STATEMENT OF BASIS
SABIC Innovative Plastics US LLC
Facility No. 207-0008
Title V Renewal

This proposed Title V Major Source Operating Permit renewal is issued under the provisions of ADEM Admin. Code R. 335-3-16. The above-named applicant has requested authorization to perform the work or operate the facility shown on the application and drawings, plans, and other documents attached hereto or on file with the Air Division of the Alabama Department of Environmental Management, in accordance with the terms and conditions of this permit.

The most recent Major Source Operating Permit for this facility was issued on May 1, 2009. On August 12, 2013, the Major Source Operating Permit was modified to incorporate the new emission limits established in Air Permit 207-0008-X153. This facility is a Chemical Plant which manufactures polycarbonate resins pellets. Based upon the Title V application, this facility is a major source for carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter (PM), sulfur dioxide (SO_2), and hazardous air pollutants (HAPs). The facility is allowed to operate 8760 hours per year unless otherwise specified.

Changes from the existing permit:

Plant 1: Phosgene Production Unit

1. Revision of the Phosgene Production Unit Information Summary and Provisos to incorporate the provisos in Air Permit 207-0008-X050 that was issued on April 14, 2011. This permit was issued in order to address CO emissions from emission points M-92, M-1210, and M-4210. Provisos associated with emission points M-1111, M-1131, M-1141, M-2121, M-2131, M-4111, M-4121, M-4141, and M-4151 do not need to be incorporated into to the Title V permit, as these units are no longer in service.
2. Revision of the Phosgene Production Unit Information Summary and Provisos to incorporate the provisos in Air Permit 207-0008-X170 that was issued on May 20, 2014. This permit was issued in order to increase the SO_2 emissions limits for emission points P-17 and P-18.
3. Incorporate particulate matter emission limit for the following Phosgene emission points: M-1210, & M-4210. These points are subject to the state process weight curve (ADEM Admin. Code R. 335-3-4-.04 (2)).

Plant 3: BPA Production Unit

1. Revision of the BPA Production Unit Information Summary and Provisos to incorporate the provisos in Air Permit 207-0008-X703 that was issued on July 7, 2015 and in Air Permit 207-0008-X607 that was issued on September 28, 2018.
2. Addition of provisos in the Emission Monitoring and Recordkeeping & Reporting Requirements sections to incorporate the heat exchange system and wastewater

maintenance requirements from 63.104&5 (Subpart F).

Plant 4: Finishing Unit

1. Revision of the Finishing Production Unit Information Summary and Provisos to incorporate the new $PM_{2.5}/PM_{10}$ and VOC emission limits for emission points P-94 and P-98 that were established in Air Permit 207-0008-X154 issued on January 7, 2015. Since construction has not been completed, and Temporary Authorization to Operate has not been requested for Lines 2, 6, and 8, the entire Permit cannot yet be incorporated in full into the Title V Permit.
2. Revise Emission Monitoring Provisos 1 and 3 to incorporate the reduced bag change frequency. SABIC has requested that the annual bag change for 28 Finishing Unit baghouses be reduced to once every 2 calendar years (not to exceed 30 calendar months between changes). Based on historical data, the Department feels that this reduced bag change frequency is appropriate.
3. Incorporate the following left out emission points into the Finishing Unit Provisos:P-89, P-109, and P-801

Hot Oil Furnace, Boilers No.1-No. 4, and Cogen Duct Burner

1. Addition of ADEM Admin. Code r. 335-3-3-.05 (CISWI Rule) to Boiler #1 (F-104) and Boiler # 2 (F-105).
2. Addition of 40 CFR Part 63, Subpart DDDDD applicability to Boiler #3 (F-751), Boiler #4 (F-752), Hot Oil Furnace (F-11), and Natural Gas Preheater (Cogen).
3. Revise Boiler No. 3 Emissions Monitoring Proviso No. 2 to incorporate the reduction of annual NOx emissions testing from annually to once every five years (not to exceed 5 years). SABIC has requested this reduction in NOx testing, and based on historical data, the Department feels that more relaxed monitoring is acceptable.

Waste Incinerator

1. Addition of ADEM Admin. Code r. 335-3-3-.05 (CISWI Rule) to Waste Incinerator (I-5)

Emergency Generators

1. Addition of 40 CFR Part 63, Subpart ZZZZ to the following engines: G-1930, G-1931, G-1001, G-1941, G-1942, G-125201, G-115101, FP-1, FP-2, FP-3, and G-1143. Removal of the Gate 9 fire pump (FP-4) from the Title V Permit, as SABIC has confirmed that FP-4 is owned by a contractor and not by SABIC.

Wastewater Treatment Plant

1. Historically, the WWTP has been included in SABIC's Title V Permit as an insignificant source. However, the WWTP receives wastewater streams that are

categorized as Group 2 wastewater streams under 40 CFR Subpart YY (GMACT).

Each of the significant emission units is described below:

Plant No. 1 – Phosgene Production Unit

Emission Standards

Opacity
The unit is subject to the state opacity standard of 20%, as determined by a six-minute average.

Particulate
The unit has an incinerator, P-700, which is each equipped with a wet scrubber for control of emissions. The Phosgene Unit also has two baghouses, M-90 and M-92, with BACT limits. Emission points M-1210 and M-4210 are subject to the Control of Particulate Emissions, Process Industries-General, Class II Counties. These emission points and their limits are listed below.

Phosgene Production Unit's Emission Points With Particulate Limits				
Emission Point #	Point Description	Pollutant	Emission Limit	Standard
M-90	Baghouse	PM_{10}	0.01 lbs/hr	BACT
M-92	Baghouse	PM_{10}	0.01 lbs/hr	BACT
P-700	Scrubber	PM_{10}	1.57 lbs/hr	BACT
M-1210 and M-4210	Baghouse	PM	16.1 lb/hr	Process weight curve 335-3-4-.04 (2)

CO
This unit has several emission points that have BACT CO limits. The points and their limits are listed below.

