum production rate of 70,000 lb/hr. This extruder system was installed in the Fall of 1994 and is equipped with an emission point but is currently sealed and not functioning as an emission point. The polypropylene powder is conveyed with nitrogen in a closed loop pneumatic system from the powder silos in the Polymerization Section to the WP-B feed tank, (D-8801). The powder from the feed tank is metered with a weigh belt feeder to a ribbon mixer where other solid and liquid additives are metered in the proper ratios depending upon the particular formulation. The polypropylene powder/additive mix falls into the feed throat of the WP-B Extruder. The twin screw extruder which is driven by a 7400 Hp motor uses mechanical shearing and a steam heated barrel to melt the polypropylene. The molten polypropylene is then forced through a steam heated die with a melt pump.

As the molten polypropylene exits the die, it is cut into pellets and cooled in an Underwater Pelletizer. The Underwater Pelletizer has a rotating knife assembly which cuts the pellets and a water pump which transports the pellet/water slurry to a Pellet Dryer where the pellets are separated from the water which is recycled. The pellets are screened in a Classifier to remove under and oversized pellets from the product. The finished pellets are conveyed pneumatically to the Pellet Storage Tanks and Pellet Blenders.

WP-A Extruder

The WP-A extruder is a Werner & Pfleiderer 240ZSK extruder which is rated for a maximum production rate of 33,000 lb/hr. This extruder system was installed in the summer of 1990. This extruder system is similar in design and operation to the WP-B extruder described above. This extruder is equipped with an emission point but currently it is sealed and not functioning as an emission point.

WP-1 and WP-2 Extruders

The WP-1 and WP-2 extruders are Werner & Pfleiderer 83/700 extruders with a rated capacity of approximately 1,000 lb/hr each. These extruders were installed in 1979. They are used less than one month a year to make a specialty product for future manufacturers. The feed powder is dumped into a tumbling mixer where additives and colorants are added manually. The melt strands from the extruder are cooled in a water bath prior to pelletization.

Product Storage

At the Neal Plant, this group includes the pellet silos, pellet blenders, rail car loading stations, truck loading station, and the bag and carton station in the finishing and shipping area as well as associated ancillary equipment. The polypropylene pellets are conveyed pneumatically with air from the WP-A and WP-B extruders to the three pellet silos (D-9001, D-9002, D-9003) or to the nine pellet blenders (D-9004 - D-9012). Each of the pellet silos and the pellet blenders have a working capacity of 400,000 pounds or the equivalent volume of two hopper cars of

product. The pellet blenders have internal blending tubes, an internal blending chamber and use an external recirculation line to ensure that each lot of pellets has consistent properties. Small purge blowers are used to remove trace quantities of residual volatiles from the pellets.

The blended product is conveyed pneumatically to either the North or South Rail Car Loading Stations. Covered hopper cars are used to transport more than 95% of the product to customers. Both rail car loading stations use counter current air devices to help clean fines and streamers from the product immediately prior to loading. The North Rail Car Loading Station uses a device, (L-9501), with a trade name of Flotriator; the South Rail Car Loading Station uses a similar device, (L-9503), with a trade name of Pelletron. In addition to the primary method of product transport, covered hopper cars, the facility can also load bulk trucks, bag material or use 1,000 pound cartons. The area also includes small pellet silos (S-15) and (S-20) and small pellet blenders, 200,000 pound capacity, (D-670) and (D-672) which are used to unload and blend off-specification pellets from rail cars and to blend small lots for the truck loading or packaging operations. While most of the unreacted VOC's are removed prior to the product storage and handling section, the polypropylene pellets have some residual VOC's contained within. Over time the VOC's contained in the pellets will slowly diffuse from the pellets to the air. These emissions have not been quantified, but they are believed to be insignificant.

Boilers

Braskem currently utilizes 5 steam producing boilers at the Neal Plant. Boiler #1-B600 is a 77 MM Btu/hr NG boiler which is located in the boiler house with an older coal fired unit, which is no longer used. The coal fired boiler (Boiler #2, 001-01) has been taken out of service and replaced with a 96 MM Btu/hr natural gas unit, listed as (Boiler #3-B603). However, since (Boiler #3-B603) is only a leased unit, it is scheduled to be replaced by a similarly sized (Boiler #4-B604) by mid 2012. These boilers supply low pressure steam (250 psig) to the plant for process heating and heating of buildings during the Winter. Additionally, there are two small package gas boilers in the F&S (Finishing and Shipping) Building. These small boilers supply high pressure steam (600 psig) to the two Werner & Pfeiderer Extruders, the WP-A and WP-B. Normally only one of these small boilers will be in operation; the other will be in stand-by mode. As a result of removing the coal boiler from service, the facility has become an area source with respect to hazardous air pollutant (HAP) emissions.

Changes since Initial Title V Issuance

The coal fired boiler (Boiler #2) was removed from service and a rental boiler (Boiler #3) was originally permitted as a temporary replacement for the coal boiler until Braskem's new boiler (Boiler #4) could be constructed and delivered. Due to the length of time necessary before the new (Boiler #4) could be put into place the temporary boiler was eventually permitted as a permanent unit and the coal fired unit was officially taken out of service. While the new boiler was being constructed the permittee increased the VOC loading to the OSBL and ISBL flare. Additionally, a number of PM emission points were removed from service within the finishing section of the plant and a new G-8830 baghouse was installed. The final permitting change covered by this renewal, approves the installation of the new (Boiler #4) discussed above and establishes a schedule for removing the interim (Boiler #3) from service.

Emissions Summary

Plantwide Emissions Summary [Tons per Year]		
Criteria Pollutants	Potential Emissions	2009 Actual Emissions
Carbon Monoxide (CO)	130.73	60.54
Nitrogen Oxides (NO _x)	86.85	65.78
Particulate Matter (PM ₁₀)	92.59	
Particulate Matter (PM _{2.5})	89.9	
Total Particulate Matter (TSP)	102.45	99.22
Sulfur Dioxide (SO ₂)	1.09	234.08*
Volatile Organic Compounds (VOC)	162.68	70.12

PM₁₀ is a component of TSP.

