

6/8/2020

REVIEW MEMORANDUM
7 DE Admin. Code 1130 (TITLE V) OPERATING PERMIT

Kuehne Chemical Company, Inc.
1645 River Road
Delaware City, DE 19706
DRAFT/PROPOSED Permit No.: AQM-003/00115(Renewal 2)

TO: Angela D. Marconi, P.E., BCEE *ADM*

THROUGH: Karen A. Mattio, P.E. *KAM*

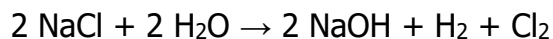
FROM: Alexa Murphy *AM*

DATE: June 7, 2020

BACKGROUND

The Kuehne Chemical Company (Kuehne) is a Chlor-Alkali plant that is located in New Castle. Kuehne's main headquarters is located in South Kearny, New Jersey. Kuehne's Delaware location was purchased in 1998. The Facility is located in the Coastal Zone and the most current Coastal Zone Permit was issued on October 29, 2002 which allows for installation and use of twenty (20) new electrolyzer cells for a maximum chlorine production of 133 tons per day. The Coastal Zone Permit number is 334 and was signed by John Hughes, Secretary of DNREC. The facility produces sodium hypochlorite, caustic soda, chlorine gas, caustic potash, and hydrochloric acid.

The Facility operates 24 hours a day, 52 weeks a year on two (2) twelve (12) hour shifts. Operation consists of producing chlorine by electrolysis of brine over twenty-four (24) membrane cells. Kuehne utilizes membrane technology to produce chlorine from brine solution. In a typical membrane cell technology, sodium chloride (brine) is electrolyzed to chlorine gas and hydrogen (co-produced). In this process, an ion-exchange polymer membrane serves to prevent chlorine and hydrogen from coming in contact. The key process of electrolysis is the interchange of atoms and ions by the removal or addition of electrons from the external circuit. The desired products of electrolysis are often in a different physical state from the electrolyte and can be removed by some physical processes. For example, in the electrolysis of brine to produce hydrogen and chlorine, the products are gaseous. These gaseous products bubble from the electrolyte and are collected. Below is the chemical formula which is produced during the electrolysis process:



Below is a picture showing how chlorine is produced utilizing membrane technology. The picture includes information on the removal and addition of electrons in the electrolysis process.

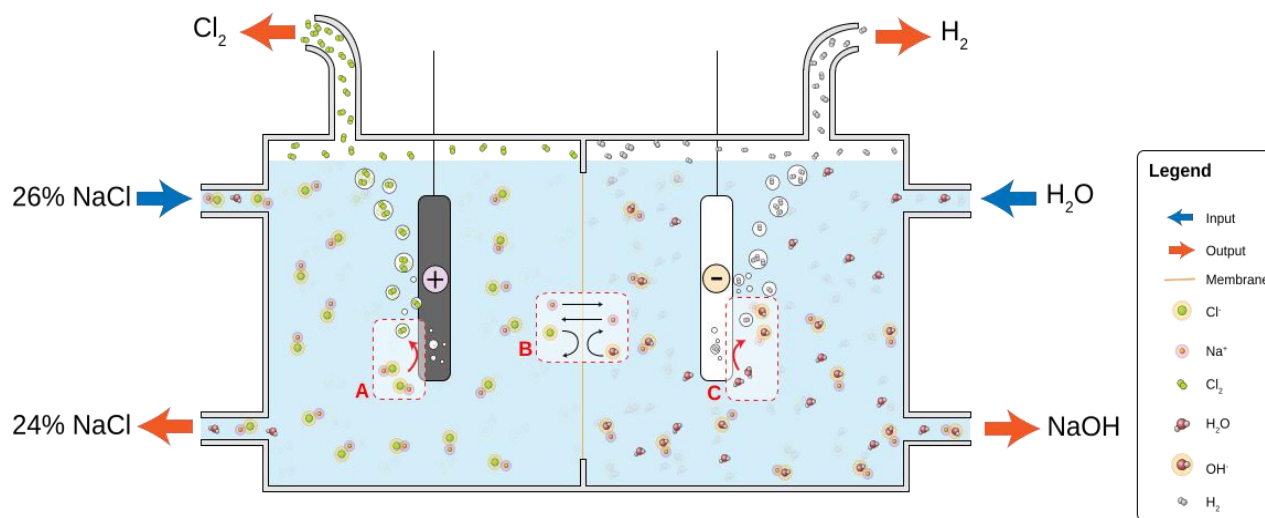
Review MEMORANDUM

Draft/Proposed Permit: AQM-003/00115(Renewal 2)

Kuehne Chemical Company, Inc.