Phosgene Production Unit's Emission Points With CO Limits				
Emission Point #	Point Description	Pollutant	Emission Limit	Standard
P-700	Scrubber	CO	0.82 lbs/hr	BACT
P-17	Flare	CO	0.09 lbs/hr	BACT
P-18	Flare	CO	0.09 lbs/hr	BACT
M-92	Baghouse	CO	41.2 tons/yr	BACT

M-1210	Baghouse	CO	1.48 tons/yr	BACT
M-4210	Baghouse	CO	1.48 tons/yr	BACT

SABIC has implemented work practices in the unit in order to minimize CO emissions from the Phosgene plant. These work practices cover atmospheric releases from the CO generators during high pressure and high oxygen events. SABIC has implemented more conservative procedures in order to minimize the amount of CO vented to the atmosphere and limit these occurrences to events of start-up, shutdown, and malfunction. SABIC has also reduced the frequency of emptying the fifteen dust cyclone hoppers in order to minimize CO emissions.

The Flare, P-18, shall serve as a back-up for P-17 and at no time shall they operate simultaneously except during switching from one flare to the other.

NOx
The incinerator, P-700, has a BACT limit of 0.49 lb/hr.

SO_2
The incinerator, P-700, has BACT limit of 1.12 lb/hr. The flare, P-17, and its back-up flare, P-18, have a combined BACT limit of 27.3 tons per 12-month rolling period.

VOC
The incinerator, P-700, has a BACT limit of 0.05 lb/hr.

NESHAP/ NSPS
This unit is subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Source Categories: Generic Maximum Achievable Control Technology Standards, found in 40 CFR Part 63, Subpart YY, because it meets the definition of a polycarbonate production unit. Pursuant to Subpart YY, SABIC has elected to comply with the equipment leak standards for Subpart TT.

Periodic Monitoring

Particulate/Opacity
In order to ensure that the baghouses, M-90 and M-92, are in compliance with their particulate emission limits, this facility is required to replace the bags on an annual basis. To ensure compliance with the particulate and opacity limits, the facility would also inspect these points for visible emissions on a weekly basis while the plant is operating. If any visible emissions are noted, corrective actions would be initiated within 24 hours. The incinerator, P-700, is limited to firing natural gas to ensure compliance with its particulate limit.

CO
The facility will ensure compliance with the CO limits for emission point P-700 by firing only natural gas in the incinerator. Whenever tail gas is being fed to the flares, emission

points P-17 or P-18, the facility shall operate monitoring equipment that is capable of continuously determining whether the flare is lit.

NOx
The facility will ensure compliance with the NOx limits for the incinerator, emission point P-700, by firing only natural gas.

SO_2
The facility will ensure compliance with its SO_2 limits for the flares, P-17 or P-18, by adhering to the monitoring plan dated April 28, 2014 that was submitted with the application for Air Permit 207-0008- X170. The plan will monitor certain parameters from the following points that are routed to either the Tail Gas Flare, P-17, or Reformer Flare, P-18: CO Generator emergency vents (16), CO bag filter overpressure protection valve, adsorber regeneration gas vents (3), and CO to dryers/mixing tee, high pressure vent.

The facility will ensure compliance with the SO_2 limits for the incinerator, emission point P-700, by firing only natural gas. For the scrubber associated with the incinerator, P-700, the facility will monitor the liquid flow rate whenever the sulfur absorbers are being regenerated and record a measurement once per hour.

VOC
The facility will ensure compliance with the VOC limits for the incinerator, emission point P-700, by firing only natural gas.

NESHAP/ NSPS
As part of the alternative monitoring plan for NESHAP, Subpart YY approved on February 11, 2002, the facility will measure the phosgene concentration of the Tail Gas Scrubber outlet stream on a continuous basis using primary and secondary phosgene analyzers. The facility will calibrate the Tail Gas Scrubber primary and secondary phosgene analyzers in conjunction with the replacement of the tape cartridges in the analyzers. However, if the calibration drift of both analyzers exceeds 5% between calibrations, this unit may be required to calibrate these analyzers more frequently.

Plant No. 2 – Resins Production Unit

Emission Standards

Opacity
The Resin Unit is subject to the state opacity standard of 20%, as determined by a six-minute average.

Particulate
The Resin Production Unit has several emission points that have BACT particulate limits. The points and their limits are listed in the table below.

Resins Production Unit's Emission Points With Particulate Limits				
Emission Point #	Point Description	Pollutant	Emission Limit	Standard
M-99, M-100, M-101, M-102	Baghouses	PM_{10}	0.004 lbs/hr/point	BACT
M-115, M-116, M-118, M-119, M-121, M-122, M-127	Baghouses	PM_{10}	0.005 lbs/hr/point	BACT
M-120	Baghouse	PM_{10}	0.011 lbs/hr	BACT
M-125	Baghouse	PM_{10}	0.005 lbs/hr	BACT
M-128	Baghouse	PM_{10}	0.012 lbs/hr	BACT
M-136, M-145, M-708	Baghouses	PM_{10}	0.01 lbs/hr	BACT
P-80 & P-81	Post Dryer Scrubber Vents	PM_{10}	0.0001 lbs/hr/point	BACT
P-710	Post Dryer Scrubber Vents	PM_{10}	0.0001 lbs/hr	BACT
P-902, P-903, P-904, P-905	Scrubbers	PM_{10}	0.19 lbs/hr/point	BACT

VOC

This unit has an absorber and several baghouses with BACT VOC limits. These emission points and their limits are listed in the table below.

