COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
TIDEWATER REGIONAL OFFICE
5636 Southern Boulevard, Virginia Beach, Virginia 23462
(757) 518-2000 Fax (757) 518-2009
www.deq.virginia.gov

Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

Craig R. Nicol
Regional Director

COMMONWEALTH OF VIRGINIA
Department of Environmental Quality
Tidewater Regional Office

STATEMENT OF LEGAL AND FACTUAL BASIS

Anheuser-Busch, LLC, Williamsburg Brewery
Williamsburg, Virginia
Permit Number TRO-60152

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9VAC5 Chapter 80, Anheuser-Busch, LLC, Williamsburg Brewery has applied for a Title V Operating Permit for its Williamsburg (James City County), Virginia facility. The Department has reviewed the application and has prepared a draft Title V Operating Permit.

Permit Writer/Contact: James A. White, Jr. Date: **June 12, 2017**
James A. White, Jr.
(757) 518-2180

Regional Air Permits Manager: Date: **June 12, 2017**
Craig R. Nicol

Regional Director: Date: **June 12, 2017**
Craig R. Nicol

FACILITY INFORMATION

Permittee
Anheuser-Busch, Brewing Properties LLC
One Busch Place
St. Louis, Missouri 63118

Facility
Anheuser-Busch, LLC, Williamsburg Brewery
7801 Pocahontas Trail
Williamsburg, Virginia 23185

County-Plant Identification Number: 51-095-00010

FACILITY DESCRIPTION

NAICS Code: 312120 - The facility manufactures malt beverages and related byproducts including beer-condensed solids, dried grain, and distilled alcohol.

Steam Boiler Operations - Five (5) boilers operate on natural gas (NG) to produce steam to power various processes and utilities operating within the brewery. During periods of NG curtailment and periodic tuning only, the boilers are allowed to operate on No.6 fuel oil. Alternatively, the permittee may elect to may burn liquid fuel (No. 6 fuel oil) or a combination of liquid and gaseous (NG/biogas) fuels in the boilers upon written notification to the EPA and DEQ prior to the switching of boiler fuels (Condition 4 of the permit). Boiler operations consist of the following equipment units:

Boiler - EU1
Boiler - EU2
Boiler - EU3
Boiler - EU4
Boiler - EU5

Grain Unloading and Transfer Operations - Two parallel processing operations are utilized for grain received by truck and/or railcar, one on A-Side and one on B-Side of the brewery. Both A-Side and B-Side each use a grain unloading system that pneumatically transfers the grain through hoppers to grain storage bins. On demand, the grain can be transferred using another transfer system to convey the grain to milling and weighing for transfer to the brewhouse processes. Filter receivers (dust collection bins) are used for collecting the grain dust filtered by baghouses during the grain transfer operations and the milling of the grain. The grain unloading and transfer operations consist of the following equipment units:

A-Side Grain Unloading System - EU 21
Grain Transfer System for A-Side Milling and Weighing Operations - EU 22
Dust Collection Bin for A-Side Grain Handling and Milling and Weighing Operations - EU 23
Vacuum System for A-Side - EU 24
B-Side Grain Unloading System - EU 25
Grain Transfer System A for B-Side Milling and Weighing Operations - EU 26
Grain Transfer System B for B-Side Milling and Weighing Operations - EU 27
Dust Collection Bin for B-Side Grain Handling Operations - EU 28

Dust Collection Bin for B-Side Milling and Weighing Operations - EU 29
Vacuum System for B-Side - EU 30

Spent Grain Handling - The spent grains recovered from the brewing operations, are de-watered by centrifuges and then collected in wet grain tanks prior to loading into trucks for use offsite. The spent grain handling consists of the following equipment units:

Residuals Dust Collection System - EU160

Alcohol Distillation Process - The distillation process recovers alcohol from alcohol-containing brewery waste streams. Waste beer and waste yeast streams are sent to a distillation feed tank which feeds the distillation unit through the stripping column. The beer feed stream, stripped of alcohol, is recovered as distillation bottoms from the stripping column and sent to the evaporator feed tank for further processing. Distilled alcohol is condensed from the overhead stream of the rectifying column and stored in alcohol day tanks. Recovered alcohol is transferred to the bonded alcohol tanks with facilities for loading into trucks for shipment offsite. The alcohol distillation process consists of the following equipment units:

Distillation Feed Tank for Waste Beer and Spent Yeast Streams - EU 62
Distillation Day Tank for Recovered Alcohol - EU 63A
Distillation Day Tank for Recovered Alcohol - EU 63B
Bonded Alcohol Distillation Tank - EU 64
Distilled Alcohol Tank - EU 65
Evaporator Feed Tank for Distillation Bottoms and Brewhouse Waste Streams - EU 66
Waste Mix Beer and Water Storage Tank - EU 87

Deflll Operations: Bottle and Can Crushing - Off-specification bottles and cans are manually loaded to one of three crushing/shredding units to recover waste beer, aluminum, and glass. The defill process is fed by two (2) waste streams: 1) process waste consisting of containers culled from the production process because of product quality requirements; arid 2) case beer from offsite production, also with quality concerns. Process stream contains empty containers rejected prior to filling as well as those culled during filling and pasteurization which may be partially or completely filled. The waste beer drains to a waste beer sump where it becomes part of feed to distillation unit; crushed/shredded glass and aluminum is rinsed with water and sent to storage to be picked up for offsite recycling. The rinse water also drains to waste beer sump. The defill operation consists of the following equipment units:

Bottle and Can Crushing for Process Operations - EU 68
Bottle and Can Crushing for Off-site Defilling - EU 68
Waste Beer Sump - EU 86

Bulk Gypsum Handling Operations - Gypsum is received by truck and/or rail car and is transferred pneumatically to a storage bin after which it is transferred to scale hoppers from storage bin prior to being used in the beer making process. The bulk gypsum handling operations consist of the following equipment units:

Bulk Gypsum Silo - EU 150A
Bulk Gypsum Scale Hoppers - EU 150B

Diatomaceous Earth /Perlite Handling Operations - Diatomaceous Earth (DE) and Perlite (PL) is received in bulk by truck and/or railcar and transferred pneumatically to storage bins. DE/PL is then transferred for weighing in a weigh hopper, followed by feeding fixed quantities of DE/PL from the weigh hopper to a slurry tank. There the DE/PL is mixed with water to create slurry for use as a filter media in the finishing operations. All operations are vented through baghouses. The DE/PL handling operations consist of the following equipment units:

Railcar/Truck Unloading to DE/PL Storage Silo No. 1- EU71
Railcar/Truck Unloading to DE/PL Storage Silo No. 2 - EU 72
DE/PL Transfer for Weighing and Slurry Making Process - EU 73
DE/PL Truck and/or Railcar Unloading to DE/PL Silo - EU 74
DE/PL Transfer for Weighing and Slurry Making Process - EU 75

Brewhouse Operations - Cookers receive milled grain and water. This is heated with plant-supplied stream to produce beer wort that is transferred to the lauter tuns (wort straining). The lauter tuns separate the wort from the spent grain with the wort moving to the brewkettles and the grain to the spent grain tanks. Hops and other recipe ingredients are added to the brew mixture and then boiled before being transferred from the brewkettles to hot wort receivers (Brew Holding Tanks). The hops and other solids (Trub) are pulled off from of the bottom of the hot wort receivers after having been given time to settle. The hop strainers are screens that the wort passes through when being transferred to the aerators. The wort passes through the aerators and then is cooled by glycol and water in the wort coolers. The beer is transferred from there to cold wort settlers where it remains to allow time for the rest of the trub to settle out. The brewhouse operations consist of the following equipment units:

Rice Cookers - EU91
Mash Cookers - EU92
Wort Strainers - EU93
Wet Spent Grain Holding Tanks - EU94
Brew Holding Tanks - EU95
Brewkettles - EU96
Hops Strainers - EU97
Wort Receivers - EU98A
Trub Receivers - EU98B
Wort Aerators and Coolers - EU99
Cold Wort Settling Tanks - EU100

Fermentation and Aging Processes - Strained and cooled beer wort is mixed with cultured yeast and allowed to ferment for several days, converting the wort to beer. The beer is then aged for several weeks in the presence of wood chips. The wood chips provide surface area to facilitate the aging process. Yeast is recovered and reused several times. Spent yeast is sent to distillation for alcohol recovery. The fermentation process generates CO_2 and ethanol; the CO_2 is recovered, purified, and reused in downstream processes. The aged beer is then transferred to the finishing processes. The fermentation and aging processes consist of the following equipment units:

Culture Fermentors - EU111A
Yeast Brinks - EU-111B
Alpha Fermentation Tanks - EU 111C
Alpha Drop Receivers - EU111D
CO_2 Purification - EU 112

Chip Cooker - EU 113
Chip Aging Tanks - EU 114A
Kraeusen Holding Tanks - EU 114B
Chip Washers - EU 115
Spent Wood Chip Storage - EU116
Waste Yeast Storage Tanks - EU 117/118/119

Finishing Process - The finishing process prepares aged beer for packaging. Finishing steps include removal of solid impurities by centrifuge, cooling, and the addition of silica gel to bind with unwanted proteins (chill proofing); settling and removal of formed solids (Schoene sludge); addition of water and CO_2 to meet product specifications and filtering of the aged beer stream using DE/PL as the filter media to remove any remaining undesirable constituents. Finished beer is then stored in the Filter Cellar Tanks for transfer to filling operations. All tanks are maintained under CO_2 pressure to limit contact with the air and to maintain desired carbonation. The finishing process consists of the following equipment units:

Schoene Sludge Storage Tank - EU 120
Schoene Decant Tanks - EU 131A
Schoene Receivers - EU 131B
Schoene Tank - EU 131C
Filter Cellar Tanks - EU 131D
DE/PL Filters - EU 132
Spent DE/PL Slurry Tank - EU 133
Spent DE/PL Dumpster - EU 134
Silica Gel/Tannin Unloading - EU 230

Filling Operations - Finished beer is packaged in cans, bottles, and kegs for distribution in commerce. Empty bottles are filled and capped by bottle fillers. The filling operations consist of the following equipment units:

Bottle Fillers - EU 141A
Can Fillers - EU 141B
Keg Fillers - EU 141C

Beer Pasteurization Operations - All bottled and canned beer is pasteurized to control microbial growth. Product is conveyed through the pasteurizer equipment where water at various temperatures is sprayed to warm and then cool the beer to specified set points. This is a critical process that ensures the stability of the product. The pasteurizing operations consist of the following equipment units:

Bottle Pasteurizers - 142A
Can Pasteurizers - 142B

Packaging Materials Receiving Operations - Materials are received and prepared for packaging. Returnable bottles and kegs are washed prior to sending to the filling lines. The paper sleeves used for the shipment of lids are sent for recycle via air driven transfer shoot. The straps used to secure received bulk glass is shredded and sent for recycle. Cartons and cases are assembled for packaging and bottles receive a coded label for production. The packaging materials receiving operations consist of the following equipment units:

Packaging Line Lubrication - EU 143
Product Marking Using Ink Coders - EU 144

Bottle Label Application - EU 145
Case and Carton Assembly - EU 146
Keg Washing - EU 148
Waste Beer Sump - EU 86
Auto Lid Sleeves - EU 180
Laser Coders - EU 190
Bulk Glass Strap Remover/Shredder - EU 210
Box Making - EU 220
Freon Refrigeration System - EU151

Bio-Energy Recovery System (BERS) - This biogas reclamation system (BERS) will supplement the current fuels used in Boiler Units 4 and 5. Boiler Units 4 and 5 will be the only boilers affected by the addition of the system. The BERS process uses anaerobic bacteria to reduce organic material in the brewery waste water. Biogas, comprised of primarily methane and CO_2 with small amounts of hydrogen sulfide with be produced and collected for combustion in the boilers. Off-gas, ventilated air from the headspace of the equalization tank, reactors and other BERS process vessels will be collected and routed to an off-gas filter. The filter will be used to remove the hydrogen sulfide and odor: The flare will be used as a safety device to thermally oxidize methane and hydrogen sulfide that cannot otherwise be burned in the boilers as a result of startup, shutdown, or malfunction. The flare is equipped with automatic gas flow and combustion controls. The BERS consists of the following equipment units:

Bio-Energy Recovery System (BERS) - EU 240
Thermal Oxidizer (flare) - EU 241

Emergency Generator and Fire Pump Engines - The facility has on-site one (1) 325 HP diesel engine 200 kilowatt emergency generator and one (1) 380 HP diesel engine firewater pump. Anheuser-Busch, LLC, Williamsburg Brewery does not participate in ISO-declared emergencies. The electrical generator is used only for the occurrence of normal power lost, maintenance, and readiness testing as is allowed for emergency engines in 40 CFR 63 (MACT), Subpart ZZZZ.

Emergency Fire Pump EU 149
Emergency Generator EU 200

The facility is a Title V major source of VOC, SO_2, and NO_x and is an area source for hazardous air pollutants (HAPs). This source is located in an attainment area for all pollutants, and is a PSD major source. The facility is currently permitted under the minor NSR permit issued on May 21, 2013, and the PSD permit on May 9, 2011.

COMPLIANCE STATUS

A full compliance evaluation of this facility, including a site visit, has been conducted. In addition, all reports and other data required by permit conditions or regulations, which are submitted to DEQ, are evaluated for compliance. Based on these compliance evaluations, the facility has not been found to be in violation of any state or federal applicable requirements at this time.

EMISSION UNITS AND CONTROL DEVICE IDENTIFICATION

Equipment to be operated at this facility consists of:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Fuel Burning Equipment							
01	01	NG (primary) / #6 oil (backup) fuel-fired boiler Babcock & Wilcox Type FM Burner No. CDC-28T (Pre-1972 construction)	100 MMBtu/hr				5/9/11 PSD permit
02	02	NG (primary) / #6 oil (backup) fuel-fired boiler Babcock & Wilcox Type FM Burner No. CDC-28T (Pre-1972 construction)	100 MMBtu/hr				5/9/11 PSD permit
03	03	NG (primary) / #6 oil (backup) fuel-fired boiler Babcock & Wilcox Type FM Burner No. CDC-28T (Pre-1972 construction)	100 MMBtu/hr				5/9/11 PSD permit
04	04	NG (primary) & Biogas / #6 oil (backup) fuel-fired boiler Babcock & Wilcox Type FM Burner No. CDC-28T (11/1977 construction)	98 MMBtu/hr				5/9/11 PSD permit and 12/15/77 SAPCB letter
05	05	NG (primary) & Biogas / #6 oil (backup) fuel-fired boiler Babcock & Wilcox Type FM Burner No. CDC-28T (4/1984 construction)	98 MMBtu/hr				5/9/11 PSD permit
Grain Unloading and Handling System							
21	21	A-Side Grain Unloading consisting of pneumatic conveyor, filter receiver, hopper, and storage silos	35.0 tons grain/hr	Mikro Pulsaire 25-6-220 Baghouse	21	PM_{10}	5/9/11 PSD permit
22	22	Grain Transfer System for A-Side Milling and Weighing consisting of pneumatic conveyor, filter receiver, hoppers, grain mills, and day storage bins	12.0 tons grain/hr	Mikro Pulsaire 25-6-220 Baghouse	22	PM_{10}	5/9/11 PSD permit
23	23	Dust Collection Bin for A-Side Grain Handling, Milling and Weighing consisting of pneumatic conveyor and filter receiver	0.05 tons grain/hr	Mikro Pulsaire 80S-8-20 Baghouse	23	PM_{10}	5/9/11 PSD permit
24		Vacuum System No. 1 for received grain building	100 lbs/hr grain dust		24	PM_{10}	
25	25	B-Side Grain Unloading consisting of pneumatic conveyor, filter receiver, hopper, and storage silos	60.0 tons grain/hr	Buhler Miag ASFA 44/8, Type B-255 Baghouse	25	PM_{10}	5/9/11 PSD permit
26	26	Grain Transfer System A for B-Side Milling and Weighing consisting of pneumatic conveyor, filter receiver, hoppers, grain mills, and day storage bins	10.0 tons grain/hr	Buhler Miag ASFA 18/4, Type B-255 Baghouse	26	PM_{10}	5/9/11 PSD permit
27	27	Grain Transfer System B for B-Side Milling and Weighing consisting of pneumatic conveyor, filter receiver, hoppers, and grain mills	10.0 tons grain/hr	Buhler Miag ASFA 18/4, Type B-255 Baghouse	27	PM_{10}	5/9/11 PSD permit
28	28	Dust Collection Bin for B-Side Grain Handling consisting of pneumatic conveyor and filter receiver	0.02 tons grain/hr	Buhler Miag ASFA 44/8, Type B-255 Baghouse	28	PM_{10}	5/9/11 PSD permit