Hazardous Air Pollutants	Potential Emissions	2009 Actual Emissions
Total HAP(s)	1.42	19.23*
n-Hexane	1.34	0.17
Lead	0.00037	
Hydrochloric Acid	0	18.21*
Hydrofluoric Acid	0	1.02*

* These actual emissions represent a time period in which the coal fired boiler was still in operation. This potential to emit was significantly reduced upon taking the 155 MMBtu/hr coal fired boiler out of service.

The proposed renewal permit reflects an overall reduction in emissions, which are summarized within the tables below. The reduction came from removing the 155 MM Btu/hr coal fired boiler (Boiler #2) from service. These changes as well as the incorporation of a new 96 MM Btu/hr natural gas fired boiler (Boiler #3) were permitted under minor source NSR permit R13-1830G. Additionally, while the renewal application was under review two additional NSR modifications were processed and incorporated by the proposed renewal permit. The next modification was approved as R13-1830H, which removed finishing equipment that was no longer in service and installed a new baghouse (G-8830). Last but not least, the final replacement boiler (Boiler #4) was permitted under R13-1830I. Additionally, this last minor source NSR revision specified the permanent removal of the interim (Boiler #3) upon commissioning of the new unit. Annual emissions were capped in accordance with the (Boiler #3) levels by establishing a combined natural gas usage limit for Boilers #3 and #4 since the interim boiler will be shut down upon startup of the new unit.

In addition to adding emissions from the new boiler, emissions were raised by increasing the permitted volume of waste gas vented to flare control devices (ISBL and OSBL). The flare changes along with their associated emission limit increase were initially permitted under minor source NSR permit R13-1830F and later within Title V modification permit R30-09900010-2006(MM01). The Title V modification was issued on June 9, 2008 and defines the following emission changes.

Table (R13-1830F) Changes due to increased flare loading

Emission Point	Pollutant	R13-1830E		R13-1830F		Change	
		lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
91E (ISBL Flare)	VOC	1.19	0.74	6.68	3.69	+ 5.49	+ 2.95
	CO	3.21	2.00	17.65	9.78	+ 14.44	+ 7.78
	NO _x	0.79	0.49	3.27	1.91	+ 2.48	+ 1.42
	PM ₁₀	3.14	1.96	1.81	1.01	- 1.33	- 0.95
B542E (OSBL Flare)	VOC	1.19	0.74	22.48	3.69	+ 21.29	+ 2.95
	CO	3.20	1.99	59.41	9.78	+ 56.21	+ 7.79
	NO _x	0.75	0.47	10.94	1.91	+ 10.19	+ 1.44
	PM ₁₀	3.14	1.96	6.10	1.01	+ 2.96	- 0.95
Overall Total Change	VOC						+5.9
	CO						+15.57
	NO _x						+2.86
	PM ₁₀						-1.90

Although the flare emission changes were documented throughly within the Title V modification (MM01), there was one other substantial change that did not get reflected at this time. As a result of stack testing conducted on the coal fired boiler, changes occurred in how Braskem estimated potential to emit for this unit. These changes stemmed from collecting site specific emission data in the form of stack testing measurements (June 2005) as well as fuel sampling (2008). These activities were ongoing during the last permit term and were driven by anticipated compliance with the boiler MACT (40 C.F.R. 63, subpart DDDDD).

Site specific emission factors replaced AP-42 factors for the following pollutants: HCL, Arsenic, Beryllium, Cadmium, Chromium, Formaldehyde, Manganese, Mercury, Nickle, POM, and Selenium. By far, the largest impact on potential emission estimates came from the HCL emission factor. This alone resulted in an increase of 38.2 tons/yr of HCL, which almost doubled the facility's total HAP potential to emit. However, the HCL emissions are a function of the chlorine content of coal.

In order to delineate these changes, the following table lists the facility wide potential to emit (PTE) as tabulated within the initial Title V permit application, then after the boiler testing factors went into effect.

Plantwide Emissions Summary [Tons per Year] - Changes Since Initial Title V Issuance		
Criteria Pollutants	Potential Emissions	
	Title V - Initial	Title V After Boiler Testing ¹
Carbon Monoxide (CO)	198.25	198.25
Nitrogen Oxides (NOX)	242.72	242.72
Particulate Matter (PM10)	82.17	68.5
Sulfur Dioxide (SO2)	1,234.7	1,234.7
Volatile Organic Compounds (VOC)	275.23	275.23
<i>PM10 is a component of TSP.</i>		
Hazardous Air Pollutants	Potential Emissions	
Hydrogen Chloride	32.48	70.77
Hydrogen Fluoride	4.0	4.0
Lead	0.34	0.34
Formaldehyde	1.55	1.64
TOTAL HAPs	38.37	76.75
<i>Some of the above HAPs may be counted as PM or VOCs.</i>		
¹ The potential emissions were changed due to using site specific emission factors derived from stack testing and coal sampling for (Boiler #2).		

The specific emission changes that took place within R13-1830G by removing the coal fired boiler, Boiler #2, and including the recognition of (Boiler #3), as a stationary source that will be onsite for over 12 months are as follows. The net change in PTE considering the addition of the NG (Boiler #3) and the removal of the coal fired (Boiler #2) is given in the following table.

Table (R13-1830G)

Pollutant	B603	B602	Net PTE Change
CO	69.83	(162.42)	(92.59)
NOX	35.00	(203.02)	(168.02)
PM2.5	2.66	(4.85)	(2.19)
PM10	2.66	(4.84)	(2.18)
PM	2.66	(32.60)	(29.94)
SO2	0.21	(1,221.37)	(1,221.16)
VOC	1.93	(1.89)	0.04
HAPs	0.66	(75.56)	(74.90)

Nevertheless, by taking (Boiler #2) out of service, the Neal facility's current potential to emit has now fallen below major source thresholds for hazardous air pollutants (HAPs). Additionally, the new (Boiler #3) is limited by R13-1830G to operate no more than 7,240 hrs/yr in order to maintain NOx emissions below major PSD significant levels (40 tpy NOx). The NOx limit was defined as 35 tpy for (Boiler #3).