Resins Production Unit's With VOC Limits				
Emission Point #	Point Description	Pollutant	Emission Limit	Standard
M-99, M-100, M-101, M-102	Baghouses	VOC	0.11 lbs/hr/point	BACT
M-115, M-116, M-118, M-119, M-121, M-122, M-127	Baghouse	VOC	0.13 lbs/hr	BACT
M-120	Baghouse	VOC	0.29 lbs/hr	BACT
M-125	Baghouse	VOC	0.13 lbs/hr	BACT
M-128	Baghouse	VOC	0.29 lbs/hr	BACT

P-84	Absorber	VOC	2.6 lb/hr	BACT

Carbon Monoxide
This unit has one absorber (P-84) with a BACT CO limit of 67.5 lb/hr.

NESHAP
The Resins Production Unit is also subject to the Generic MACT requirements found in 40 CFR Part 63, Subpart YY. It is also subject to the NESHAP, 40 CFR Part 63, Subpart I which requires it to comply with 40 CFR Part 63, Subpart H.

Periodic Monitoring

Opacity
The facility shall inspect the baghouses, M-99, M-100, M-101, M-102, M-115, M-116, M-118, M-119, M-120, M-121, M-122, M-125, M-127, M-128, M-136, M-145, and M-708 for visible emissions on a weekly basis while the plant is operating. If visible emissions are noted, the facility shall take corrective action within 24 hours.

Particulate
The facility shall replace the bags in the baghouses, M-99, M-100, M-101, M-102, M-115, M-116, M-118, M-119, M-120, M-121, M-122, M-125, M-127, M-128, M-136, M-145, and M-708 at least once every three years so that this unit would not exceed its particulate emission limits. The facility shall also inspect these points for visible emissions on a weekly basis while the plant is operating. If visible emissions are noted, the facility shall take corrective action within 24 hours.

The scrubber flow rates for scrubbers P-80, P-81, P-710, P-902, P-903, P-904, and P-905 shall be monitored whenever the dryers vented to them are operating. A deviation shall be defined as anytime that the daily average flow rate is less than the flow rate listed in the table below.

Scrubbers and Deviation Flow Rates	
Scrubber	Deviation flow rate
P-80	600 gal/min
P-81	600 gal/min
P-710	680 gal/min
P-902	70 gal/min
P-903	70 gal/min
P-904	70 gal/min
P-905	70 gal/min

VOC/Carbon Monoxide
The facility shall monitor the flow rate of the scrubber liquid for emission point P-84 on a continuous basis. A deviation shall be defined as any time that the daily average flow rate

is less than 60 gallons per minute. No other VOC or CO periodic monitoring would be required.

NESHAP
All equipment in this unit that is in Methylene Chloride ($MeCl_2$) service is subject to the leak detection and repair (LDAR) requirements of 40 CFR Part 63, Subpart H, as required by 40 CFR Part 63, Subpart I. The equipment subject to subpart H is also subject to an LDAR program under 40 CFR Part 63, Subpart YY. However as stated in §63.1100(g)(4)(ii) this equipment will be in compliance with both subparts if it complies with either set of requirements. The facility has chosen to comply with the subpart H LDAR requirements as stated in its Notification of Compliance Status dated February 24, 2003.

Plant No. 3 – BPA Production Unit

Emission Standards

Opacity
The BPA Production Unit is subject to the state opacity standard of 20%, as determined by a six-minute average.

Particulate
This unit has several flaker filter vents and a baghouse with BACT particulate limits. The flaker filter vents, M-96 A, M-96 B, M-96 C, each have a limit of 0.002 lb/hr, and flaker filter vent, M-701, has a limit of 0.004 lb/hr. The baghouses, M-103 and M-703, have limits of 0.008 lb/hr and 0.007 lb/hr, respectively.

VOC
This unit has several flaker filter vents, and a baghouse with BACT VOC limits. The flaker filter vents, M-96 A, M-96 B, M-96 C, each have a limit of 0.4 lb/hr, and the flake filer vent, M-701, has a limit of 0.72 lb/hr. The baghouses, M-103 and M-703, have limits of 0.21 lb/hr and 0.19 lb/hr, respectively.

This unit also has an incinerator with VOC limits required under the NESHAP, 40 CFR Part 63, Subpart G. The incinerator, P-600, is required to reduce emissions of total organic hazardous air pollutants (VOHAP) by 98 weight-percent or to a concentration of 20 ppmv, whichever is less stringent.

NSPS/NESHAP
The BPA Production Unit is subject to requirements found in 40 CFR Part 63, Subparts F, G, and H, National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry.

Periodic Monitoring

Opacity

The facility will inspect emission points M-96 A, M-96 B, M-96 C, M-103, M-701 and M-703 for visible emissions weekly while the unit is operating. If visible emissions are detected, the facility shall initiate corrective action within 24 hours.

Particulate
In order to ensure that emission points M-96 A, M-96 B, M-96 C, M-103, M-701 and M-703 are in compliance with their respective emission limits for particulate, the facility shall replace the bags for each point at least once every three years. The facility shall also inspect these points for visible emissions weekly while the unit is operating. If visible emissions are detected, the facility shall initiate corrective action within 24 hours.

VOC/HAP
All VOC and HAP monitoring for this unit is required under NESHAP, 40 CFR Part 63, Subparts F, G, and H and is listed in the NSPS/NESHAP section below.