29	29	Dust Collection Bin for B-Side Milling and Weighing consisting of pneumatic conveyor and filter receiver	0.05 tons grain/hr	Buhler Miag PRF 100/8 Baghouse	29	PM_{10}	5/9/11 PSD permit
30		Vacuum System No. 2 for received grain building	100 lbs/hr grain dust		30	PM_{10}	
Spent Grain Handling							
56		Vacuum System for dried grains building	100 lbs/hr grain dust		56	PM_{10}	
160	160	Residuals Dust Collection System for collecting of spent grain into storage tanks prior to truck loadout	876 tons/yr dust		160	PM_{10}	
Alcohol Distillation System							
61		Alcohol Distillation Unit with integrated stripping and rectifying columns	400 gals/hr distilled alcohol	Pressure vent	61	VOC	
62	62	Distillation Feed Tank for Waste Beer and Spent Yeast	25,000 gal capacity				
63A	63A	Distillation Day Tank for Recovered Alcohol	2,000 gal capacity	Conservation vent	63A	VOC	
63B	63B	Distillation Day Tank for Recovered Alcohol	2,000 gal capacity	Conservation vent	63B	VOC	
64	64	Bonded Alcohol Distillation Tank	25,000 gal capacity	Conservation vent	64	VOC	
65	65	Distilled Alcohol Tank loadout	3,633 tons/yr distilled alcohol				
66	66	Evaporator Feed Tank for Distillation Bottoms and Brewhouse Waste Streams	30,000 gal capacity				
67		Six (6) – Effect Evaporators to remove water in production of beer-condensed solids byproduct	201 million gals/yr feed				
87	87	Waste Mix Beer and Water Storage Tank	25,000 gal capacity				
Defill Operations: Bottle and Can Crushing							
68A & B	68	Bottle and Can Crushing for Process Operations consisting of can/bottle shredders/crushers/smasher	3,200 barrels waste beer/hr				
86	86	Waste Beer Collecting Sump	10,000 gal capacity				
Diatomaceous Earth / Perlite Handling							
71	71	Railcar Unloading to DE/PL Silo No. 1 consisting of pneumatic conveyor and storage bin	10.0 tons DE/PL/hr	DCE Model DLMV 14/7F3 Baghouse	71	PM_{10}	4/7/88 permit
72	72	Railcar Unloading to DE/PL Silo No. 2 consisting of pneumatic conveyor and storage bin	10.0 tons DE/PL/hr	DCE Model DLMV 14/7F3 Baghouse	72	PM_{10}	4/7/88 permit
73	73	DE/PL transfer for weighing and slurry-making process consisting of pneumatic transfer, filter receiver, weighing hopper, feeder, slurry tank, and mixer	5.0 tons DE/PL/hr	DCE Model DLMV 15/15F3 Baghouse	73	PM_{10}	4/7/88 permit
74	74	DE/PL Truck and/or Railcar Unloading to storage silo (Installed 2013)	20.0 tons DE/PL/hr	MAC Model 39AVSC16, Style II Baghouse	74	PM_{10}	5/21/13 permit

75	75	DE/PL Truck and/or Railcar Unloading to weigh bin (Installed 2013)	10.0 tons DE/PL/hr	DCE Model Dalamatic Baghouse	75	PM_{10}	5/21/13 permit
Bulk Gypsum Handling							
150A	150A	Bulk Gypsum Storage Silo	20 tons/hr			PM_{10}	12/28/2005 permit
150B	150B	Bulk Gypsum Scale Hoppers	1.1 tons/hr			PM_{10}	12/28/2005 permit
Brewing Process							
91	91	Rice Cookers (2)	11 million barrels/yr beer production				
92	92	Mash Cookers (4)	11 million barrels/yr beer production				
93		Wort Strainers (3)	11 million barrels/yr beer production				
94	94	Wet Spent Grain Holding Tanks for brewing process (3)	11 million barrels/yr beer production				
95		Brew Holding Tanks for brewing process (2)	11 million barrels/yr beer production				
96	96	Brewkettles for brewing process (4)	11 million barrels/yr beer production				
97		Hops Strainers for brewing process (2)	11 million barrels/yr beer production				
98A		Wort Receivers for brewing process (4)	11 million barrels/yr beer production				
98B		Trub Receivers for brewing process	11 million barrels/yr beer production				
99		Wort Aerators and Coolers for brewing process (4)	11 million barrels/yr beer production				
100		Cold Wort Settling Tanks for brewing process (11)	11 million barrels/yr beer production				
Fermentation and Aging Process							
81		Ammonia Refrigeration System	1,229 tons refrigeration capacity				
111A	111A	Culture Fermentors for yeast production	11 million barrels/yr beer production				
111B	111B	Yeast Production - yeast brinks	11 million barrels/yr beer production				
111C	111C	Alpha Fermentation Tanks	11 million barrels/yr beer production				

111D	111D	Alpha Drop Receivers for primary aging	11 million barrels/yr beer production				
112	112	CO_2 Purification using activated carbon regeneration system	11 million barrels/yr beer production				
113	113	Chip Cookers for aging process (2)	11 million barrels/yr beer production				
114A	114A	Wood chip aging tanks	3,200 barrels of aged beer				
114B	114B	Kraeusen Holding Tanks for secondary aging	11 million barrels/yr beer production				
115	115	Wood chip washers	11 million barrels/yr beer production				
116	116	Spent Wood Chip Storage from aging process (2)	11 million barrels/yr beer production				
117 - 119	117 - 119	Waste Yeast Storage Tanks for aging process	11 million barrels/yr beer production				
Finishing Process							
120	120	Schoene Sludge Storage Tank	11 million barrels/yr beer production				
131A	131A	Schoene Decant Tank	11 million barrels/yr beer production				
131B	131B	Schoene Receiver	11 million barrels/yr beer production				
131C	131C	Schoene processing and storage tank (Finishing Process)	3,200 barrels of finished beer				
131D	131D	Filter cellar storage tank (Finishing Process)	3,200 barrels of finished beer				
132		DE/PL Vacuum Drum Filters (2)	11 million barrels/yr beer production				
133	133	Spent DE/PL Slurry Tank	11 million barrels/yr beer production				
134	134	Spent DE/PL Storage Trailers (3)	11 million barrels/yr beer production				
135		Alternate Chill Proofing System for beer finishing	10,000 tons/yr Silica/Tannin				
230		Silica Gel/Tannin Unloading	10 tons/yr Silica/Tannin				

Filling Operations							
141A	141A	Bottle filler and capper lines	1,500 barrels bottled beer/hr				
141B	141B	Can filler and closer lines	3,100 barrels can beer/hr				
141C	141C	Keg filler lines	275 barrels keg beer/hr				
Beer Pasteurization Operations							
142A	142A	Bottle Pasteurizers (5)	2,400 bottles /hr				
142B	142B	Can Pasteurizers (4)	8,500 cans/hr				
Packaging Materials Receiving Operations							
143	143	Packaging Line Lubrication	25 gallons/hr				
144	144	Product Marking Using Ink Coders	9,000 lbs ink solvent/yr				
145	145	Bottle Label Application	1 million lbs/yr @ < 0.2 weight VOC adhesives				
146	146	Case and Carton Assembly (6)	600,000 lbs hot melt glue/yr				
148		Keg Washing (10 lane keg washer)	600 kegs/hr				
151		Freon Refrigeration System	1,222 tons refrigeration capacity				
180		Auto Lid Sleeves	11 million barrels/yr beer production				
190		Laser Coders	11 million barrels/yr beer production				
210		Bulk Glass Strap Remover/Shredder	10 tons/yr				
220		Box Making	20 tons/yr				
86	86	Waste Beer Collecting Sump	10,000 gal capacity				
BERS System Flare							
240	240	Bio-Energy Recovery System (BERS)		U.S. Filter LO/PRO (or equivalent)	240	H_2S	5/9/11 PSD permit
241	241	Thermal Oxidization Device	800 scf/min Biogas fuel	John Zink ZTOF Flare (or equivalent)	241	CH_4	5/9/11 PSD permit

Emergency Generator/Fire Pump							
149	149	Emergency Firewater Pump (installed January 1974)	380 HP diesel engine				Exempted
200	200	200 kW Emergency Generator (installed August 2005)	325 HP diesel engine				Exempted
Miscellaneous Equipment							
83A		Lubricating Oil Storage Containers	Less than 1,000 gallons each			VOC	None
83B		Three (3) Non-Halogenated Cold Solvent Parts Cleaners	30 gal capacity (each washer)			VOC	None

*The Size/Rated capacity is provided for informational purposes only, and is not an applicable requirement.