Next, R13-1830H was issued to remove various PM emission points within the finishing area of the facility. PM emissions totaling 8.8 tpy were reduced by this change. Additionally, a new baghouse was permitted as G-8830 to increase the control and capture efficiency for PM although the overall emission limits were not changed, but just combined with the original 52E emission point. Also, the VOC loading and emission limits between the two flares were combined, but did not result in an overall change to emissions just increased flexibility for the permittee's venting arrangement.

Lastly, R13-1830 was later updated in November of 2011 to R13-1830I, which includes the final decision to replace the coal fired boiler with a new NG unit. This change recognized the decommissioning of the rental unit, (Boiler #3), when the new 99.66 MMBtu/hr NG (Boiler #4), is placed into service. The emissions from Boiler #4 were limited to the following:

Table (R13-1830I) Boiler #4 PTE Summary

Emission Point ID	Emission Unit ID	Pollutant	Potential Hourly Emissions	Potential Annual Emissions
			(lb/hr)	(tpy)
75E	B604	NOX	4.98	21.83
		CO	3.99	17.46
		VOC	0.35	1.53
		PM/PM10/PM2.5 ^a	0.76	3.32
		SO2	0.03	0.15
		Lead	4.98E-5	2.18E-4
		Total HAPs	0.19	0.82
		CO2e ^b	---	51,073

^a As described in footnote C to AP-42, Section 1.4, Table 1.4-2, all PM is assumed to be less than one (1) micron in aerodynamic diameter.

^b Carbon dioxide equivalents represent the sum of carbon dioxide (CO2), nitrous oxide (N2O), and methane (CH4) emissions adjusted by each pollutant's global warming potential.

It was noted that since (Boiler #3) is a rental unit that it is only permitted to operate until such time as the new boiler (Boiler #4) can be brought online. The permit delineates a schedule for the transition and phasing out of service, (Boiler #3), to occur no later than June 30, 2012. Therefore, the annual emissions from (Boiler #3) and (Boiler #4) are not additive since only one boiler will be running at a time.

Title V Program Applicability Basis

This facility has the potential to emit 130 TPY CO and 163 TPY VOC. Due to this facility's potential to emit over 100 tons per year of a criteria pollutant, Braskem is required to have an operating permit pursuant to Title V of the Federal Clean Air Act as amended and 45CSR30.

Legal and Factual Basis for Permit Conditions

The State and Federally-enforceable conditions of the Title V Operating Permits are based upon the requirements of the State of West Virginia Operating Permit Rule 45CSR30 for the purposes of Title V of the Federal Clean Air Act and the underlying applicable requirements in other state and federal rules.

This facility has been found to be subject to the following applicable rules:

Federal and State:	45CSR2 45CSR6 45CSR7 45CSR10 45CSR11 45CSR13 WV Code § 22-5-4 (a) (14) 45CSR16 40CFR60 45CSR30 40 C.F.R. Part 61 40 C.F.R. Part 63 40 C.F.R. Part 64 40 C.F.R. Part 82	Opacity and PM limits for boilers Open burning prohibited. PM and Opacity limits for manufacturing sources Sulfur dioxide limits for boilers Standby plans for emergency episodes. Minor Source NSR modification and construction permitting program The Secretary can request any pertinent information such as annual emission inventory reporting. Incorporation of NSPS pursuant to 40CFR60 Subparts A, Dc, DDD, and VV Operating permit requirement. Asbestos inspection and removal Subpart ZZZZ - Area Source RICE NESHAP Compliance Assurance Monitoring for Control Devices Subpart F, Ozone depleting substances
State Only:	45CSR4 45CSR21	No objectionable odors. §21-37. Leaks from Synthetic Organic Chemical, Polymer, and Resin Manufacturing Equipment. §21-38.Manufacture of High-Density Polyethylene, Polypropylene, and Polystyrene Resins

Each State and Federally-enforceable condition of the draft Title V Operating Permit references the specific relevant requirements of 45CSR30 or the applicable requirement upon which it is based. Any condition of the draft Title V permit that is enforceable by the State but is not Federally-enforceable is identified in the draft Title V permit as such.

The Secretary's authority to require standards under 40 C.F.R. Part 60 (NSPS), 40 C.F.R. Part 61 (NESHAPs), and 40 C.F.R. Part 63 (NESHAPs MACT) is provided in West Virginia Code §§ 22-5-1 *et seq.*, 45CSR16, 45CSR34 and 45CSR30.

Active Permits/Consent Orders

Permit or Consent Order Number	Date of Issuance	Permit Determinations or Amendments That Affect the Permit <i>(if any)</i>
R13-1830I	11-15-2011	
G60-C019	08-03-2010	

Conditions from this facility's Rule 13 permit(s) governing construction-related specifications and timing requirements will not be included in the Title V Operating Permit but will remain independently enforceable under the applicable Rule 13 permit(s). All other conditions from this facility's Rule 13 permit(s) governing the source's operation and compliance have been incorporated into this Title V permit in accordance with the "General Requirement Comparison Table B," which may be downloaded from DAQ's website.

Determinations and Justifications

45CSR2 *"To Prevent and Control Particulate Air Pollution From the Combustion of Fuel in Indirect Heat Exchangers"*

§2-3 Visible Emissions of Smoke and/or Particulate Matter Prohibited and Standards of Measurement.

Section 3.1 of this rule establishes an opacity standard of 10% which is applicable to the facility's natural gas Boilers #1, #3, #4, as well as H-081 and H-082 listed in Table 1.

§2-4 Weight Emission Standards.

Boiler #1's applicability to this weight emission standard was addressed in the factsheet for the initial permit. Boiler #3 is greater than 10 MMBtu/hr, and fits the definition of a type "b" fuel burning since it burns natural gas as fuel. As a result, boiler #3 is subject to the PM weight rate requirements specified in 45CSR§2-4.1.b as $(0.09) \times (96.72 \text{ MMBtu/hr}) = 8.70 \text{ lb/hr PM}$. This requirement is streamlined with the more stringent 45CSR13 permit limit of 0.74 lb/hr PM. Likewise boiler #4 falls applicable to relatively the same emission limit for PM due to its capacity very close to Boiler #3. Therefore, compliance for this boiler is also streamlined with the limitation defined within its respective 45CSR13 permit limit of 0.76 lb/hr PM.