June 7, 2020

Page 2



Chlorine is a yellow-green gas under standard conditions where it forms diatomic molecules. Chlorine has the highest electron affinity and the third highest electronegativity of all the reactive elements. For this reason, chlorine is a strong oxidizing agent. Chlorine is a very toxic material in liquid and gaseous states. Liquid chlorine burns the skin and gaseous chlorine irritates the mucus membranes. Concentrations of the gas as low as 0.06 ppm (*Reference SDS*) can be detected by smell and concentrations of 1,000 ppm can be fatal after a few deep breaths.

Chlorine kills bacteria and is a disinfectant. It is used to treat drinking water and swimming pool water. It is also used to make hundreds of consumer products from paper to paints and from textiles to insecticides.

The byproduct of the electrolysis process is hydrogen. Hydrogen is the lightest element on the periodic table and is the most abundant chemical substance in the universe. Never the less, hydrogen is an air pollutant according to EPA's definition and 7 **DE Admin. Code** 1101. Hydrogen [*CAS #: 1333-74-0*] is listed as one of the 63 regulated flammable substances under the Accidental Release Prevention Requirements under Section 112(r) of the Clean Air Act {*Table 3, 40 CFR §68.130*}. The threshold quantity for hydrogen is listed at 10,000 pounds. As such, hydrogen is considered an air pollutant and a facility is considered a major source over 100 tons per year. Kuehne Chemical is limited on producing hydrogen at a rate of 275 pounds per hour and 1,204 tons per twelve (12) consecutive months.

The Kuehne Company is current on their Title V fees and that was validated on September 24, 2019 by the author.

The Facility has not indicated any process parameters to be treated as confidential.

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 3

CORRESPONDENCE CHRONOLOGY

Date/Correspondence	Subject
July 25, 2019 – Application submitted by Jill Drazek, ESS Manager, signed by Alan Rogers, Director of Operations.	Renewal 2 Application
July 25, 2019- Letter requesting permit shield from Jill Drazek, ESS Manager.	Letter requesting permit shield for Renewal 2.
July 25, 2019 – Letter from Jill Drazek, ESS Manager	Letter requesting that the condition on the operational range of the specific gravity of the scrubber tank solution be removed from the permit during Renewal 2.

EMISSION POINT AND EMISSION UNIT IDENTIFICATION

The following have been identified as emission points and emission units subject to the Title V operating program:

Emission Unit ID	Emission Point ID	Emission Unit Description
Emission Unit a	EP 01	<i>Boiler #3, 15.00 MMBtu/hr Cleaver Brook Boiler fired on Hydrogen Gas as primary fuel, and Natural Gas as secondary fuel</i>
Emission Unit b	EP 02	<i>Boiler #2, 6.402 MMBtu/hr , Superior Hydrogen/Natural Gas fired Boiler</i>
Emission Unit c	EP 04	<i>Chlorine Storage and Filling Equipment</i>
Emission Unit d	EP 03	<i>Twenty-four (24) electrolyzer chlorine cells with north off-spec tank scrubber (countercurrent packed bed) and south bygas tank scrubber(countercurrent packed bed) [ID: 18-14U]</i>
Emission Unit e	-	<i>Facility Wide Requirements</i>
Emission Unit f	EP 06	<i>One (1) Emergency Generator-No. 2 Fuel Oil Fired, 300 KW</i>

INSIGNIFICANT ACTIVITIES

The following have been identified as insignificant activities under 7 **DE Admin. Code** 1130:

As per 7 **DE Admin. Code** 1102, Condition 2.2 a permit for installation, alteration, or operation shall not be required for the equipment listed or air contamination control device.

Per Appendix A, Number 2.2, natural gas external combustion fuel burning equipment rated less than 15 MMBtu/hr, is on the list of Insignificant Activities.

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 4

Per Appendix A, Number 24.0, "Water treatment units", is on the list of Insignificant Activities. There are no applicable requirements for this unit.

Per Appendix A, Number 26.0, "Non-contact water cooling towers (water that has not been in direct contact with process fluids)", is on the list of Insignificant Activities. There are no applicable requirements for this unit.