NSPS/NESHAP
This unit is required to meet the monitoring requirements of NESHAP, 40 CFR Part 63, Subparts F, G, and H. Under Subpart G the facility is required to equip the incinerator, P-600, with a temperature-monitoring device equipped with a continuous recorder which meets the requirements in this subpart. Under Subpart H, the facility shall institute a leak detection and repair program that meets the monitoring requirements listed in 40 CFR Part 63.162 – 63.180, for all equipment in organic HAP service. This unit will meet the requirements of Subpart F by complying with the requirements listed in Subparts G, and H.

Plant No. 4 – Finishing Unit

Emission Standards

Opacity
The Finishing Unit is subject to the state opacity standard of 20%, as determined by a six-minute average.

Particulate
This unit has two baghouses with PSD synthetic minor particulate limits. This unit also has thirty baghouses, eleven rotoclones, five vacuum pumps, two bin vent filters, and thirteen extruder vents with BACT particulate limits. These emission points and their particulate limits are listed in the table below:

Emission Points of Plant No. 4 With Particulate Limits.

Emission Point #	Point Description	Emission Limit	Standard
M-174 & M-174S	Baghouses	0.4 lbs/hr/point	PSD
M-175	Baghouse	0.08 lbs/hr	BACT
M-176, M-177, M-178, M-179, M-188,	Baghouses	0.044 lbs/hr/point	BACT

& M-189			
M-181 & M-186	Baghouses	0.063 lbs/hr/point	BACT
M-182, M-184, M-185, M-200, M-201	Baghouses	0.05 lbs/hr/point	BACT
M-183	Baghouse	0.038 lbs/hr	BACT
M-190& M-190S	Baghouse	0.169 lbs/hr/point	BACT
M-192 & M-193	Bin Vents	0.001 lbs/hr/point	BACT
M-303	Baghouse	0.08 lbs/hr	BACT
M-230, M-232, & M-233	Rotoclones	0.03 lbs/hr/point	BACT
M-232A & M-233A	Rotoclones	0.005 lbs/hr/point	BACT
M-650	Rotoclones	0.003 lbs/hr	BACT
M-246, M-247, M-248, M-249, & M-250	Vacuum Pumps	0.06 lbs/hr/point	BACT
M-254	Baghouse	0.04 lbs/hr	BACT
M-231, M-256 & M-305	Rotoclones	0.01 lbs/hr/point	BACT
M-257	Rotoclone	0.02 lbs/hr	BACT
M-258 & M-258S	Baghouses	0.029 lbs/hr/point	BACT
M-266, M-267, & M-268	Baghouses	0.004 lbs/hr/point	BACT
M-270, M-271, M-273, & M-274	Baghouses	0.11 lbs/hr/point	BACT
M-271S, M-274S	Transfer Blowers	0.01 lbs/hr/point	
P-88, P-89, P-92, P-93, P-96, & P-102	Extruder Vents	0.134 lbs/hr/point	BACT
P-90	Extruder Vents	0.142 lbs/hr	BACT
P-94	Extruder Vents	0.19 lbs/hr	BACT
P-98	Extruder Vents	0.19 lbs/hr	BACT
P-104	Extruder Vents	0.022 lbs/hr	BACT
P-106	Extruder Vents	0.016 lbs/hr	BACT
P-108, P-109, P-112, P-801	Extruder Vents	0.066 lbs/hr/point	BACT
P-110 & P-111	Extruder Vents	0.001 lbs/hr/point	BACT
P-808	Rotoclones	0.064 lbs/hr	BACT

In addition, the facility shall limit the hours of operation of the recycle powder system, M-183, to 2,628 hours per 12-month rolling period.

VOC
This unit has seventeen extruder vents with BACT VOC limits. The extruder vents and their BACT VOC limits are listed below:

Emission Points of Plant No. 4 with VOC Limits.			
Emission Point #	Point Description	Emission Point #	Standard
P-88, P-89, P-92, P-93, & P-102	Extruder Vents	0.220 mg VOC/liter stack gas (1.24 lb/hr/point)	BACT
P-90	Extruder Vent	0.254 mg VOC/liter stack gas (1.33 lb/hr)	BACT
P-94	Extruder Vent	4.85 lbs/hr	BACT
P-96	Extruder Vent	0.221 mg VOC/liter stack gas (1.24 lb/hr)	BACT
P-98	Extruder Vent	4.85 lbs/hr	BACT
P-104	Extruder Vent	0.051 mg VOC/liter stack gas (0.19 lb/hr)	BACT
P-106	Extruder Vent	0.043 mg VOC/liter stack gas (0.16 lb/hr)	BACT
P-108, P-109, P-112, P-801	Extruder Vents	0.108 mg VOC/liter stack gas (0.61 lb/hr/point)	BACT
P-110 & P-111	Extruder Vents	0.220 mg VOC/liter stack gas (1.24 lb/hr/point)	BACT

<u>Periodic Monitoring</u>

Opacity
The facility shall inspect each particulate emission point for visible emissions weekly while the plant is operating. If visible emissions are noted, the facility shall initiate corrective action within 24 hours.

Particulate
To ensure that the baghouses M-174, M-174S, M-176, M-177, M-178, M-179, M-181, M-182, M-183, M-184, M-185, M-186, M-188, M-189, M-190, M-190S, M-200, M-201, M-254, M-258, M-258S, M-270, M-271, M-273, M-266, M-267, M-268, and M-274 are in compliance with their respective particulate emission limits, the facility shall replace their bags once every 2 calendar years, not to exceed 30 calendar months between changes. The facility shall replace the filters for the baghouses M-175, and M-303 at least once every five years. The facility shall inspect each particulate emission point for visible emissions weekly while the plant is operating. If visible emissions are noted, the facility shall initiate corrective action within 24 hours.

VOC
The facility is not currently required to perform any periodic monitoring for VOC. Because no modifications to the process have taken place, it was determined that no periodic monitoring would be required.