§2-5 Control of Fugitive Particulate Matter.

Since all boilers now utilize gas fuel sources there is not expected to be any fugitive PM emissions, which is typically associated with solid fuel handling. Additionally, Boilers H-081 and H-082 are exempt from this section as a result of having a capacity rating of less than 10 MM Btu/hr.

§2-8 Testing, Monitoring, Recordkeeping and Reporting.

As a result of being less than 100 MMBtu/hr, the exception provision of 45CSR§2-8.4.c. applies to the new Boiler #3 and Boiler #4. This exempts the units from opacity and particulate matter (PM) testing under section 45CSR§2-8.1.a. as well as the monitoring requirements of 45CSR§2-8.2. This, along with the removal of the coal-fired Boiler #2, will result in the removal of the 45CSR2 monitoring plan from the proposed renewal permit. As a result of section 8.3.c. being applicable to Boilers #1, #3, and #4, records shall be maintained daily of the operating schedule and the quantity and quality of fuel consumed in each fuel burning unit.

Under the testing provisions of 8.1.b. the Director reserves the right to stack test for PM

§2-9 Start-ups, Shutdowns and Malfunctions.

The visible emission standards of 45CSR§2-3 shall apply at all times except during periods of start-up, shutdown, or malfunctions. Section 45CSR§2-9.2 specifies that during these times the permittee shall maintain and operate any fuel burning unit(s) including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. 45CSR§2-9.3 requires Braskem to report to the Director any malfunction of such unit or its air pollution control equipment, which results in any excess PM emission rates or excess opacity as specified by 45CSR§2-9.3.a.

45CSR10 *"To Prevent and Control Air Pollution from the Emissions of Sulfur Oxides"*

The facility evaluated herein was found to have four steam boilers located in Priority Region III subject to Rule 10. Boilers (H-081) and (H-082) are exempt from substantive requirements of this rule, per 45CSR§10-10.1 due to being rated at less than 10 MM Btu/hr. Additionally Boilers #1, #3, and #4 are exempt from the

testing, monitoring, recordkeeping and reporting provisions of section 8 per 45CSR§10-10.3 as a result of burning natural gas as fuel. This exemption along with the removal of the coal fired boiler, justifies removing the 45CSR10 monitoring plan from the proposed Title V renewal permit.

§10-3 Sulfur Dioxide Weight Emission Standards for Fuel Burning Units.

Section 3.3.f. of this rule defines a sulfur dioxide limit for the three steam boilers, (Boilers #1, #3, and #4) as the product of 3.2 and the total design heat inputs. The combined heat input is, $(77+ 96.7+99.66) = 273.4$ MMBtu/hr, which results in an overall facility limit of 874.8 lb SO₂/hr. The individual stack allowables are to be prorated by design heat input in accordance with section 3.4 of this rule. Therefore, the sulfur dioxide emission limit for (Boiler #1), emission point (01E), is defined as 246.4 lbs SO₂/hr. Whereas (Boiler #3), emission point (73E), has an individual stack specific SO₂ emission limit of 309.5 lb/hr SO₂. (Boiler #4), emission point (75E) has an individual stack specific SO₂ emission limit of 318.9 lb/hr SO₂.

For both boilers 3 and 4 these SO₂ limits are streamlined by complying with the facility's R13-1830I emission limitations of 0.06 lb SO₂/hr and 0.01 lb SO₂/hr, respectively.

§10-8 Testing, Monitoring, Recordkeeping and Reporting.

Under the testing provisions of 8.1.b. the Director reserves the right to stack test for SO₂. Due to all of the fuel burning units combusting natural gas and being rated at less than 100 MM Btu/hr, sections 10.3 and 10.1 respectively exempt Boiler #1, Boiler #3, and Boiler #4 from the testing, monitoring, recordkeeping and reporting requirements of §10-8.

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”*

Permit R13-1830G, was approved on July 6, 2010 and encompassed the following changes:

This action is to permanently permit the previously temporary boiler B603 (Boiler #3) and to remove the coal-fired boiler B602 (Boiler #2) and associated storage/handling equipment. The net PTE change of this modification is a reduction in all pollutants except VOCs; for which there is a small increase.

Permit R13-1830H, was approved on July 14, 2011 and encompassed the following changes. In accordance with R13-1830H, the following pieces of equipment from Area 91 and the FNS Area will be permanently shutdown: See detailed table below the “Non Applicability Determination “ section of this Factsheet.

Additionally, within R13-1830H, L-8829 emissions will now go to a new dedicated baghouse, G-8830. The permit also incorporated 45CSR7 PM limitations and stack test provisions. Also an error was corrected to change the equipment designation of G-8816 in the equipment table to G-8812. Additionally, the configuration of the discharge hopper D-509 was updated to eliminate its continuous vent and filter (DF-508).

Lastly, this permit modification incorporated a combined flare loading requirement for the OSBL and ISBL flare headers as a means of increasing operational flexibility without increasing permitted emission limits. The OSBL flare monitoring was also updated to include the use of a waste stream gas chromatography (GC) Btu analyzer in order to assure compliance.

Permit R13-1830I, was approved on November 15, 2011 and encompassed the addition of Boiler #4 (B604) which is planned to replace the rental Boiler #3 (B603). Conditions were put into place within this permit to require the rental Boiler #3 to be removed from service once the newer boiler completes its commissioning phase.

General Permit G60-C019, was approved on August 3, 2010 and encompassed after the fact permitting of three emergency fire pump engines (EG-1, EG-2, and EG-3). This permit establishes emission limits for each of the engines.