Per Appendix A, Number 21.0, "Any stationary storage tank not subject to control by the provisions of this regulation, which contains any liquid having a true vapor pressure less than 0.5 psia at 70°F or is less than 5000 gallons capacity." Per Table 7.1-2 of AP-42 the true vapor pressure of distillate fuel oil No. 2 at 70°F is 0.0090 psi. Hence this is below the 0.5 threshold and is on the insignificant activities. There are no applicable requirements for this unit. Likewise, a review of 7 **DE Admin. Code** 1124, shows that this tank is exempt because it is below the capacity of 40,000 gallons of Condition 31.1.1. A quick review of the aboveground storage tank site shows the tank to be registered with a Tank Id. of D-10000/83-99T.

Appendix A has been incorporated into the Title V Permit Renewal 2 and will be located at the end of the Permit. Below is the table as seen in the permit which describes the equipment, capacity, and units.

Equipment Description	Capacity	Units
Wastewater Treatment Operations	10,000	GPD
Non-Contact Cooling Water Towers	3	Towers
Diesel Fuel Storage Tank	10,000	Gallons
Maintenance Shop Natural Gas Heaters (2)	305,000	BTU/hr

EXISTING 7 DE Admin. Code 1102 PERMITS

Permit Number and Date	Permitted Equipment
APC-2007/0064-O	Boiler 3, 21 MMBtu/hr that is de-rated to 15 MMBtu/hr, dual fired, Natural Gas/Hydrogen
APC-2015/0088-C/O- A/1	Bygas Scrubber (ID 18-14U) Replacement for Chlorine Manufacturing Process
APC-1982/0461-A1	Chlorine Storage and Filling Equipment
The cancelled synthetic minor permit below is referenced throughout this renewal and previous renewals:	
APC-2000/0320-C/O(A3)(SM)	Dated June 18, 2003 The permit was issued for as many as 32 electrolyzer cells, a 24.74 MMBtu/hr and 6.4 MMBtu/hr natural gas and hydrogen fired boilers, a 8.375 MMBtu/hr natural gas fired boiler, 300 kW emergency generator, and 2 bleach reactors with scrubbers. This permit is referenced for operational condition for the 6.4 MMBtu/hr boiler, the emergency generator, and

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 5

	the off-spec scrubber, which are still existing at the facility.
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REGULATORY REVIEW/TECHNICAL REVIEW/COMPLIANCE METHODOLOGY

Below is the Regulatory review of each emission unit.

Emission Unit a

Emission Point No. 1 = Boiler #3

Emission Point No. 1 consists of a de-rated Cleaver Brooks Boiler. The model is a CB-500HP, series 200 which was originally a 21 MMBtu/hr boiler. In 2008, the boiler was refurbished and a new burner was installed. In an email dated June 6, 2008, David Chiarot, P.E., of Sterling Combustion, Inc. stated the burner was to be de-rated. The burner was manufactured by Limpsfield Combustion and is a 15.0 MMBtu/hr capacity burner and uses natural or hydrogen gas for combustion. In a review of the boiler operation for 2018, the boiler consumed 51,556 ccf of natural gas and 17,548 pounds of hydrogen. This boiler is mostly used for backup if demand is not met with Boiler #2. The boiler is restricted to only combust natural or hydrogen gas. A stack test was conducted March 11, 2010 and determined while firing on hydrogen the emission rate was 1.37 lbs NO_x/hr at 7.0 MMBtu, additionally when firing on natural gas the rate was 0.87 lbs NO_x/hr at the same heat input. The most recent stack test was conducted January 20, 2016 and determined while firing on hydrogen the emission rate was 0.69 lbs NO_x/hr at 6.1 MMBtu, in addition when firing on natural gas the rate was 0.41 lbs NO_x/hr at 5.3 MMBtu.

Boiler 3 Cleaver Brooks 500 Boiler Potential to Emit (PTE). Heat input rate of 15 MMBtu/hr for natural gas. The maximum firing rate for hydrogen gas is 249.9 lb/hr (H ₂ : 60,991 BTU/lb).				
Fuel	Pollutant	Emission Factor lb/MMBtu^[1]	Emission Rate lb/hr	Potential to Emit (TPY)
Natural Gas	NO _x	100	1.47	6.4
	CO	84	1.24	5.4
	VOC	5.5	0.08	0.4
	PM	7.6	0.11	0.5
	SO ₂	0.6	0.01	0.04
	HAPs	1.88	0.03	0.13
Hydrogen Gas	NO _x	0.118	1.77	7.8
	CO			
	VOC			
	PM			
	SO ₂			
	HAPs			
[1] Emissions factors obtained from AP-42, Table 1.4-1 and 1.4-2, small boiler, uncontrolled. Hydrogen gas NO _x emission factor came from original Title V application.				