EMISSIONS INVENTORY

The Source's 2014 reported annual emissions are summarized in the following tables:

2014 Actual Criteria Pollutant Emissions

2014 Criteria Pollutant Emission in Tons/Year					
VOC	**CO**	**SO_2**	**PM-10**	**PM-2.5**	**NOx**
132.5	33.4	0.8	4.7	4.7	39.9

2014 Actual Hazardous Air Pollutant Emissions

Pollutant	2014 Hazardous Air Pollutant Emission in Tons/Yr
Total HAPs	N/A

FUEL BURNING EQUIPMENT REQUIREMENTS - (Emission Unit Nos. B-1 - B-5)

Limitations

The following limitations in the Title V permit are derived from the May 9, 2011 PSD permit:

Condition 2 limits the approved fuels for Boiler Units 4 and 5 to NG, biogas, and No. 6 fuel oil.

Condition 3 for Boiler Units 4 and 5 limits the sulfur content of No. 6 fuel oil fired in the boilers to 1.0% by weight and Biogas H_2S to 4,500 ppmvd.

Condition 5 limits the total operation of the boiler units to no more than four of the five boilers at any given time.

Conditions 5 and 12 require the boiler units to be operated in accordance with established maintenance and operations procedures.

Condition 10 limits the visible emissions from the Boiler Unit Nos. 4 and 5 to 20%/30% opacity.

The following Virginia Administrative Codes have specific requirements that have been determined to be applicable:

9VAC5-40-80	Visible Emission Standards for Existing Stationary Sources
9VAC5-40-900	Existing Source Emission Standards for Fuel Burning Equipment: Standard for Particulate Matter (Rule 4-8)
9VAC5-40-930	Existing Source Emission Standards for Fuel Burning Equipment: Standard for Sulfur Dioxide (Rule 4-8)
9VAC5-40-940	Existing Source Emission Standards for Fuel Burning Equipment: Standard for visible emissions (Rule 4-8)
9VAC5-50-80	Standard for Visible Emissions for New and Modified Stationary Sources
9VAC5-80-110	Permit Content
9VAC5-80-310	Permit Program Emissions Fees for Stationary Sources

Virginia regulations require the use of existing source standards where no new source standards exist for fuel burning equipment. Allowable Particulate and SO_2 boiler emissions were determined in accordance with the equations from 9VAC5 Chapter 40, Article 8 - *Fuel Burning Equipment*, for these pollutants:

Particulate Emissions Ratio: $E = 1.0906(H^{-0.2594})$
where;
H is the boiler capacity in MMBtu/hr

SO_2 Emissions: $SO_2 = 2.64(K)$
where:
K is the heat input at total capacity in MMBtu/hr

Allowable Particulate and SO_2 emission limits for Boiler Units 1 - 5 were calculated as follows:

For Boiler Units 1 - 3, each boiler is rated at 100 MMBtu/hr

For Boiler Units 1 - 3: $E = 1.0906(100)^{-0.2594}$

$E = 0.330$

Allowable Particulate Emissions = 100 MMBtu/hr x 0.330 = **33.0 lbs/hr** (each boiler unit)

Allowable SO_2 Emissions = 2.64 x 100 = **264.0 lbs/hr** (each boiler unit)

For Boiler Unit 4, the boiler is rated at 98 MMBtu/hr

For Boiler Unit 4: $E = 1.0906(98)^{-0.2594}$

$E = 0.332$

Allowable Particulate Emissions = 98 MMBtu/hr x 0.332 = **32.5 lbs/hr**

Allowable SO_2 Emissions = 2.64 x 98 = **258.7 lbs/hr**

The source has demonstrated compliance with the calculated allowable particulate and SO_2 emission limitations for the boiler units through the use of AP-42 emission factors. The factors were taken from *AP-42 Sections 1.3 and 1.4*. The maximum calculated SO_2 emissions are based on the assumption that the boilers burn No. 6 fuel oil 100 percent of the time. This is extremely conservative since the primary fuel for the boilers is natural gas with No. 6 fuel oil used as a backup fuel. Maximum heating value of No. 6 fuel oil is assumed to be 150,000 Btu/gallon (AP-42 Appendix A). The maximum particulate and SO_2 emissions for each boiler unit (Emission Unit Nos. 1 - 5) were calculated using the following equations:

Maximum Particulate Emissions (No.6 oil), lbs/MMBtu = (10 lbs/10^3 gal (AP-42)) x (6.7 gal/MMBtu)

Maximum Particulate Emissions (natural gas), lbs/MMBtu = (7.6 lbs/10^6 ft^3 (AP-42)) x (ft^3/10^3 Btu) x (10^6 Btu/MMBtu)

Maximum SO_2 Emissions (No.6 fuel oil), lbs/hr = ((157 x %S lbs/10^3 gal (AP-42)) x (heat input rating in MMBtu/hr) x (10^3 gal/150.0 MMBtu); where %S=1.0

Maximum SO_2 hourly Emissions (natural gas), lbs/hr = ((0.6 lbs/10^6 ft^3 (AP-42))) x (ft^3/1000 Btu) x (10^6 Btu/MMBtu) x (heat input rating in MMBtu/hr)

For Boilers 1, 2, and 3 (each)
Allowable Particulate Emissions = 0.330 lbs/MMBtu
Maximum Particulate Emissions (using AP-42 emission factors) = 0.067 lbs/MMBtu
Allowable SO_2 Emissions = 264.0 lbs/hr
Maximum SO_2 Emissions (using AP-42 emission factors) = 251.9 lbs/hr

For Boiler 4
Allowable Particulate Emissions = 0.332 lbs/MMBtu
Maximum Particulate Emissions (using AP-42 emission factors) = 0.067 lbs/MMBtu

Allowable SO_2 Emissions, = 258.7 lbs/hr
Maximum SO_2 Emissions (using AP-42 emission factors) = 246.8 lbs/hr

For Boiler Unit 5:
The Boiler 5 emission limits from the 5/9/11 PSD permit are more stringent than the allowable particulate and SO_2 emission limits determined using Rule 4-8 of Chapter 40. The following calculations of maximum emissions were prepared to demonstrate compliance with the allowable emission limits established by Rule 4-8. The calculation assumes a heating value for No. 6 fuel oil of 150,000 Btu/gallon and a 1.0% fuel sulfur content. The sulfur content limitation is an applicable requirement from the 5/9/11 PSD permit.

Allowable Particulate Emissions, from 5/9/11 PSD permit = 15.5 lbs/hr
Maximum Particulate Emissions = 0.067 lbs/MMBtu or 6.6 lbs/hr

Allowable SO_2 Emissions, from 5/9/11 PSD permit = 105.6 lbs/hr
Maximum SO_2 Emissions = 102.8 lbs/hr

The supporting calculations as outlined above for the Boilers 1 - 5 demonstrate that the source cannot exceed the allowable particulate and SO_2 emission limits specified in 9VAC5 Chapter 40, Article 8 - *Fuel Burning Equipment*, on a worst case basis, whether firing natural gas or No. 6 fuel oil. These supporting calculations should be sufficient to demonstrate compliance with the short-term allowable emission limitations specified by Article 8. Furthermore, as the above calculations have demonstrated that the Article 8 emission limits cannot be exceeded, the boiler emissions for the particulate and SO_2 pollutants need not be specifically monitored or require recordkeeping for the two pollutants.