45CSR14: Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration - NON APPLICABILITY

The following review was supplied as part of the R13-1830G evaluation:

Braskem’s Neal Plant is located in Wayne County - which is currently designated as in “non-attainment” with 1997 PM2.5 standards - and is defined as a “major stationary source” under 45CSR14 for at least one attainment pollutant. Under the 2008 PM2.5 NSR Implementation Rule, SO2 is defined as “pre-cursor” to PM2.5. The potential major source applicability of increases of these pollutants is discussed below. With respect to the increases of the remaining criteria pollutants, the potential-to-emit (PTE) of the previously temporary, now permanent, Boiler B603 are below the “significant” (as defined under §45-14-2.74a) thresholds that would define the modification at an existing major stationary source as “major” under the WV Prevention of Significant Deterioration (PSD) program administered under 45CSR14. This is shown in tabular form below:

PSD Applicability Attainment Pollutants

Pollutants	Annual PTE	45CSR14 Significant Rates(1)	PSD Applicable?
CO	69.83	100 TPY	No
NOX	35.00	40 TPY	No
PM10	2.66	15 TPY	No
PM	2.66	25 TPY	No
VOC	1.93	40 TPY	No

(1) As defined under §45-14-2.74a.

It is important to note that B603 would, at an annual capacity factor of 100%, exceed 40 TPY of NOx. This classifies Boiler B603 as a synthetic minor.

Additionally, when B604 was permitted as a replacement to B603 this boiler was recognized as having reduced emissions as compared to B603, with the exception of PM, which was permitted at 3.32 tpy. The NOx emissions were permitted at 21.83 tpy, therefore, when the final change out of boilers occur, the overall change in emissions will continue to be below the PSD significant threshold values.

45CSR19: Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution Which Cause or Contribute to Non-Attainment - NON APPLICABILITY

The following review was supplied as part of the R13-1830G evaluation:

Braskem’s Neal Plant is located in Wayne County - which is currently designated as in “non-attainment” with 1997 PM2.5 standards - and is potentially defined as a “major stationary source” under 45CSR14 for PM2.5 and SO2. Under the 2008 PM2.5 NSR Implementation Rule, SO2 is defined as “pre-cursor” to PM2.5. Included in the rule was a requirement that states with a SIP-approved program for administering the major NSR program would use 40 CFR Part 51, Appendix S until such time as they received SIP-approval of an updated rule incorporating PM2.5 requirements. Pursuant the requirements under Appendix S, a “major modification” is defined as a modification at an existing major stationary source that results (in the case of a new unit, as Boiler #3 is being evaluated) in a PTE increase in excess of the values defined as “significant” under Appendix S. With respect to PM2.5 and SO2, the PTE of Boiler #3 was below the thresholds that would define the modification as major under Appendix S. This is shown in tabular form below:

Appendix S Applicability Non-Attainment Pollutants

Pollutant	Annual PTE	45CSR14 Significant Rates(1)	Major NSR Applicable?
PM2.5	2.66	10 TPY	No
SO2	0.21	40 TPY	No

(1) As defined under 40 CFR 51, Appendix A: II(A)(10).

Additionally, when B604 was permitted as a replacement to B603 this boiler was recognized as having reduced emissions as compared to B603, with the exception of PM, which was permitted at 3.32 tpy. The NOx emissions were permitted at 21.83 tpy, therefore, when the final change out of boilers occur, the overall change in emissions will continue to be below the PSD significant threshold values.

40 CFR 60, Subpart Dc: *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*

Subpart Dc generally applies to boilers with a maximum design heat input (MDHI) between 10 and 100 mmBtu/hr and meet the definition of a “steam generating unit.” Boiler B603 (96.72 mmBtu/hr) and Boiler #4 (99.66 MMBtu/hr) are subject to Subpart Dc under the applicability requirements of §60.40c(a). Subpart Dc does not have any emission standards for boilers that combust natural gas. However, Braskem is required to meet the reporting and record-keeping requirements under §60.48c for B603.

40 CFR 63, Subpart DDDDD: *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters - NON APPLICABILITY*

On January 13, 2003, EPA published in the Federal Register 40 CFR 63, Subpart DDDDD, which contained requirements pertaining to Boilers and Process Heaters. Subpart DDDDD was subsequently litigated and the US Court of Appeals for the District of Columbia vacated the rule and remanded it back to EPA. On April 29, 2010, EPA proposed a new Subpart DDDDD that addressed the court’s concerns. EPA took final action to issue Subpart DDDDD on February 21, 2011.

However, before the final promulgation of the boiler standards Braskem became an area source of HAPs as a result of removing the coal fired boiler, Boiler #2 from service.

40 CFR 63, Subpart JJJJJ: *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources*

As a result of EPA’s new Area Source Boiler Regulation promulgated a March 21, 2011, the permittee will not be subject to the area source, GACT requirements since, the permittee has permanently shut down the coal fired unit and plans to use natural gas to fire all remaining boilers.

40 C.F.R. Part 64 – Compliance Assurance Monitoring

The permittee submitted a CAM plan in the renewal application for two flare control devices. These control devices are used to assure compliance with the pre 1990 NSPS, 40CFR60, subpart DDD, which limits the release of VOCs.

The flares (ISBL-91E) and (OSBL-B542E) are permitted to abate a combined 5,000,000 lb/yr of VOCs. Although each flare is subject to 40CFR60, subpart DDD, under the NSPS only one of them, (OSBL-

B542E) is subject to compliance testing in accordance with 40CFR§60.18. This is due to the fact that the OSBL (B542) flare controls continuous process vents. The second flare (ISBL-91E) controls intermittent vent releases and is not subject to the flare assessment testing under 40CFR§60.18. However, since the CAM requirements hinge on maintaining control efficiency, a correlation of efficiency with the proposed operating limit is necessary.

As a result of this review, the writer has determined that the OSBL - B542E flare, which controls the continuous vents under the NSPS will be exempt from CAM due to the thorough monitoring and testing requirements incorporated within the facility's existing Title V permit. This exemption is cited under 40CFR64.2(b)(1)(vi) due to the source already having a continuous compliance determination method in place within their Title V permit that satisfies the Part 64 definition of this term.

Therefore, only the (ISBL-91E) flare, which controls intermittent VOC vents shall be subject to CAM requirements. The writer makes this determination based on the fact that this flare is exempt from the general testing provisions for flare control devices under 40CFR§60.18. As a result, the NSPS provisions applicable to this unit does not satisfy the definition of "Continuous Compliance Determination Method" as provided within Part 64 since, there is no means of verifying control efficiency. Furthermore, the potential pre-control emissions of VOC from the PSEU is greater than the major source threshold, the PSEU is subject to an emission standard, and uses a control device to meet the emission standard. Thus, this PSEU meets all three CAM applicability criteria given under 40 C.F.R. §§64.2(a)(1)-(3). Table 1 below summarizes the CAM plan.