Review MEMORANDUM

Draft/Proposed Permit: AQM-003/00115(Renewal 2)

Kuehne Chemical Company, Inc.

June 7, 2020

Page 6

7 **DE Admin. Code** 1102, *Permits*, the boiler will emit more than 10 lbs per day of air contaminants and hence a permit is required to operate.

7 **DE Admin. Code** 1104, *Particulate Emissions from Fuel Burning Equipment*, is applicable to this emission unit. Particulate emissions are limited to 0.3 pound per million Btu heat input on a maximum two (2) hour average. The Company is in compliance with this regulation because at the maximum firing rate the emission of particulate matter does not exceed 0.3 lb/ MMBtu. The following calculation demonstrates particulate matter emissions at the one hour maximum firing rate when fired on natural gas.

$$\text{Maximum natural gas usage} = \left(\frac{15 \text{ MMBtu}}{\text{hr}} \right) \left(\frac{\text{ft}^3}{1,020 \text{ Btu}} \right) = 14,705 \frac{\text{ft}^3}{\text{hr}}$$

$$\text{Maximum particulate emission} = \left(\frac{\text{hr}}{15 \text{ MMBtu}} \right) \left(\frac{7.6 \text{ lbs}}{10^6 \text{ ft}^3} \right) \left(\frac{14,705 \text{ ft}^3}{\text{hr}} \right) = 0.0075 \frac{\text{lb}}{\text{MMBtu}}$$

where 7.6 lbs/10⁶ ft³ is the particulate matter emission factor for natural gas from AP-42, and 1,020 Btu/ft³ is the maximum heat content of natural gas.

Hydrogen

Hydrogen and natural gas are both gaseous fuels. Natural gas' main component is methane (CH₄) which is one atom of carbon and four atoms of hydrogen. Because of the carbon concentration of natural gas, it is assumed to produce more particular matter than hydrogen which contains no carbon. Therefore, with this knowledge, it is assumed that when burning on hydrogen gas the particulate emissions will be less than the value seen for natural gas.

Compliance with the emission standard of 7 **DE Admin. Code** 1104 can be consistently demonstrated while these emission units are fired on natural gas or hydrogen and shall be demonstrated with record keeping based upon the fuel fired.

7 **DE Admin. Code** 1112, *Control of Nitrogen Oxides Emissions*, is not an applicable requirement for EP 01. However, per Condition 3.3.2 of the Regulation, nitrogen oxide emissions shall not exceed those achieved through an annual tune up performed by qualified personnel. The owner or operator shall maintain a log of the tune ups performed on each unit. EP 01 is not applicable to this regulation because the Facility is not a major source of nitrogen oxides (NO_x) as per 1.0 of the regulation which requires the Facility be a major source for NO_x. This condition has remained in the Title V Renewal as a good practice due to the inherent complexity of using hydrogen as a fuel.

7 **DE Admin. Code** 1114, *Visible Emissions*, is an applicable requirement for this unit. Particulate emissions from these units, while operating on natural gas are 0.0075 lb/ MMBtu. This level of particulate should not have a significant potential to cause an opacity violation. In addition, when properly operated, the boiler does not have a significant potential to cause an opacity violation. Therefore, compliance with the visible emissions standard for this unit is demonstrated based on record keeping of the fuel type and proper operations/maintenance. Additionally, at a minimum, the facility shall conduct a modified Reference Method 9 visible emissions test for the emission unit in accordance with 7 **DE Admin. Code** 1120, Section 1.5.3 once each calendar year after the annual tune-up.

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 7

7 **DE Admin. Code** 1119, *Control of Odorous Air Contaminations*, is an applicable State Enforceable requirement for this unit and has been incorporated into the Title V Permit under Facility Wide Requirements. Compliance will be demonstrated by inspection and record review.

40 CFR Part 60, Subpart Dc, *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*, is applicable to EP 01 since this unit was installed after June 9, 1989. The only applicable requirement from Subpart Dc is that the Company shall record and maintain records of the amounts of fuel combusted during each month.