Monitoring

The Boiler Units 1 - 5 have been given opacity limits with a corresponding monitoring requirement in the Title V permit as specified in Conditions 9, 10, and 13. The source is required to make monthly periodic visual evaluations of opacity for all of these sources during operation of each emissions unit. The monthly periodic visual evaluations are logged in a record log that is maintained on-site, noting the occurrence of, or lack of, any visible emissions present. If visible emissions are observed, the following are also noted in the record log:

a. The cause of the abnormal emissions;

b. The duration of any visible emissions incident;

c. Any corrective actions taken to eliminate the visible emissions; and

d. The Method 9 evaluation records.

The following monitoring requirement in the Title V permit is derived from the May 9, 2011 PSD permit:

Condition13 requires monthly visible emissions evaluations on the Boiler Units 1 - 5.

The following Virginia Administrative Codes have specific requirements that have been determined to be applicable:

9VAC5-40-40	Monitoring for Existing Stationary Sources
9VAC5-40-41	Emission Monitoring Procedures for Existing Stationary Sources

9VAC5-40-1000	Existing Source Emission Standards for Fuel Burning Equipment: Monitoring (Rule 4-8)
9VAC5-50-40	Monitoring for New and Modified Stationary Sources
9VAC5-80-110	Permit Content

Recordkeeping

The permit includes requirements for maintaining records of all monitoring and testing required by the permit. These records include operations log entries of monthly periodic visual evaluations for the boiler units; all preventative maintenance records; records of monthly fuel throughputs, fuel oil percent sulfur content, and recordkeeping for the maintenance of pollution control devices.

The following Virginia Administrative Codes have specific requirements that have been determined to be applicable:

9VAC5-40-50	Notifications, Records, and Reporting for Existing Stationary Sources
9VAC5-50-50	Notifications, Records, and Reporting for New and Modified Stationary Sources
9VAC5-80-110	Permit Content

Testing

The permit does not require specific source testing to be performed on the boiler units. The Department and EPA have authority to require testing not included in the permit, if necessary, in order to determine compliance with an emission limit or emission standard.

The following Virginia Administrative Codes have specific requirements that have been determined to be applicable:

9VAC5-40-30	Emissions Testing for Existing Stationary Sources
9VAC5-50-30	Emissions Testing for New and Modified Stationary Sources
9VAC5-80-110	Permit Content

Process Equipment Requirements - (Emission Unit Nos. 21 - 23, 25 - 29, 71 - 75, 81, & 151)

Limitations

The following limitations in the Title V permit are derived from the May 9, 2011 PSD permit:

Condition 20 requires particulate emissions from Emission Unit Nos. 21 - 23 and 25 - 29 be controlled by baghouses.

Condition 21 limits the visible emissions from Emission Unit Nos. 21 - 23 and 25 - 29 to 20%/30% opacity.

The following limitations in the Title V permit are requirements from the May 21, 2013 minor NSR permit:

Condition 31 requires particulate emissions from Emission Unit Nos. 71 - 75 be controlled by baghouses.

Condition 32 limits the annual combined throughput of bulk DE/PL to 10,200 tons per rolling 12-month total.

Condition 33 limits the visible emissions from the bulk DE/PL storage and transfer system (Emission Unit Nos. 71 - 75) to 20%/30% opacity.

Virginia regulations require the use of existing source standards where no new source standards exist for general process operations. Allowable particulate emissions were determined in accordance with the following equation from 9VAC5 Chapter 40, Article 4 - *General Process Operations*:

$$E = 4.10\ P^{0.67}$$

where:

E = emission rate in lbs/hr.
P = process weight rate in tons/hr for the respective process unit.

A-Side and B-Side Grain Unloading and Transfer - Process Units 21, 22, 25, 26, and 27:

Allowable particulate emissions are based on the equation above (9VAC5-40-260). Maximum particulate emissions are based on emission factors from AP-42*, Table 9.9.1-1, Grain Elevators and Processes*, maximum hourly throughputs for each unit, and a 99.7% control efficiency for the associated baghouses:

For Process Unit 21:
Allowable Particulate Emissions = 44.7 lbs/hr
Maximum Particulate Emissions (using AP-42 emission factors) = 35 tons/hr x 0.0078 lbs/ton x (1 - 0.997) = 0.00082 lbs/hr

For Process Unit 22:
Allowable Particulate Emissions = 21.7 lbs/hr
Maximum Particulate Emissions (using AP-42 emission factors) = 12 tons/hr x 0.034 lbs/ton x (1 - 0.997) = 0.00122 lbs/hr

For Process Unit 25:
Allowable Particulate Emissions = 63.7 lbs/hr
Maximum Particulate Emissions (using AP-42 emission factors) = 60 tons/hr x 0.0078 lbs/ton x (1 - 0.997) = 0.0014 lbs/hr

For Process Units 26 and 27 (each):
Allowable Particulate Emissions = 19.2 lbs/hr, each
Maximum Particulate Emissions (using AP-42 emission factors) = 10 tons/hr x 0.034 lbs/ton x (1 - 0.997) = 0.00102 lbs/hr, each

DE/PL Handling System - Units 71 - 75:

Allowable particulate emissions are based on the equation above (9VAC5-40-260). Maximum particulate emissions are based on emission factors from AP-42, *Table 11.6-4, Portland cement* and the maximum hourly throughput for each process unit. The AP-42 factor accounts for the use of fabric filters for product handling:

For Process Units 71, 72, and 75:
Allowable Particulate Emissions = 19.2 lbs/hr, each
Maximum Particulate Emissions (using AP-42 emission factors) = 10 tons/hr x 2.9E-05 lbs/ton = 0.00029 lbs/hr, each

For Process Unit 73:
Allowable Particulate Emissions = 12.1 lbs/hr

Maximum Particulate Emissions (using AP-42 emission factors) = 5 tons/hr x 2.9E-05 lbs/ton = 0.000145 lbs/hr

For Process Unit 74:
Allowable Particulate Emissions = 30.5 lbs/hr
Maximum Particulate Emissions (using AP-42 emission factors) = 20 tons/hr x 2.9E-05 lbs/ton = 0.00058 lbs/hr

The supporting calculations outlined above for the Process Units 21, 22, 25, 26, 27 and the DE/PL Handling System (Units 71 - 75) demonstrate that the source cannot exceed the allowable particulate emission limits specified in 9VAC5 Chapter 40, Article 4 - *General Process Operations*, on a worst case basis. These supporting calculations should be sufficient to demonstrate compliance with the short-term allowable emission limitations specified by Article 4. Furthermore, as the above calculations have demonstrated that the Article 4 emission limits cannot be exceeded, the particulate emissions need not be specifically monitored or require recordkeeping. The source will demonstrate continuing compliance with the established Article 4 particulate emission limits by maintaining records of process throughputs and the proper maintenance of the control devices (baghouses).

The following Virginia Administrative Codes have specific requirements that have been determined to be applicable:

9VAC5-40-22	Special Provisions for Existing Stationary Sources: Interpretation of Emission Standards Based on Process Weight-Rate Tables
9VAC5-40-260	Existing Source Emission Standards for General Process Operations: Standard for Particulate Matter (Rule 4-4)
9VAC5-50-80	Standard for Visible Emissions for New and Modified Stationary Sources
9VAC5-50-400	EPA New Source Performance Standards: General
9VAC5-50-410	EPA New Source Performance Standards: Designated Standards of Performance
9VAC5-80-110	Permit Content
9VAC5-80-310	Permit Program Emissions Fees for Stationary Sources

The following Codes of Federal Regulations have specific requirements that have been determined to be applicable:

40 CFR Part 68	Chemical Accident Prevention Provisions. This standard applies to Emission Unit No. 81 (Ammonia Refrigeration System)
40 CFR Part 82	Protection of Stratospheric Ozone - Subpart F - Recycling and Emissions Reduction. This standard applies to Emission Unit No. 151 (Freon Refrigeration System)

Monitoring

The process sources have been given an opacity limit with a corresponding monitoring requirement in the Title V permit as specified in Conditions 21, 27, 33, and 38. The source is required to make monthly periodic visual evaluations of opacity for all of these sources during operation of each emissions unit. The monthly periodic visual evaluations are logged in a record log which is maintained on-site, noting the occurrence of, or lack of, any visible emissions present. If visible emissions are observed, the following are also noted in the record log:

a. The cause of the abnormal emissions;

b. The duration of any visible emissions incident;

c. Any corrective actions taken to eliminate the visible emissions; and

d. The Method 9 evaluation records.