Table 1 – CAM Plan Summary ISBL flare (Emission Point 91E)

Elements of the CAM Plan	Indicator No. 1 of 2	Indicator No. 2 of 2
I. GENERAL CRITERIA	Opacity	Pilot Lights
Monitoring Approach	Opacity is measured and recorded by Method 22	Thermocouples to monitor each of the 4 pilots
Indicator Range	The flare shall be designed for and operated with no visible emissions, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours	An excursion is defined as the absence of any of the pilot lights as reported by the thermocouples of the ISBL flare.
QIP threshold		
II. PERFORMANCE CRITERIA		A thermocouple shall be utilized for each pilot incorporated by the flare.
Specifications for obtaining representative data	Visual emissions assessed by trained observer using Method 22.	
Verification of Operational Status		An alarm will alert Neal Plant personnel in the event that any of the pilot lights of the ISBL flare have been extinguished. Additionally, Neal Plant personnel will utilize a camera to verify the pilot light flames are present after an alarm has occurred. Upon confirmation that the flare pilots have been extinguished, Neal Plant personnel will re-ignite the pilots. If Neal Plant personnel are unable to re-ignite the pilots, management will attempt to implement further corrective actions or will recommend a process unit shutdown

Elements of the CAM Plan	Indicator No. 1 of 2	Indicator No. 2 of 2
QA/QC Practices and Criteria	The observer shall be trained and have a working knowledge of VE reading methodology in accordance with 40 C.F.R. 60, Appendix A, Method 9	In accordance with the manufacturer's specifications, qualified personnel shall conduct inspections of the thermocouples to ensure the monitors are operating properly.
Monitoring frequency	A method 22 VE test shall be conducted upon detecting any excess opacity during periods of operation	The thermocouple sensors continuously record the presence or absence of the pilot light flames.
Data Collection Procedure	The method 22 test shall be conducted over a two hour period of operations	The data from the thermocouples are continuously recorded in the Neal Plants PI system.
Averaging Period	2 hours	None

Although opacity and pilot light availability are the relevant indicators, to correlate these indicators to a control efficiency, the ISBL flare shall also be required to conduct a flare assessment/design analysis in accordance with the criteria specified within 40CFR§60.18. This is necessary to assure the flare is being operated within the design criteria under worst case conditions in accordance with established design parameters for minimum heat content and maximum tip velocity. By demonstrating these requirements are being maintained in practice the permittee is assured to achieve a 95% destruction efficiency for VOCs.

In order to demonstrate compliance with the design criteria specified in 40CFR§60.18, the permittee shall submit a design analysis in accordance with 64.4(d)(1). Due to the intermittent nature of streams venting to this flare due to the use of a recovery compressor, the design analysis should identify and define two worst case practical operating scenarios, which are the most challenging to control. These worst case conditions shall be identified and supported by an engineering assessment that evaluates the venting episode that relates to the lowest waste gas heat content as well as the venting episode that results in maximum flow and therefore, largest flare tip velocity during any plausible header venting scenario.

Changes to the Title V Permit

Equipment Table

The equipment table was updated by removing various pieces of equipment from the finishing area. For a list of equipment removed from this area see the detailed table below, labeled as "Equipment Taken Out of Service". Additionally, the coal fired Boiler #2 and its associated coal handling equipment was also removed. Besides Boiler #2 this included the following entries being removed from the Equipment Table: 001-01 Baghouse, 001-01 Multicyclone, Coal Storage Pile, Coal Handling, and Coal Transfer fugitives.

Additions to the Equipment Table include the following:

Baghouse G-8830 which services the L-8829 Blender/Conveyor was added along with new emission point 74E. Boiler #3 was added having emission point 73E as well as Boiler #4 and its emission point 75E.

A typo was corrected that changed emission unit G-8816 to G-8812 for emission point 52E.

Three CI emergency fire pump engines were added as EG-1, EG-2, and EG-3. These engines were previously classified as insignificant, however, the engines became subject to operating and work practice standards after the 2010 amendments to 40CFR63, subpart ZZZZ.

Section 3.0

The reserved permit condition 3.1.5 was removed and existing conditions 3.1.6, 3.1.7, 3.1.8, 3.1.9 and 3.1.10 were renumbered to end at condition 3.1.9. In accordance with 45CSR13, permit number R13-1830I. A new facility wide permit condition related to permanent shutdowns was added as 3.1.10. Additionally, also in accordance with permit R13-1830I, three additional requirements were added as 3.1.11, 3.1.12, and 3.1.13 to correspond with fugitive PM requirements of 45CSR§7-3.7, 45CSR§7-5.1, and 45CSR§7-5.2, respectively.

Section 4.0

A new condition 4.1.1. was added in accordance with R13-1830I which further elaborates on the 10 % opacity requirement from 45CSR2.

Within condition 4.1.2 the coal fired boiler PM emission limits were removed and replaced with new emission limits for Boiler #3, Boilers H081, H082, and Boiler #4. Permit condition 4.1.4 was deleted as it pertained to the coal fired boiler and was replaced with R13-1830I operating limits for Boilers #3 and #4.

Original permit conditions 4.1.5 and 4.1.6 were deleted since they pertained specifically to the coal fired Boiler #2 that was taken out of service. Therefore, the remaining conditions were renumbered appropriately and existing permit conditions 4.1.7 and 4.1.8 became 4.1.5 and 4.1.6 as they pertain to the small H081 and H082 boilers.

Original permit condition 4.1.9 was relocated and included within the new 4.1.2 table.

Original permit condition 4.1.10 was removed since it was related to coal handling associated with the coal Boiler #2.

Original permit condition 4.1.11 was eliminated since it was only “Reserved” due to MM01.

Original permit condition 4.1.12 was renumbered as 4.1.7

Original permit condition 4.1.13 was eliminated since it was now included within 4.1.1.