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

As per the background information section, Kuehne is an area source for HAPs. The definition of a major source is that the facility emits or has the potential to emit 10 tons per year of any single HAP or 25 tons per year or more of any combination of HAP. Kuehne is an area source facility for HAP's with a PTE of 0.908 ton per year of HAPs. However, per §63.11195(e) any gas-fired boiler located in an area source is not subject the Boiler Area Source NESHAP. Per §63.11237, gaseous fuels include, but are not limited to: natural gas, landfill gas, coal-derived gas, refinery gas, hydrogen, and biogas. This boiler only fires on natural gas and hydrogen per the Title V Permit and hence is not applicable to the boiler area source NESHAP requirements.

Changes to the Permit for Renewal 2:

The products of combustion were not included in the original Title V permit except for NO_x emissions. Therefore the PM section, section 2, and the NO_x section, section 3, were combined into one section titled Criteria Pollutants- Products of Combustion. The NO_x emissions for boiler 3 were corrected. The previous emission limit was based on a construction permit for a proposed boiler with a rating of 25 MMBtu/hr. The Company had to replace the proposed boiler with the Cleaver Brooks boiler that was de-rated from 21 MMBtu/hr to 15 MMBtu/hr. The NO_x emission limit was never corrected when the boiler changed.

Lastly, the NO_x emission standard should be changed because the boiler is below the 50 MMBtu/hr requirement of 7 **DE Admin. Code** 1112. The previous permit had the emission standard for boilers above the 50 MMBtu/hr heat input requirement of 7 **DE Admin. Code** 1112.

Condition Number	Previous Condition	New Condition	Justification
Condition 3 Table 1(a)(1)(v)	Compliance shall be demonstrated by certification and/or record keeping. [Reference: 7 DE Admin. Code 1130 Section 6.3.1, dated 12/11/00]	Compliance with this emission standard and these operation limitations will be demonstrated by adherence to the appropriate monitoring, testing, QA/QC, and recordkeeping requirements. [Reference: 7 DE Admin. Code 1130 Section 6.3.1, dated	Condition changed to match current template format.

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 8

Condition Number	Previous Condition	New Condition	Justification
		12/11/00]	
Condition 3 Table 1 (a)(2)(i)	<u>Emission Standards:</u> NO _x emissions shall not exceed those achieved by installation of low NO _x burner technology , or equivalent NO _x control technology proposals approved by the Department in accordance with the Department in accordance with section 5 of 7 DE Admin. Code 1112. [Reference: 7 DE Admin. Code 1112, Section 3.3.1 dated 11/24/93]	<u>Emission Standards:</u> The Company shall maintain the proper operation and maintenance of the boilers by conducting annual tune-ups by certified personnel. [Reference: 7 DE Admin. Code 1112, Section 3.3.2 dated 11/24/93]	7 DE Admin. Code 1112 Section 3.3.1 requirement is listed and it should be the requirement of 3.3.2 instead because the boiler is rated below 50 MMBtu/hr.
Condition 3 Table 1 (a)(2)(iv)	<u>Operational Limitations:</u> The boiler may burn hydrogen gas as well as natural gas as fuel, but combined NO _x emissions shall not exceed 13.3 tons based on twelve (12) month rolling period.	<u>Operational Limitations:</u> Natural gas or hydrogen gas can be consumed in this boiler. [Reference: 7 DE Admin. Code 1130 Section 6.1.1 dated 12/11/00 and Permit: APC-2007/0064-Operation(NSPS)]	Emission limit was based on a construction permit for a proposed boiler with a rating of 25 MMBtu/hr. The Company had to replace the proposed boiler with the Cleaver Brooks boiler that was de-rated to 15 MMBtu/hr and the emission limit was never corrected when the boiler changed. This boiler can only use natural gas or hydrogen gas which is an

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 9

Condition Number	Previous Condition	New Condition	Justification
			operational condition that was kept from the previous Title V permit before the PM and NO _x sections were combined.
Condition 3 Table 1 (a)(2)(ii)(A-F)		<u>Emission Limitations:</u> Emissions from air contaminants shall not exceed the following: A. Nitrogen Oxides (NO _x) emissions shall not exceed 1.77 lbs/hr and 7.8 tons per twelve (12) month rolling period. B. Carbon Monoxide (CO) emissions shall not exceed 1.24 lbs/hr and 5.4 tons per twelve (12) month rolling period. C. Volatile Organic Compounds (VOC) emissions shall not exceed 0.08 lb/hr and 0.4 ton per twelve (12) month rolling period. D. Particulate Matter (PM) emissions shall not exceed	Products of combustion were not in previous permit.