Plant No. 5 – Brine Recovery Unit

Emission Standards

VOC
The Stripper Mist Eliminator P-42 for the Brine Recovery Unit has a BACT VOC limit of 4.4 lb/hr.

Periodic Monitoring

VOC
To ensure that the VOC limits are not exceeded, the facility shall monitor the inlet TEA concentration to emission point P-42 at least once per day.

Storage Tanks

NESHAP
The following tanks were determined to be subject to NESHAP, 40 CFR Part 63, Subpart YY: V-1110, V-1111, V-2110, V-2121, and V-2131. Based upon the capacities and vapor pressures of the materials stored, tanks V-1110, V-1111, and V-2110 must comply with the requirements of Subpart SS, as specified in 63.982(a)(1).

The following tanks were determined to be subject to NESHAP, 40 CFR Part 63, Subpart G: V-1060, V-1061, and V-1010. Based upon the capacities and vapor pressures of the materials stored, only the recordkeeping requirements (63.123(a)) would be applicable to these tanks.

20 MMBTU/HR Hot Oil Furnace

20 MMBTU/HR natural gas fired hot oil furnace (F-11) associated with the BPA production unit.

Emission Standards
This unit is subject to the state opacity standard of 20%, as determined by a six-minute average. This unit has BACT limits for PM_{10}, SO_2, VOC, NOx and CO and is limited to firing natural gas. The BACT limits are listed below:

BACT Emission Limits for 20 MMBTU/HR Hot Oil Furnace (F-11)				
Emission Point	Point Description	Pollutant	Emission Limit	Standard
F-11	Hot Oil Furnace	PM_{10}	0.1 lbs/hr or 0.005 lbs/mmbtu	BACT

F-11	Hot Oil Furnace	SO_2	0.01 lbs/hr or 0.0005 lbs/mmbtu	BACT
F-11	Hot Oil Furnace	NOx	1.2 lbs/hr or 0.06 lbs/mmbtu	BACT
F-11	Hot Oil Furnace	CO	0.6 lbs/hr or 0.03 lbs/mmbtu	BACT
F-11	Hot Oil Furnace	VOC	0.1 lbs/hr or 0.005 lbs/mmbtu	BACT

NESHAP/ NSPS
This unit predates the NSPS, Subpart Dc; therefore, the requirements of 40 CFR 60.40c are not applicable.

This unit is subject to 40 CFR 63 Subpart DDDDD, and initial notification was received on May 17, 2013. The Hot Oil Furnace burns natural gas (Gas 1 Subcategory) and the facility is required to perform an annual tune-up as specified in 63.7540(a)(10)(i) through (a)(10)(vi).

Periodic Monitoring
No periodic monitoring would be required for this boiler due to the emissions inherent with the fuel utilized.

No. 1 and No. 2 CISWI Boilers

Two 99 MMBTU/HR package boilers, which share a common stack

Emissions Standards
These units are subject to the CISWI rule (ADEM Admin. Code r. 335-3-3-.05). These units have BACT limits for PM, SO_2, NOx and CO. These limits are listed in the table below.

BACT Emissions Limits for No. 1 and No. 2 Boilers (F-104 and F-105)				
Emission Point	Point Description	Pollutant	Emission Limit	Standard
F-104	Two 99 MMBTU/HR Boilers	PM	2.9 lbs/hr and 0.015 lbs/mmbtu (combined)	BACT
F-104	Two 99 MMBTU/HR Boilers	SO_2	105.6 lbs/hr and 0.53 lbs/mmbtu (combined)	BACT
F-104	Two 99 MMBTU/HR Boilers	NOx	29.6 lbs/hr and 0.15 lbs/mmbtu (combined)	BACT
F-104	Two 99 MMBTU/HR Boilers	CO	7.3 lbs/hr and 0.04 lbs/mmbtu (combined)	BACT

When burning solid waste material from the BPA Production Unit (BPA tar), Boilers 1 and 2 are also subject to the emission limits for energy recovery units found in Table 6 of the CISWI rule. These limits are shown below.

CISWI Emissions Limits for No. 1 and No. 2 Boilers (F-104 and F-105)				
Emission Point	Point Description	Pollutant	Emission Limit (per point)	Standard
F-104 firing BPA Tar	Two 99 MMBTU/HR Boilers	Cadmium	0.023 mg/dscm	335-3-3-.05(6)
F-104 firing BPA Tar	Two 99 MMBTU/HR Boilers	CO	35 ppmv (dry)	335-3-3-.05(6)
F-104 firing BPA Tar	Two 99 MMBTU/HR Boilers	Dioxins and Furans (toxic equivalency basis)	0.32 ng/dscm	335-3-3-.05(6)
F-104 firing BPA Tar	Two 99 MMBTU/HR Boilers	HCl	14 ppmv (dry)	335-3-3-.05(6)
F-104 firing BPA Tar	Two 99 MMBTU/HR Boilers	Lead	0.096 mg/dscm	335-3-3-.05(6)
F-104 firing BPA Tar	Two 99 MMBTU/HR Boilers	Mercury	0.0024 mg/dscm	335-3-3-.05(6)
F-104 firing BPA Tar	Two 99 MMBTU/HR Boilers	NOx	76 ppmv (dry)	335-3-3-.05(6)
F-104 firing BPA Tar	Two 99 MMBTU/HR Boilers	Particulate Matter	110 mg/dscm	335-3-3-.05(6)
F-104 firing BPA Tar	Two 99 MMBTU/HR Boilers	SO2	720 ppmv (dry)	335-3-3-.05(6)
F-104 firing BPA Tar	Two 99 MMBTU/HR Boilers	Fugitive Ash	VE for no more than 5% of the hourly observation period	335-3-3-.05(6)

Boilers No. 1 and No. 2 are limited to the use of natural gas, No. 2 fuel oil with a sulfur content of less than 0.5%, hydrogen, and/or solid waste material from the BPA Production Unit (BPA tar).