Within the monitoring section of the permit condition 4.2.1 was deleted due to it pertaining only to the coal fired Boiler #2 which was taken out of service.

Condition 4.2.2 was renumbered as 4.2.1 and modified to require the operating schedule for Boilers #3 and #4 in addition to Boiler #1.

Original condition 4.2.3 was removed since it only pertained to the decommissioned coal Boiler #2.

Original condition 4.2.4 was deleted since the general requirement to keep all monitoring records on site for at least five (5) years is already a condition within the facility wide section of the permit under 3.4.2.

All original testing provisions were removed. Conditions 4.3.1 and 4.3.2 were determined to be general in nature and therefore would be sufficiently covered by the facility wide testing provisions of 3.3.1. Original testing conditions 4.3.3 and 4.3.4 were removed since they applied only to the decommissioned coal fired Boiler #2. New testing requirements were added as 4.3.1 and 4.3.2 in order to incorporate R13-1830I testing conditions for Boiler #3 and Boiler #4, respectively.

Within the recordkeeping section, condition 4.4.1 was revised to include records of natural gas consumed for each boiler at the site rather than just the H-081 and H-082 boilers as originally drafted. This change comes about due to the elimination of the 45CSR2 and 45CSR10 monitoring plan due to it no longer being a requirement for the natural gas fired units. This requirement was originally necessary for boiler

units not covered within the 45CSR2/ 45CSR10 monitoring plan, such as H-081 and H-082. Lastly within the recordkeeping section permit condition 4.4.2 was deleted as it pertained only to the coal Boiler #2 (B602). In its place a new 4.4.2 permit condition was added to correspond to a specific condition of NSR permit R13-1830I. In addition to SSM events this condition requires Boiler #4 to also report any malfunctions of control or monitoring equipment.

The reporting requirement of 4.5.1 was updated to modify the emission point ID(s) within the citation of this requirement. Additionally, the new emission point ID(s) of 75E and 73E were added to correspond with the two new boilers designated as Boiler #4 and Boiler #3, respectively. Original permit conditions 4.5.2 and 4.5.3 were deleted since they apply to fuel shortages or fuel quality issues that don't seem to be an issue for natural gas. Although these fuel allowances still apply in accordance with 45CSR2 and 45CSR10 they are not deemed, by the writer, as necessary due to their intent applying more to solid fuel or fuel oil sources both of which can contain varying levels of sulfur and ash content. Pipeline quality natural gas cannot exceed FERC limits for sulfur and therefore would not be expected to vary or exhibit fuel quality issues due to its tight regulation and standards.

New permit conditions 4.5.2 and 4.5.3 were added to coincide with NSR permit R13-1830I. Condition 4.5.2. encompasses the NSPS Dc initial notification requirements for the new Boiler #4. Condition 4.5.3 incorporates the shutdown notification requirements for the rental Boiler #3, which is to be decommissioned upon the startup of the new Boiler #4.

Section 5.0

Condition 5.1.1 was updated to correlate with the specific requirement in R13-1830I, condition 4.1.16, however, the last three conditions of the minor source NSR permit condition were removed and cited within the general facility wide requirements within section 3.1 of the Title V Renewal due to the nature of these requirements being general and applying to the entire facility, such as control of PM from fugitives from the entire plant premises.

Condition 5.1.2 was updated to remove emission limits for equipment that was removed from service under R13-1830H. The table of equipment removed is supplied below under the listing "Equipment Taken out of Service." Additionally, emission point ID 74E was added to coincide with the limit for 52E in accordance with the NSR permit.

Condition 5.3.3 and 5.3.4 were added to incorporate general stack testing and compliance testing requirements in accordance with the minor source NSR permit.

In order to encompass stack testing requirements defined by 45CSR13 permit number R13-1830 a Title V condition 5.3.5 was originally drafted within this proposed renewal to incorporate the specific stack testing requirements placed on the new G-8830 baghouse. However, the condition was later removed from the final proposal due to recognizing a testing waiver granted by the Director. The waiver was granted due to low flow conditions and the specific source exhibiting a low potential to emit with respect to PM10.

Within recordkeeping permit condition 5.4.3, the referenced citation of 3.1.10 was changed to 3.1.9 within the first sentence. This change reflects the renumbering of section 3 cited above.

Section 6.0

The citations of 6.1.1, 6.1.2, 6.1.3, 6.1.4 were updated to also include references to R13-1830I conditions 4.1.12, 4.1.13, and 4.1.15 in addition to the existing 4.1.10 and 4.1.11 references. These changes better reflect the bridge provided within the streamlining of 45CSR21 and 45CSR6 requirements with those of the 40 C.F.R. 60, Subpart DDD, NSPS requirements.

Original Title V permit conditions 6.1.5 and 6.1.6 were combined to an overall aggregate VOC loading to the OSBL and ISBL flares in order to allow additional flexibility which corresponds to NSR changes permitted within R13-1830H. The new condition was numbered as 6.1.5 and all subsequent conditions were renumbered accordingly.

A new monitoring condition was added as condition 6.2.2 in accordance with R13-1830I condition 4.2.2, in order to incorporate the use of a GC Btu analyzer monitoring device on the OSBL continuous flare waste gas header line.

Lastly within the recorkeeping section, original permit condition 6.4.7 was relocated to the reporting section as 6.5.3 since the condition involved provisions for submitting reports of excess emissions and 6.4.6 was moved to 6.5.2.

New Section 7.0

In order to incorporate 40CFR64 compliance assurance monitoring provisions for the ISBL flare a new section 7.0 was created within this renewal permit. This section requires the flares pilot lights to remain lite at all times as its primary indicator. A secondary indicator also requires the flare to operate with no visible emissions. These indicators are further verified as being related to a high level of control efficiency, at least 95%, by the incorporation of a design analysis to address that the minimum heat content of waste gases as well as maximum tip velocities comply with the flare requirements of 40 C.F.R. § 60.18.

New Section 8.0

This section was added in order to incorporate three emergency fire pump RICE engines as permitted by general NSR permit G60-C019. In addition to the emission limits adopted from the general permit this section establishes the requirements for emergency CI RICE units as specified under the area source provisions of 40CFR63, subpart ZZZZ.