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 10

Condition Number	Previous Condition	New Condition	Justification
		0.11 lb/hr and 0.5 ton per twelve (12) month rolling period. E. Sulfur Dioxide (SO ₂) emissions shall not exceed 0.01 lb/hr and 0.04 ton per twelve (12) month rolling period. F. Hazardous Air Pollutants (HAP) emissions shall not exceed 0.03 lb/hr and 0.13 ton per twelve (12) month rolling period. <i>[Reference: APC-2007/0064-Operation(NSPS)]</i>	
Condition 3 Table 1(a)(2)(vii)(B)	Conduct visual emissions observations in accordance with EPA Reference Method 9 in the Appendix of 40 CFR Part 60 after the annual tune-up is complete and within a maximum of seven (7) days of the annual tune-up in accordance with Condition 3 – Table 1(a)(5)(vii)(A). <i>[Reference: 7 DE Admin. Code 1130,</i>	Conduct visual emissions observations in accordance with EPA Reference Method 9 in the Appendix of 40 CFR Part 60 after the annual tune-up is complete and within a maximum of seven (7) days of the annual tune-up in accordance with Condition 3 – Table 1(a)(5)(vi)(A). <i>[Reference: 7 DE Admin. Code 1130,</i>	Corrected the reference within the permit.

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 11

Condition Number	Previous Condition	New Condition	Justification
	<i>Section 6.1.3.1.2 dated 11/15/93]</i>	<i>Section 6.1.3.1.2 dated 12/11/00]</i>	
Condition 3 Table 1(a)(2)(vii)(C)	<p>At least once during the term of this permit the owner/operator shall perform emissions testing in accordance with EPA Method 7 to establish NO_x emission factor for hydrogen gas and natural gas as fuel in accordance with the requirements of Condition 3, Table-1 (e)(5) of this permit to demonstrate compliance with the emission limitations of Condition 3, Table-1(a)(3)(ii) of this section.</p> <p><i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.1, dated 12/11/00]</i></p>	<p>At least once during the term of this permit the owner/operator shall perform emissions testing in accordance with EPA Method 7 to establish NO_x emission factor for hydrogen gas and natural gas as fuel in accordance with the requirements of Condition 3, Table-1 (e)(5) of this permit to demonstrate compliance with the emission limitations of Condition 3, Table-1(a)(3)(ii)(A) of this section.</p> <p><i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.1, dated 12/11/00]</i></p>	Changed the reference to clarify that the testing is for NO _x since additional permit limits for other products of combustion were added to the permit.
Condition 3 Table 1(a)(2)(x)	<p><u>Reporting:</u> That required by Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii), and 3(c)(2) of this permit. <i>[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i></p> <p>A. For each occurrence of excess NO_x emissions, within thirty</p>	<p><u>Reporting:</u> That required by Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii), and 3(c)(2) of this permit. <i>[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i></p> <p>A. For each occurrence of excess emissions, within thirty</p>	Condition changed to have facility report any excess emissions, not just excess NO _x emissions.

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 12

Condition Number	Previous Condition	New Condition	Justification
	(30) calendar days of becoming aware of such occurrence, supply the Department with the following information: <u>1</u> The name and location of the facility; <u>2</u> The source(s) that caused the excess emissions; <u>3</u> The time and date of the first observation of the excess emissions; <u>4</u> The cause and expected duration of the excess emissions; <u>5</u> The estimated rate of emissions (expressed in the units of the emission limitation) and the operating data and calculations	(30) calendar days of becoming aware of such occurrence, supply the Department with the following information: <u>1</u> The name and location of the facility; <u>2</u> The source(s) that caused the excess emissions; <u>3</u> The time and date of the first observation of the excess emissions; <u>4</u> The cause and expected duration of the excess emissions; <u>5</u> The estimated rate of emissions (expressed in the units of the emission limitation) and the operating data and calculations	

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 13

Condition Number	Previous Condition	New Condition	Justification
	used in determining the magnitude of the excess emissions; and <u>6</u> The proposed corrective actions and schedule to correct the conditions causing the excess.	used in determining the magnitude of the excess emissions; and <u>6</u> The proposed corrective actions and schedule to correct the conditions causing the excess.	
Condition 3 Table 1(a)(3)(vii)	<u>Testing:</u> That required by Condition 3(b)(1)(ii) of this permit.	<u>Testing:</u> In addition to the requirements of Conditions 3(b)(1)(ii) of this permit, the efficiency shall be determined by flue gas oxygen or carbon dioxide analysis and flue gas net temperature. If the equipment is operated intermittently, the Company shall determine the combustion efficiency a minimum of once per year. <i>[Reference: 7 DE Admin. Code 1130, Section 6.1.3.1.2 dated 12/11/00]</i>	Testing condition added to have consistency between both boilers at the facility.