The following monitoring requirements in the Title V permit are derived from the May 9, 2011 PSD permit:

Condition 26 requires the differential pressure drop monitoring of the baghouses used by Emission Unit Nos. 21 - 23 and 25 - 29 and monthly inspections of the baghouses.

Condition 27 requires monthly visible emission monitoring be performed on Emission Unit Nos. 21 - 23 and 25 - 29.

The following monitoring requirements in the Title V permit are from the May 21, 2013 minor NSR Permit:

Condition 37 requires the differential pressure drop monitoring of the baghouses used by Emission Unit Nos. 71 - 75 and monthly inspections of the baghouses.

Condition 38 requires monthly visible emission monitoring be performed on Emission Unit Nos. 71 - 75.

The following Virginia Administrative Codes have specific requirements that have been determined to be applicable:

9VAC5-40-40	Monitoring for Existing Stationary Sources
9VAC5-40-41.	Emission Monitoring Procedures for Existing Stationary Sources
9VAC5-50-40	Monitoring for New and Modified Stationary Sources
9VAC5-80-110	Permit Content

Recordkeeping

The permit includes requirements for maintaining records of all monitoring and testing required by the permit. These records include operations log entries of monthly periodic visual evaluations for the process sources; all preventative maintenance records; material throughputs, and recordkeeping for the maintenance of control devices.

The following recordkeeping requirement in the Title V permit is derived from the May 9, 2011 PSD permit:

Condition 28 requires the permittee to maintain records of all emission data and operating parameters for Emission Unit Nos.21 - 23 and 25 - 29 as necessary to demonstrate compliance with the permit; in particular, visible emissions evaluations (VEO and VEE) records and records for the inspections performed on the baghouses and associated differential pressure drop monitoring devices.

The following recordkeeping requirement in the Title V permit is derived from the May 21, 2013 minor NSR Permit:

Condition 39 requires the permittee to maintain records of all emission data and operating parameters for Emission Unit Nos.71 - 75 as necessary to demonstrate compliance with the permit; in particular, the annual combined throughput of DE/PL, operation and monitoring device records for the air pollution control devices, and visible emissions evaluations (VEO and VEE) records.

The following Virginia Administrative Codes have specific requirements that have been determined to be applicable:

9VAC5-50-50	Notifications, Records, and Reporting for New and Modified Stationary Sources
9VAC5-80-110	Permit Content

Testing

The permit does not require specific source testing to be performed on the processing equipment. The Department and EPA have authority to require testing not included in the permit, if necessary, in order to determine compliance with an emission limit or emission standard.

The following Virginia Administrative Codes have specific requirements that have been determined to be applicable:

9VAC5-50-30	Emissions Testing for New and Modified Stationary Sources
9VAC5-80-110	Permit Content

Internal Combustion Engine Requirements - (Emission Unit Nos. 149 & 200)

Limitations

The permit includes limitations and conditions for the operation of the combustion ignition (diesel) engines of the emergency firewater pump and emergency generator (Emission Unit Nos. 149 and 200). These include the following conditions in the Title V permit:

Condition 42 limits the sulfur content of the diesel fuel used in the emergency fire pump and emergency generator engines to a maximum of 0.0015% (weight).

Condition 43 limits the operation of the emergency diesel engines to emergency operations, maintenance checks, operator training, readiness testing, and no more than 50 hours per year for non-emergency situations.

Condition 44 requires the permittee to obtain fuel supplier certifications with each shipment of diesel fuel received for the emergency firewater pump and emergency generator.

Condition 45 - 48 lists the applicable requirements of 40 CFR 63, Subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines) for the emergency firewater pump and emergency generator engines.

The following Virginia Administrative Codes have specific emission requirements that have been determined to be applicable:

9VAC5-50-400	EPA New Source Performance Standards: General
9VAC5-50-410	EPA New Source Performance Standards: Designated Standards of Performance
9VAC5-60-90	EPA Maximum Achievable Control Technology Standards: General
9VAC5-60-100	EPA Maximum Achievable Control Technology Standards: Designated Emission Standards
9VAC5-80-110	Permit Content
9VAC5-80-310	Permit Program Emissions Fees for Stationary Sources

The following Codes of Federal Regulations have been determined to be applicable:

40 CFR 63, Subpart ZZZZ	National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
40 CFR 80.510(b)	Requirements for Nonroad Diesel Fuel

Monitoring

Monitoring requirements for the emergency firewater pump and emergency generator diesel engines include recording the hours of operation of each engine using non-resettable hour meters as listed in Condition 49 of the Title V permit.

The following Virginia Administrative Codes have specific requirements that have been determined to be applicable:

9VAC5-80-110	Permit Content

Recordkeeping

Permit Condition 50 includes requirements for maintaining records of all monitoring required by the permit for the emergency diesel engines. These records include log entries of the annual hours of operation for each of the emergency engines; fuel supplier certifications for the diesel fuel for used; all preventative maintenance records; the engine manufacturer's written operating instructions or procedures developed by the owner/operator for each engine; and all reports and records as required by 40 CFR 63, Subpart ZZZZ.

The following Virginia Administrative Codes that have specific requirements have been determined to be applicable:

9VAC5-50-50	Notifications, Records, and Reporting for New and Modified Stationary Sources
9VAC5-80-110	Permit Content

Testing

The permit does not require specific source testing to be performed on the emergency firewater pump and emergency generator diesel engines. The Department and EPA have authority to require testing not included in the permit, if necessary, in order to determine compliance with an emission limit or emission standard.

The following Virginia Administrative Codes have specific requirements that have been determined to be applicable:

9VAC5-50-30	Emissions Testing for New and Modified Stationary Sources
9VAC5-80-110	Permit Content

Bio-Energy Recovery System (BERS) Requirements - (Emission Unit No. 240) and Flare (Emission Unit No. 241)

Limitations

The following limitations in the Title V permit are derived from the May 9, 2011 PSD permit:

Condition 51 requires a thermal oxidization device (flare) to burn unused biogas during periods of startup, shutdown, or malfunction of the Boiler Units 4 and 5.

Condition 52 requires an off-gas filter to collect the off-gas from the BERS process.

Condition 53 limits the emissions from the operation of the flare used in the BERS process.

Condition 54 requires the removal of the alcohol distillation system once the BERS system has been installed and passes testing.

The following Virginia Administrative Codes have specific requirements that have been determined to be applicable:

9VAC5-50-80	Standard for Visible Emissions for New and Modified Stationary Sources
9VAC5-80-110	Permit Content
9VAC5-80-310	Permit Program Emissions Fees for Stationary Sources

Monitoring

The following monitoring requirement in the Title V permit is derived from the May 9, 2011 PSD permit:

Condition 55 requires the monitoring of the hydrogen sulfide (H_2S) concentration in the biogas feed to Boiler Units 4 and/or 5 monthly using a Drager Tuber.

The following Virginia Administrative Codes have specific requirements that have been determined to be applicable:

9VAC5-50-40	Monitoring for New and Modified Stationary Sources
9VAC5-80-110	Permit Content

Recordkeeping

Permit Condition 56 includes requirements for maintaining records of the monitoring on the Bio-Energy Recovery System (BERS). This includes recordkeeping of the monthly monitored biogas H_2S concentration sampling entries.

The following Virginia Administrative Codes have specific requirements that have been determined to be applicable:

9VAC5-50-50	Notifications, Records, and Reporting for New and Modified Stationary Sources
9VAC5-80-110	Permit Content

Non-Halogenated Cold Solvent Parts Cleaning Requirements - (Emission Unit No. 83B)

Limitations

The following Virginia Administrative Codes have specific emission requirements that have been determined to be applicable:

9VAC5-40-3280	Existing Source Emission Standards for Solvent Metal Cleaning Operations Using Non-Halogenated Solvents: Standard for Volatile Organic Compounds (Rule 4-24)
9VAC5-40-3290	Existing Source Emission Standards for Solvent Metal Cleaning Operations Using Non-Halogenated Solvents: Control Technology Guidelines (Rule 4-24)

Conditions 57 through 59 outline the parts cleaning operating requirements from Rule 4-24.

Monitoring

Condition 60 outlines the monitoring requirements from Rule 4-24. The source is required to inspect each parts cleaning unit at least once per calendar year to ensure the requirements of 9VAC5-40-3280 and 3290 are met.