The facility shall test each shipment of No. 2 fuel oil to ensure that it contains less than 0.5% sulfur, or obtain information regarding the sulfur content from the vendor. The amount of No. 2 fuel oil burned in Boilers No. 1 and No. 2 for each calendar month shall not exceed 4,000,000 gallons in any consecutive twelve month period.

In order to comply with the emission limitations of Table 6 of the CISWI rule, SABIC has installed a low NO_X burner on each of the boilers. No other control devices are necessary to meet the emission limitations.

NESHAP/ NSPS
National Emissions Standards for Hazardous Air Pollutants from Hazardous Waste Combustors (40 CFR Part 63 Subpart EEE) would not apply to these boilers. As stated in Item 3 of Table 1 to 40 CFR 63.1200 (Subpart EEE) states that "if the only hazardous wastes you burn are exempt from of this chapter, you are not subject to the requirements of this subpart." As stated in §266.100(c)(1), "used oil burned for energy recovery that is also a hazardous waste solely because it exhibits a characteristic of hazardous waste identified in subpart C of part 261 of this chapter" are not subject to regulation. Therefore, Subpart EEE would not be applicable to these boilers.

Periodic Monitoring
SABIC shall conduct annual testing for all of the pollutants listed in Table 6 of the CISWI rule. SABIC must also install a continuous opacity monitor according to the procedures in paragraph 335-3-3-.05(10) of the CISWI rule.

SABIC shall comply with the Recordkeeping requirements described in paragraphs 335-3-3-.05(11)(a) through (x) of the CISWI rule. Similarly, SABIC shall comply with the Reporting requirements described in paragraphs 335-3-3-.05(11)(y) through (ii) of the CISWI rule.

No. 3 Boiler

99.48 MMBTU/HR natural gas fired package boiler with No.2 fuel oil back-up and Hydrogen pilot (F-751)

Emissions Standards
This unit is subject to the state opacity standard of 20%, as determined by a six-minute average. This unit has anti-PSD limits for PM and SO_2 and a BACT limit for NOx. When burning No. 2 fuel oil, the unit is subject to the Boiler MACT limits for CO and filterable PM. These limits are listed below:

Emissions Limits for No. 3 Boiler (F-751)				
Emission Point	Point Description	Pollutant	Emission Limit	Standard
F-751 (firing natural gas)	99.48 MMBTU/HR Boiler	PM	0.5 lbs/hr	Anti-PSD
F-751 (firing natural gas)	99.48 MMBTU/HR Boiler	SO_2	0.06 lbs/hr	Anti-PSD
F-751 (firing natural gas)	99.48 MMBTU/HR Boiler	NOx	9.9 lbs/hr	BACT
F-751 (firing No. 2 fuel oil)	99.48 MMBTU/HR Boiler	PM	1.4 lbs/hr	Anti-PSD
F-751 (firing No. 2 fuel oil)	99.48 MMBTU/HR Boiler	Filterable PM	0.786 lbs/hr	Boiler MACT
F-751 (firing No. 2 fuel oil)	99.48 MMBTU/HR Boiler	SO_2	50.2 lbs/hr	Anti-PSD
F-751 (firing No. 2 fuel oil)	99.48 MMBTU/HR Boiler	NOx	14.9 lbs/hr	BACT
F-751 (firing No. 2 fuel oil)	99.48 MMBTU/HR Boiler	CO	12.94 lbs/hr	Boiler MACT

The boiler, F-751, is limited to the use of natural gas or No. 2 fuel oil with a sulfur content of not more than 0.5%. SABIC only burns No. 2 fuel oil during periods of natural gas curtailment. This boiler may also fire hydrogen but only while on the pilot. The No. 2 fuel oil usage shall not exceed 1,060,350 gallons during any consecutive twelve month period. This unit shall test each shipment of No. 2 fuel oil to ensure that it contains less than 0.5% sulfur or obtain information regarding the sulfur content from the vendor.

NSPS/NESHAP
This boiler predates the NSPS, Subpart Dc; therefore, the requirements of 40 CFR 60.40c are not applicable.

This boiler is subject to the requirements of 40 CFR 63 DDDDD (Gas 1 Subcategory), and initial notification was received on May 17, 2013. Should SABIC elect to burn No. 2 fuel oil during periods of natural gas curtailment, a notification of alternative fuel use must be submitted to the Department within 48 hours of the declaration of each period of natural gas curtailment, as stated in 63.7545(f). The notification must include the information specified in paragraphs 63.7545(f)(1) through 63.7545 (f)(5).

This unit is required to perform an annual tune-up as specified in 63.7540(a)(10)(i) through (a)(10)(vi).

<u>Periodic Monitoring</u>

No periodic monitoring would be required for this boiler due to the emissions inherent with the fuels utilized.

No. 4 Boiler

246.9 MMBTU/HR Natural Gas Fired Package Boiler with Hydrogen pilot (F-752)

Emission Standards

This unit is subject to the state opacity standard of 20%, as determined by a six-minute average. This unit has limits for PM and SO_2 and a BACT limit for NOx. These limits are listed below:

Emissions Limits for No. 4 Boiler (F-752)			
Emission Point	Point Description	Pollutant	Emission Limit
F-752	No. 4 Boiler	PM	1.2 lbs/hr
F-752	No. 4 Boiler	SO_2	0.15 lbs/hr
F-752	No. 4 Boiler	NOx	*0.15 lbs/MMBTU and 37.0 lbs/hr

**BACT Emission Limit*

NSPS/NESHAP

The No. 4 Boiler is subject to the NSPS, 40 CFR Part 60, Subpart Db for Industrial-Commercial-Institutional Steam Generating Units for NOx.