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 14

Emission Unit b

Emission Point No. 2 = Boiler #2

Emission Point No. 2 consists of a 6.401 MMBtu/hr Superior Boiler that was installed December 15, 2001. The boiler's model is an Apache 8-5-750-S200-IC-G/HG. In a review of the boiler operation for 2018, the boiler consumed 36,188 ccf of natural gas and 434,978 pounds (~218 tons) of hydrogen. A stack test has not been conducted on this unit. Stack tests are not required because the heat input rate is less than 10 MMBtu/hr. The NO_x emission factor while burning hydrogen gas came from the original Title V application. The emissions rate and PTE, using AP-42, for the Superior Boiler can be seen below:

Boiler 2 Superior Boiler Potential to Emit (PTE). Heat input rate of 6.4 MMBtu/hr for natural gas. The maximum firing rate for hydrogen gas is 105 lb/hr. Hydrogen gas' heating value is 60,991 Btu/lb.				
Fuel	Pollutant	Emission Factor lb/MMBtu^[1]	Emission Rate lb/hr	Potential to Emit (TPY)
Natural Gas	NO _x	0.098	0.63	2.75
	CO	0.082	0.53	2.31
	VOC	0.0054	0.03	0.15
	PM	0.0075	0.05	0.21
	SO ₂	0.001	0.004	0.02
	HAPs	0.002	0.01	0.05
Hydrogen Gas	NO _x	0.118	0.76	3.31
	CO			
	VOC			
	PM			
	SO ₂			
	HAPs			
[1] Emissions factors obtained from AP-42, Table 1.4-1 and 1.4-2, small boiler, uncontrolled, and divide by 1,020 Btu/SCF to convert the units to lb/MMBtu. Hydrogen gas NO _x emission factor came from original Title V application. A stack test has never been performed.				

7 **DE Admin. Code** 1102, *Permits*, the boiler has a heat input rate of less than 10 MMBtu/hr and therefore would be exempt from a permit on its own. The facility is a Title V source; therefore, the boiler is included in the permit.

Section 2.2: "Provided that 7 **DE Admin. Code** 1125 does not apply, a permit for installation, alteration, or operation pursuant to this regulation shall not be required for the following equipment or air contaminant control device. Note however that other State and Federal requirements may apply."

2.2.3: "The equipment listed in Appendix A of this regulation."

Appendix A 2.1: Uses any fuel and has a rated heat input of less than 10 MMBtu per hour.

Review MEMORANDUM

Draft/Proposed Permit: AQM-003/00115(Renewal 2)

Kuehne Chemical Company, Inc.

June 7, 2020

Page 15

7 DE Admin. Code 1104, *Particulate Emissions from Fuel Burning Equipment*, is applicable to this emission unit. Particulate emissions are limited to 0.3 pound per million Btu heat input on a maximum two (2) hour average. The Company is in compliance with this regulation because at the maximum firing rate the emission of particulate matter does not exceed 0.3 lb/ MMBtu. The following calculation demonstrates particulate matter emissions at the one hour maximum firing rate when fired on natural gas.

Natural Gas

$$\text{Maximum natural gas usage} = \left(\frac{6.401 \text{ MMBtu}}{\text{hr}} \right) \left(\frac{\text{ft}^3}{1,020 \text{ Btu}} \right) = 6,275 \frac{\text{ft}^3}{\text{hr}}$$

$$\text{Maximum particulate emission} = \left(\frac{\text{hr}}{6.401 \text{ MMBtu}} \right) \left(\frac{7.6 \text{ lbs}}{10^6 \text{ ft}^3} \right) \left(\frac{6,275 \text{ ft}^3}{\text{hr}} \right) = 0.0075 \frac{\text{lb}}{\text{MMBtu}}$$

where 7.6 lb/10⁶ ft³ is the particulate matter emission factor for natural gas from AP-42, and 1,020 Btu/ft³ is the maximum heat content of natural gas.

Hydrogen

Hydrogen and natural gas are both gaseous fuels. Natural gas' main component is methane (CH₄) which is one atom of carbon and four atoms of hydrogen. Because of the carbon concentration of natural gas, it is assumed to produce more particular matter than hydrogen which contains no carbon. Therefore, with this knowledge, it is assumed that when burning on hydrogen gas the particulate emissions will be less than the value seen for natural gas.