Recordkeeping

Condition 61 includes requirements for maintaining records of all monitoring and testing required by the permit. These records include:

a. Annual inspection results and any corrective actions taken; and

b. Methods of waste solvent disposal used.

STREAMLINED REQUIREMENTS

Condition 11 of the Fuel Burning Equipment Requirements in the 2011 Title V permit has been replaced by Condition 4 in the Title V renewal permit. Condition 11 stated that Boiler Nos. 4 and 5 be operated in compliance with the requirements of 40 CFR 63, Subpart 6J when it became final. According to a January 6, 2014 letter prepared by Anheuser-Busch, LLC - Williamsburg Brewery, Boilers 1 - 5 currently operate on natural gas as the primary fuel and burn No.6 fuel oil only as backup fuel during periods of natural gas curtailment, natural gas supply interruptions, startups, and/or periodic testing on liquid fuel. The Source has specifically requested that a condition (Condition 4) be placed in the Title V renewal permit that allows for the burning of No.6 fuel oil in the boiler units at their choosing (upon prior notification to EPA and DEQ). As such, Condition 4 was included in the Title V renewal permit to achieve this request. Condition 4 contains two fuel scenarios: one for burning only natural gas with No.6 fuel oil used only as backup fuel (current boiler operations) and the second for the boiler units burning liquid fuel or a combination of liquid and gaseous fuels. Boiler operations using this second scenario would be subject to the applicable requirements of MACT, Subpart 6J for existing boilers which are listed under this scenario.

The 2011 Title V permit contained a Diatomaceous Earth/Perlite (DE/PL) throughput of 7,200 tons/yr; however, this throughput was increased to 10,200 tons/yr in the May 21, 2013 NSR permit along with new equipment being added to the DE/PL process operations. Since this equipment addition and increase in DE/PL throughput resulted in a potential particulate emission increase, the particulate emissions in Conditions 4 and 5 of the Process Equipment Requirements - (Unit Ref. Nos. 68, 71 - 73, 81, and 151) in the 2011 Title V permit were re-calculated and revised accordingly. It should be noted that in addition to the new equipment and increase in the DE/PL throughput, there were also AP-42 emission factor updates from those used in the previous permitted emission limit calculations and the emissions were originally calculated at 8,760 hr/yr instead at a requested throughput. The revised particulate emissions for the DE/PL process units 71 through 75 are not included the Title V renewal permit as the revised controlled particulate emissions were below 0.5 tons/yr and therefore were not required to be put into the 5/21/13 NSR permit. The particulate emissions based on the 10,200 tons/yr DE/PL process operations were calculated to be 0.19 tons/yr for PM and 0.12 tons/yr for PM-10 and PM-2.5 (each).

Applicable Internal Combustion Engine Requirements (Emission Unit Nos. 149 and 200) were included in the Title V renewal permit as the combustion ignition (diesel) engines of the emergency firewater pump and emergency generator are significant emission units due to their applicability to MACT, Subpart ZZZZ. Conditions 42 - 50 in the Title V renewal permit list the diesel engines applicable operational, fuel, and MACT, Subpart ZZZZ limitations; Condition 49 outlines the monitoring requirements; and Condition 50 the recordkeeping requirements for the emergency diesel engines.

The applicable permit conditions for the BERS system were grouped together within a single Bio-Energy Recovery System (BERS) Requirement section in the Title V renewal permit. Conditions 51 - 53 include the limitations for the thermal oxidization device (flare), off-gas filter, and emission limits for the operation of the thermal oxidization device (flare) used in the BERS process. The alcohol distillation system process was streamlined out of the 2011 Title V permit because the process was to be removed once the BERS system was up and operational. However, the BERS system is yet to be operational as of the issuance of the Title V permit renewal. Therefore, the condition that the alcohol distillation system be removed once the BERS system is installed and tested has been placed back in the Title V renewal permit as Condition 54. The monitoring of hydrogen sulfide (H_2S) in the biogas feed to Boiler Units 4 and/or 5 on a monthly is required by Condition 55 and the recordkeeping of the monthly monitored biogas H_2S concentrations as outline in Condition 56 of the permit.

The applicable permit conditions based on *Rule 4-24: Emission Standards for Solvent Metal Cleaning Operations Using Non-Halogenated Solvents* were included in the Title V operating permit for the cold solvent parts cleaning washers to assist with assuring compliance with the regulatory regulations in Rule 4-24.

The Facility Wide Conditions that were included in the 2011 Title V permit were streamlined out of the Title V renewal permit as these conditions were duplicates of the same conditions stated in the General Conditions section of the permit.

INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9VAC5-80-110. Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9VAC5-80-720B)	Rated Capacity 9VAC5-80-720C)
13	No.6 fuel oil Storage Tank	9VAC5-80-720 B	VOC	400,000 gallons
14	No.6 fuel oil Storage Tank	9VAC5-80-720 B	VOC	1,000,000 gallons
24	Vacuum system No. 1 for Rec'd Grain Bldg.	9VAC5-80-720 B	PM_{10}	100 lbs/hr of grain dust
30	Vacuum system No. 2 for Rec'd Grain Bldg.	9VAC5-80-720 B	PM_{10}	100 lbs/hr of grain dust
56	Vacuum system for Dried Grains Bldg.	9VAC5-80-720 B	PM_{10}	100 lbs/hr of grain dust
62	Distillation Feed Tank for Waste Beer and Spent Yeast Streams	9VAC5-80-720 B	VOC	25,000 gallons
63A	Distillation Day Tank for Recovered Alcohol	9VAC5-80-720 B	VOC	2,000 gallons
63B	Distillation Day Tank for Recovered Alcohol	9VAC5-80-720 B	VOC	2,000 gallons
64	Bonded Alcohol Distillation Tank	9VAC5-80-720 B	VOC	25,000 gallons
65	Distilled Alcohol Loadout	9VAC5-80-720 B	VOC	3,633 tons/yr alcohol
66	Evaporator Feed Tank for Distillation Bottoms and Brewhouse Waste Streams	9VAC5-80-720 B	VOC	30,000 gallons
67	6-Effect Evaporator to Remove Water in Production of Beer-Condensed Solids Byproduct	9VAC5-80-720 B	VOC	201 MM gallons/yr feed
83A	Lubricating Oil Storage Containers	9VAC5-80-720 B	VOC	< 1,000 gal each
86	Waste Beer Collecting Sump	9VAC5-80-720 B	VOC	10,000 gallons
87	Waste Beer Storage Tank	9VAC5-80-720 B	VOC	25,000 gallons
91	Rice Cookers for Brewing Process	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
92	Mash Cookers for Brewing Process	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
93	Wort Straining for Brewing Process	9VAC5-80-720 B	VOC, Acetaldehyde	11 MM barrels beer/yr
94	Spent Grain Handling Tanks for Brewing Process	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
95	Brew Holding Tanks for Brewing Process	9VAC5-80-720 B	VOC, Acetaldehyde	11 MM barrels beer/yr
96	Brewkettles for Brewing Process	9VAC5-80-720 B	VOC, PM_{10}, Acetaldehyde	11 MM barrels beer/yr
97	Hops Strainers for Brewing Process	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
98A	Wort Strainers for Brewing Process	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
98B	Tub Receivers for Brewing Process	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
99	Wort Aerators and Coolers for Brewing Process	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
100	Cold Wort Settling Tanks for Brewing Process	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
111A	Culture Fermenters for Yeast Production	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
111D	Alpha Tank Drop Receivers for Primary Aging	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
112	Activated Carbon Regen Systems for Purifying CO_2	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
113	Wood Chip Cookers for Aging Process	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
114B	Kraeusen Holding Tanks for Secondary Aging	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
115	Wood Chip Washers	9VAC5-80-720 B	PM_{10}	11 MM barrels beer/yr
116	Storage for Spent Wood Chips from Aging Process	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
117	Waste Alpha Yeast Storage Tanks for Aging Process	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
118	Waste Chip Yeast Storage Tanks for Aging Process	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
119	Waste Chip Yeast Storage Tanks for Aging Process	9VAC5-80-720 B	VOC	11 MM barrels beer/yr