This unit is subject to 40 CFR 63 Subpart DDDDD, and initial notification was received on May 17, 2013. The No. 4 Boiler burns natural gas (Gas 1 Subcategory) and is required to perform an annual tune-up as specified in 63.7540(a)(10)(i) through (a)(10)(vi).

Periodic Monitoring

In order to ensure that this unit is in compliance with its limitation for SO_2, and PM and the opacity standard this boiler shall fire only natural gas.

This unit is required under 40 CFR Part 60, Subpart Db to calibrate, maintain, and operate a continuous emissions monitoring system (CEMS) to measure NOx emissions and record the output of the system. (40 CFR 60.48b (b)) The CEMS shall be operated and data shall be recorded during all periods of operation of this boiler except for CEMS breakdowns and repairs. Data shall be recorded during calibration checks, and zero and span adjustments. (40 CFR 60.48b (c))

Waste Incinerator

28 Ton/day Non-Hazardous Waste Incinerator with Ionizing Wet Scrubber

The Waste Incinerator is subject to the requirements of ADEM Admin. Code r. 335-3-3-.05, which had a compliance deadline of February 7, 2018. The Waste Incinerator is not currently being operated. Pursuant to ADEM Admin. Code r. 335-3-3-.05(3)(f), if the Waste Incinerator is restarted on or after the compliance deadline, the Permittee shall achieve compliance upon startup."

Cogeneration Facility

85 MW Natural Gas Fired Combustion Turbine with Natural Gas/Hydrogen Fired 225 MMBtu/Hr Duct Burner and Heat Recovery Boiler

Emission Standards

This unit has a Turbine, Duct Burner, and Combined Stack with BACT limits for NOx, CO, and PM. The Combined Stack has additional PSD and anti-PSD limits for visible emissions and VOC, respectively. These limits are listed in the table below:

Emission Limits for the Cogeneration Unit			
Emission Point #	Pollutant	Emission Limit	Standard
Turbine	NOx	9 ppm and 37.5 lbs/hr	BACT
Duct Burner	NOx	0.2 lbs/mmbtu and 25.7 lbs/hr	BACT
Combined Stack	NOx	0.07 lbs/mmbtu and 63.2 lbs/hr	BACT
Turbine	CO	0.07 lbs/mmbtu and 61.5 lbs/hr	BACT
Duct Burner	CO	0.10 lbs/mmbtu and 22.5 lbs/hr	BACT
Combined Stack	CO	0.08 lbs/mmbtu and 84.0 lbs/hr	BACT
Combined Stack	VOC	8.9 lbs/hr	Anti-PSD
Turbine	PM	0.01 lbs/mmbtu and 5.0 lbs/hr	BACT
Duct Burner	PM	0.02 lbs/mmbtu and 2.3 lbs/hr	BACT
Combined Stack	PM	0.01 lbs/mmbtu and 7.3 lbs/hr	BACT
Combined Stack	Visible Emissions	10%	PSD

The unit would also be subject to the requirements of the Cross State Air Pollution Rule (CSAPR). A separate CSAPR Permit would be issued for this source which incorporates the requirements of 40 CFR Part 96.

NSPS/NESHAP

The duct burner in this unit is subject to the NSPS for Industrial-Commercial-Institutional Steam Generating Units (40 CFR Part 60, Subparts Db). The Duct Burner meets the definition of a waste heat boiler under 40 CFR 63.7575 and, therefore, it is not subject to

the Boiler MACT (40 CFR 63 Subpart DDDDD). On December 2, 2015, Initial notification for Subpart DDDDD was updated to include the natural gas pre-heater (Gas 1 category), which was previously considered trivial and insignificant. Under Subpart DDDDD, SABIC is required to perform an annual tune-up on the pre-heater as specified in 63.7540(a)(10)(i) through (a)(10)(vi).

The gas turbine in this unit is subject to the NSPS for Stationary Gas Turbines (40 CFR Part 60, Subpart GG) and the NESHAP for Stationary Gas Turbines (40 CFR Part 63, Subpart YYYY).

Emissions Monitoring

No periodic monitoring would be required for this unit for CO, VOC or PM due to the emissions inherent with the fuel utilized. To ensure that this unit does not exceed its NOx limit, the facility operates a continuous emissions monitoring system (CEMS) which meets the specifications of 40 CFR Part 75. To ensure that this facility does not exceed its visible emissions limit, the facility shall inspect the combined turbine/duct burner stack for the presence of visible emissions once per week while the unit is operating.

The turbine is subject to the monitoring requirements of 40 CFR Part 60, Subpart GG and Db. This unit will comply with the requirements of 40 CFR Part 60, Subpart Db by meeting the requirements of Subpart GG. As an existing stationary source, the turbine has no specific requirements under 40 CFR Part 63, Subpart YYYY.

Emergency Generators/Fire Pump Engines

SABIC currently operates 8 emergency generator engines and 3 fire pump engines. These eight engines consist of one Spark Ignition (SI) Reciprocating Internal Combustion Engine (RICE) and seven Compression Ignition (CI) Reciprocating Internal Combustion Engines. These units are subject to 40 CFR 63, Subpart ZZZZ., National emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. The facility ID, maximum brake horsepower, function, and primary fuel for each engine is listed below.