New Appendix B

Since the old 45CSR2/45CSR10 Monitoring Plan was no longer required upon removal of the Coal fired Boiler #2 a new Appendix B was added to encompass the general permit G60-C019 for the emergency engines.

Non-Applicability Determinations

The following requirements have been determined not to be applicable to the subject facility due to the following:

Braskem is a major source of carbon dioxide emissions however, they are not subject to GHG PSD permitting requirements due to not triggering significant increase levels at this time.

40 CFR 60, Dc Boiler #1 is a 77 MM Btu/hr natural gas fired unit constructed in 1961. This date is prior to the June 9, 1989 applicability date specified by 40CFR60 Subpart Dc. Boilers H-081 and H-082 were also found to be exempt from this NSPS due to their capacity being less than 10 MM Btu/hr. Both of these boilers are rated at 6.3 MM Btu/hr and burn natural gas.

Equipment Taken out of Service

In accordance with R13-1830H, the following pieces of equipment from Area 91 and the FNS Area will be permanently shutdown:

Emission Unit ID	Emis.Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
D-8004	16E	D-8004 MasterBatch Receiver	1988	1,000 lb/hr	G-8004 Bag Filter (BF)
G-8011C	16E	Receiver Units Canister Filter C			APCD
G-8004	16E	D-8004 Bag Filter			G-8011C- Canister Filter
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	D8005 Misc Additive Receiver	1988	1885 lb/hr	G-8005 Bag filter
D-8006	19E	D-8006 BHT Receiver	1988	1885 lb/hr	G-8006 Bag Filter
D-8007	19E	D-8007 Misc Additive Receiver	1988	1885 lb/hr	G-8007 Bag Filter
G-8011B	20E	Receiver Units Canister Filter B			APCD
G-8005	20E	D-8005 Misc Additive Receiver - Bag Filter			G-8011B Canister Filter
G-8006	20E	B-8006 BHT Receiver Bag Filter			G-8011B Canister Filter
G-8007	20E	D-8007 Misc Additive Receiver- Bag Filter			G-8011B Canister Filter
D-8005	20E	D-8005 Misc Additive Receiver	1988	1885 lb/hr	G-8005 Bag Filter
D-8006	20E	D-8006 BHT Additive Receiver	1988	1885 lb/hr	G-8006 Bag Filter
D-8007	20E	D-8007 Misc Additive Receiver	1988	1885 lb/hr	G-8007 Bag Filter
G-8013	21E	Hard Resin Receiver Units Canister Filter			APCD
G-8009	21E	D-8009 Hard Resin Receiver - Bag Filter			G-8013 Canister Filter

Emission Unit ID	Emis.Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
D-8009	21E	D-8009 Hard Resin Receiver	1988	5,600 lb/hr	G-8009 Bag Filter G-8013 Canister Filter
G-8016	22E	WPA LIW Feeders Bag Filter			APCD
L-8004	22E	WPA L-8004 LIW Feeder #3	1988	32,000 lb/hr	G-8016 Bag Filter
L-8005	22E	WPA L-8005 LIW Feeder #7	1988	32,000 lb/hr	G-8016 Bag Filter
L-8006	22E	WPA L-8006 LIW Feeder #6	1988	32,000 lb/hr	G-8016 Bag Filter
L-8007	22E	WPA L-8007 LIW Feeder #4	1988	32,000 lb/hr	G-8016 Bag Filter
L-8009	22E	WPA L-8009 LIW Feeder #2	1988	32,000 lb/hr	G-8016 Bag Filter
J-8055	23E	WPA Pellet Dryer	1990	32,000 lb/hr	NA
G-8814	47E	WPB Classifier Undersized Pellets Bag Filter			APCD
L-8857	47E	WPB Pellet Classifier Undersized Pellets Line	1995	75,000 lb/hr	G-8814 Bag Filter
DF-508	53E	Discharge Hopper Filter			APCD
D509	53E	Discharge Hopper	1988	250 lb/hr	DF-508 Filter
L-8008	55E	WPA LIW Feeder #1	1988	32,000 lb/hr	G-8008 Bag Filter
G-8008	55E	WPA LIW Feeder #1 Bag Filter			APCD
Unnamed Cyclone #1.	64E	Portable Blower Unit #1 - Unnamed Cyclone #1			APCD
Portable Blower Unit #1	64E	Portable Blower Unit #1	1980	8,000 lb/hr	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

Emission Unit ID	Emis.Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
G-494	65E	G-494 WP1 Cyclone	1980	1,000 lb/hr	G-800 Dust Collector Unnamed After Filter
G-495	65E	G-495 WP2 Cyclone	1980	1,000 lb/hr	G-800 Dust Collector Unnamed After Filter
D-449	63E	Packing Silo	1966	6,000 lb/hr	NA

Additionally, the following emission limits were removed from 5.1.2 by R13-1830H:

Emission Points	Pollutant	Emission Limits	
		pph	tpy
16E	PM10	0.03	0.13
19E	PM10	0.01	0.04
20E	PM10	0.01	0.04
21E	PM10	0.01	0.04
22E	PM10	0.03	0.13
23E	PM10	0.08	0.35
47E	PM10	0.02	0.09
53E	PM10	0.02	0.09
55E	PM10	0.28	1.23
64E	PM10	0.80	3.50
65E	PM10	0.12	0.53
63E	PM10	0.60	2.63
Total PM10 Reduction			-8.8

Insignificant Activities

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

Comment Period

Beginning Date: March 7, 2012

Ending Date: April 6, 2012

All written comments should be addressed to the following individual and office:

Jesse Hanshaw, P.E.
Title V Permit Writer
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street, SE.
Charleston, WV 25304

Procedure for Requesting Public Hearing

During the public comment period, any interested person may submit written comments on the draft permit and may request a public hearing, if no public hearing has already been scheduled. A request for public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. The Secretary shall grant such a request for a hearing if he/she concludes that a public hearing is appropriate. Any public hearing shall be held in the general area in which the facility is located.

Point of Contact

Jesse Hanshaw, P.E.
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Response to Comments

Pending