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9VAC5-80-720B)	Rated Capacity 9VAC5-80-720C)
120	Storage Tank for Finishing Process	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
131A	Decant Tanks for Finishing Process	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
131B	Finishing Receivers	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
132	DE/Perlite Filtering System for Finishing Operations	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
133	Spent DE/Perlite Slurry Tank	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
134	Spent DE/Perlite Slurry Container	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
135	Alternate Chill Proofing System for Beer Finishing	9VAC5-80-720 B	PM_{10}	10,000 tons/yr silica/tannin
141C	Beer Keg Filling in Packaging Operations	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
142A/B	Can and Bottle Pasteurizers for Packaging Operation	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
143	Packaging Line Lubrication	9VAC5-80-720 B	VOC	900,000 lbs lubricant/yr
144	Product Marking using Ink Coders	9VAC5-80-720 B	VOC	9,000 lbs ink solvent/yr
145	Use of Adhesives in Bottle and Keg Label Application	9VAC5-80-720 B	VOC	1 MM lbs/yr <0.2 weight VOC adhesives
146	Use of Hot-Melt Glues in Carton Assemblies	9VAC5-80-720 B	VOC	600,000 lbs glue/yr
148	Washing of Returnable Beer Kegs	9VAC5-80-720 B	VOC	11 MM barrels beer/yr
150A	Bulk Gypsum Storage Silo	9VAC5-80-720 B	PM_{10}	20 tons/hr
150B	Bulk Gypsum Scale Hoppers	9VAC5-80-720 B	PM_{10}	1.1 tons/hr
160	Residuals Dust Collector System	9VAC5-80-720 B	PM_{10}	876 tons/yr dust
170	Cooling Towers	9VAC5-80-720 A	PM_{10}	31.4 million gallons
180	Auto lid sleeves	9VAC5-80-720 B	PM_{10}	11 MM barrels beer/yr
190	Laser Coders	9VAC5-80-720 A	PM_{10}	11 MM barrels beer/yr
210	Bulk Glass Strap Remover/Shredder	9VAC5-80-720 A	PM_{10}	10 tons
220	Box Making	9VAC5-80-720 A	PM_{10}	20 tons
230	Silica Gel Unloading	9VAC5-80-720 A	PM_{10}	10 tons

1 The citation criteria for insignificant activities are as follows:
9VAC5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application
9VAC5-80-720 B - Insignificant due to emission levels
9VAC5-80-720 C - Insignificant due to size or production rate

COMPLIANCE ASSURANCE MONITORING (CAM)

The facility has submitted a Compliance Assurance Monitoring (CAM) Applicability analysis with the Title V renewal application. The CAM Applicability analysis demonstrates that CAM does not apply to the facility at this time.

COMPLIANCE PLAN

None required.

INAPPLICABLE REQUIREMENTS

Citation	Title of Citation	Description of Applicability
40 CFR 60, Subpart D	Standards of Performance for Fossil-Fuel-Fired Steam Generators	This requirement does not apply to Boilers B-1 through B-5. These units are each rated at less than 250 MMBtu/hr.
40 CFR 60, Subpart Db	Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units	This requirement does not apply to Boilers B-1 through B-5. These units were installed before the June 19, 1984 applicability date and have not been modified or reconstructed.
40 CFR 60, Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	This requirement does not apply to Boilers B-1 through B-5. These units were installed before the June 9, 1989 applicability date and have not been modified or reconstructed.
40 CFR 60, Subpart Kb	Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984	This requirement does not apply to any of the tanks listed as insignificant. The tanks are either smaller in size than 20,000 gallons or were installed prior to the applicability date of July 23, 1984.
40 CFR 63, Subpart KKKK	National Emission Standards for Hazardous Air Pollutants: Surface Coating of Metal Cans	This requirement does not apply to this beverage facility. The source is an area source for HAP emissions.
40 CFR 63, Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters	This requirement does not apply to Boilers B-1 through B-5. The source is an area source for HAP emissions.

The startup, shut down, and malfunction opacity exclusion listed in 9VAC5-40-20 A.4 cannot be included in any Title V permit. This portion of the regulation is not part of the federally approved state implementation plan. The opacity standard applies to existing sources at all times including startup, shutdown, and malfunction. Opacity exceedances during malfunction can be affirmatively defended provided all requirements of the affirmative defense section of this permit are met. Opacity exceedances during startup and shut down will be reviewed with enforcement discretion using the requirements of 9VAC5-40-20 E, which state that "At all times, including periods of startup, shutdown, soot blowing and malfunction, owners shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with air pollution control practices for minimizing emissions."

There are no applicable Greenhouse Gas (GHG) permitting requirements. Total CO_2e emissions for the year 2014 were calculated to be 43,373.41 metric tons.

GENERAL CONDITIONS

The permit contains general conditions required by 40 CFR Part 70 and 9VAC5-80-110 that apply to all Federal-operating permitted sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

Comments on General Conditions

Permit Expiration

Article 1 (9VAC5-80-110 N) states that all terms and conditions in the Title V permit are enforceable by the administrator and citizens under the federal Clean Air Act, except those that have been designated as only state-enforceable.

This condition refers to the Board taking action on a permit application. The "Board" refers to the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by §2.2-604 and §10.1-1185 of the *Code of Virginia,* and the "Department of Environmental Quality Agency Policy Statement No. 2-09".

This general condition cite(s) the Article(s) that follow(s):

Article 1 (9VAC5-80-50 et seq.), Part II of 9VAC5 Chapter 80. Federal Operating Permits for Stationary Sources

This general condition cites the sections that follow:

9VAC5-80-80.	Application
9VAC5-80-140.	Permit Shield
9VAC5-80-150.	Action on Permit Applications

Failure/Malfunction Reporting

Section 9VAC5-20-180 requires malfunction and excess emission reporting within four hours of discovery. Section 9VAC5-20-180 is from the general regulations. All affected facilities are subject to section 9VAC5-20-180 including Title V facilities. A facility may make a single report that meets the requirements of 9VAC5-20-180. The report must be made within four daytime business hours of discovery of the malfunction.

This general condition cites the sections that follow:

9VAC5-40-41.	Emissions Monitoring Procedures for Existing Sources
9VAC5-40-50.	Notification, Records and Reporting
9VAC5-50-50.	Notification, Records and Reporting

This general condition contains a citation from the Code of Federal Regulations as follows:

40 CFR 60.13 (h). Monitoring Requirements.

Permit Modification

This general condition cites the sections that follow:

9VAC5-80-50.	Applicability, Federal Operating Permit For Stationary Sources
9VAC5-80-190.	Changes to Permits
9VAC5-80-260.	Enforcement
9VAC5-80-1100.	Applicability, Permits For New and Modified Stationary Sources
9VAC5-80-1790.	Applicability, Permits For Major Stationary Sources and Modifications Located in Prevention of Significant Deterioration Areas
9VAC5-80-2000.	Applicability, Permits for Major Stationary Sources and Major Modifications Locating in Nonattainment Areas

Malfunction as an Affirmative Defense

The regulations contain two reporting requirements for malfunctions that coincide. The reporting requirements are listed in sections 9VAC5-80-250 and 9VAC5-20-180. The malfunction requirements are listed in General Condition U and General Condition F. For further explanation see the comments on general condition F.

This general condition cites the sections that follow:
9VAC5-20-180. Facility and Control Equipment Maintenance or Malfunction
9VAC5-80-110. Permit Content

Asbestos Requirements

The Virginia Department of Labor and Industry under Section 40.1-51.20 of the Code of Virginia also holds authority to enforce 40 CFR 61 Subpart M, National Emission Standards for Asbestos.

This general condition contains a citation from the Code of Federal Regulations that follows:
40 CFR 61.145, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to demolition and renovation.
40 CFR 61.148, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to insulating materials.
40 CFR 61.150, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to waste disposal.

This general condition cites the regulatory sections that follow:
9VAC5-60-70. Designated Emissions Standards
9VAC5-80-110. Permit Content

STATE ONLY APPLICABLE REQUIREMENTS

The following Virginia Administrative Codes have specific requirements only enforceable by the State and have been identified as applicable by the applicant:

Odor - 9VAC5 Chapter 40, Article 2 and 9VAC5 Chapter 50, Article 2.

State toxics rule - 9VAC5 Chapter 60, Article 4 and 9VAC5 Chapter 60, Article 5.

CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. All portions of the Title V application are suitable for public review.

PUBLIC PARTICIPATION

The proposed permit will be placed on public notice in **The Daily Press** from **Friday, April 21, 2017** to **Monday, May 22, 2017**.