	Combustion Engine Units				
Unit	Facility ID	Maximum Brake Horsepower	Engine Function	Primary Fuel	Installation Date
RICE-01, RICE-02, RICE-04, RICE-05, & RICE-06	G-1930, G-1931, G-1941, G-1942, & G-125201	1408	Electrical Generation	No. 2 Fuel Oil	1986
RICE-03	G-1001	1877	Electrical Generation	No. 2 Fuel Oil	1991

RICE-07	G-115101	168	Electrical Generation	No. 2 Fuel Oil	1986
RICE-08	G-1143	19	Electrical Generation	Natural Gas	1995
RICE-09	FP-1	300	Fire Pump	No. 2 Fuel Oil	1986
RICE-10	FP-2	300	Fire Pump	No. 2 Fuel Oil	1986
RICE-11	FP-3	300	Fire Pump	No. 2 Fuel Oil	1986

SI RICE

The only SI RICE is generator G-1143 (RICE-08). It is rated at 19 brake horse power (bhp) and was installed in 1995. According to 40 CFR Part 63.6590(a)(1)(ii), "For a stationary RICE with a site rating of less than or equal to 500 bhp located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006." Therefore, the generator G-1143 engine must meet the applicable requirements of 40 CFR Part 63.6602, which states that it must follow all applicable requirements of Table 2c of the Subpart. Table 2c of 40 CFR Part 63 Subpart ZZZZ states under line item 6, that for an Emergency stationary SI RICE, the facility must: a) Change oil and filter every 500 hours of operation or annually, whichever comes first; b) Inspect spark plugs every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and c) Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

CI RICE

All of the CI RICE are considered existing, since they were installed before June 12, 2006. The following four engines have a site rating less than 500 bhp: G-115101, FP-1, FP-2, and FP-3. Therefore, they must meet the applicable requirements of Table 2c of 40 CFR Part 63, Subpart ZZZZ. All four of these existing CI RICE units with a site rating less than 500 bhp are considered to be emergency units. Table 2c of 40 CFR Part 63 Subpart ZZZZ states under line item 1, that for an Emergency Stationary CI RICE, the facility must: a) Change oil and filter every 500 hour of operation or annually, whichever comes first; b) Inspect air cleaner every 1,000 hour of operation or annually, whichever comes first, and replace as necessary; and c) Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary. Pursuant to 40 CFR 63.6590(b)(3), the six existing emergency engines with a site rating greater than 500 bhp do not have the meet the requirements of Subpart ZZZZ.

Wastewater Treatment Plant

Historically, the WWTP has been included in SABIC's Title V Permit as an insignificant source. However, the WWTP receives wastewater streams that are categorized as Group 2 wastewater streams under 40 CFR Subpart YY (GMACT). There are no emission standards, no control requirements, no monitoring requirements, and no recordkeeping or

reporting requirements for the WWTP under the GMACT.

Compliance Assurance Monitoring (CAM)

This facility is subject to the provisions of 40 CFR Part 64, Compliance Assurance Monitoring (CAM). The flares, P-17 and P-18, and the incinerator scrubber, P-700, are subject to the CAM provisions, and CAM monitoring is required. The post-control potential emissions from the flares and scrubbers are less than 100 tons per year and are thus classified as "other pollutant–specific emission units" per 40 CFR 64.5(b). The following are the Compliance Assurance Monitoring requirements for the facility:

CAM Plan for Flare P-17 (CO)

	Indicator 1	Indicator 2
I. Indicator	Flame Presence	N/A
Measurement Approach	Thermocouples verify the pilot is lit.	N/A
II. Indicator Range	Lit/Not Lit	N/A
III. Performance Criteria		
Representative Data	A thermocouple monitors temperature to indicate whether the pilot is lit or not lit.	N/A
Verification of Operation Status	NA	N/A
QA/QC Practices and Criteria	Preventative maintenance is conducted semiannually on thermocouple.	N/A
Monitoring Frequency	The temperature is monitored continuously.	N/A
Data Collection Procedures	The temperature data is recorded continuously.	N/A
Averaging Period	NA	N/A

CAM Plan for Flare P-18 (CO)

	Indicator 1	Indicator 2
I. Indicator	Flame Presence	N/A
Measurement Approach	Thermocouples verify the pilot is lit.	N/A
II. Indicator Range	Lit/Not Lit	N/A
III. Performance Criteria		
Representative Data	A thermocouple monitors temperature to indicate whether the pilot is lit or not lit.	N/A
Verification of Operation Status	NA	N/A
QA/QC Practices and Criteria	Preventative maintenance is conducted semiannually on thermocouple.	N/A
Monitoring Frequency	The temperature is monitored continuously.	N/A
Data Collection Procedures	The temperature data is recorded continuously.	N/A
Averaging Period	NA	N/A

CAM Plan for Incinerator Scrubber P-700 (SO_2)

	Indicator 1	Indicator 2
I. Indicator	Scrubbing Liquid Flow Rate	N/A
Measurement Approach	Flow meter measures flow of scrubbing liquid.	N/A
II. Indicator Range	Daily average flow rate ≥ 170 gpm	N/A
III. Performance Criteria		
Representative Data	Daily Average Flow Rate	N/A
Verification of Operation Status	NA	N/A
QA/QC Practices and Criteria	Preventative maintenance conducted on the flow meter according to the manufacturer's recommended schedule.	N/A
Monitoring Frequency	At least once per hour when the carbon adsorbers are being regenerated.	N/A
Data Collection Procedures	The flow rate data is recorded in the data historian.	N/A
Averaging Period	24 hours.	N/A

Recommendations

Since it appears that the facility would be capable of meeting state and federal requirements, I recommend that Major Source Operating Permit, 207-0008 be issued to SABIC Innovative Plastics US LLC.

Holly T. Yeargan
Industrial Chemical Section
Chemicals Branch

April 22, 2020
Date