Compliance with the emission standard of **7 DE Admin. Code 1104** can be consistently demonstrated while these emission units are fired on natural gas and shall be demonstrated with record keeping based upon the fuel fired.

7 DE Admin. Code 1112, *Control of Nitrogen Oxides Emissions*, is not an applicable requirement for EP 02. Per Condition 4.3 of the Regulation, this unit is exempt due to the fact it is under 15 MMBtu/hr. Additionally, this regulation is not applicable because the Facility is not a major source of nitrogen oxides (NO_x) as per 1.0 of the regulation.

Condition 3.3.2 has remained in the Title V Renewal as a good practice due to the inherent complexity of using hydrogen as a fuel, and can be found in Condition 3 Table 1 (b)(3)(i) of the permit.

Condition 3.3.2: "Less than 50 MMBtu/hr. Shall not exceed those achieved through an annual tune up performed by qualified personnel. The owner or operator shall maintain a log of the tune ups performed on each unit."

7 DE Admin. Code 1114, *Visible Emissions*, is an applicable requirement for this unit. Particulate emissions from this unit, while operating on natural gas are 0.0075 lb/MMBtu. This level of particulate should not have a significant potential to cause an opacity violation. In addition, when properly operated, the boiler does not have a significant potential to cause an opacity violation. Therefore, compliance with the visible emissions standard for this unit is demonstrated based on record keeping of the fuel type and proper operations/maintenance. Additionally, at a minimum, the facility shall conduct a modified Reference Method 9 visible emissions test for each emission unit in accordance with **7 DE Admin. Code 1120**, Section 1.5.3 once each calendar year after the annual tune-up.

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 16

7 **DE Admin. Code** 1119, *Control of Odorous Air Contaminations*, is an applicable State Enforceable requirement for this unit and has been incorporated into the Title V Permit under Facility Wide Requirements. Compliance will be demonstrated by inspection and record review.

40 CFR Part 60, Subpart Dc, *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*, is applicable to EP 02 since this unit was installed after June 9, 1989. The only applicable requirement from Subpart Dc is that the Company shall record and maintain records of the amounts of fuel combusted during each month.

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

As per the background information section, Kuehne is an area source for HAPs. The definition of a major source is that the facility emits or has the potential to emit 10 tons per year of any single HAP or 25 tons per year or more of any combination of HAP. Kuehne is an area source facility for HAP's with a PTE of 0.908 ton per year of HAPs. However, per §63.11195(e) any gas-fired boiler located in an area source is not subject the Boiler Area Source NESHAP. Per §63.11237, gaseous fuels include, but are not limited to: natural gas, landfill gas, coal-derived gas, refinery gas, hydrogen, and biogas. This boiler only fires on natural gas and hydrogen per the Title V Permit and hence is not applicable to the boiler area source NESHAP requirements.

Changes to the Permit for Renewal 2:

The products of combustion were not included in the original Title V permit and therefore have been added for Boiler 2. To accommodate for the products of combustion addition to the permit, the PM section, section 2, and the NO_x section, section 3, were combined into one section titled Criteria Pollutants- Products of Combustion.

Condition Number	Previous Condition	New Condition	Justification
Condition 3 Table 1 (b)(1)(v)	Compliance shall be demonstrated by record keeping. [Reference: 7 DE Admin. Code 1130 Section 6.3.1, dated 12/11/00]	Compliance with the standards and limitations will be demonstrated by adherence to the appropriate monitoring, testing, QA/QC, and recordkeeping requirements. [Reference: 7 DE Admin. Code 1130 Section 6.1.7.3, dated 12/11/00]	Condition changed to match current template format.
Condition 3 Table 1 (b)(2)(ii)(A-F)		<u>Emission Limitations:</u> Emissions from air contaminants shall not exceed the following:	Products of combustion were not in previous permit.

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 17

Condition Number	Previous Condition	New Condition	Justification
		<p>A. Nitrogen Oxides (NO_x) emissions shall not exceed 0.76 lb/hr and 3.31 tons per twelve (12) month rolling period.</p> <p>B. Carbon Monoxide (CO) emissions shall not exceed 0.53 lb/hr and 2.31 tons per twelve (12) month rolling period.</p> <p>C. Volatile Organic Compounds (VOC) emissions shall not exceed 0.03 lb/hr and 0.15 ton per twelve (12) month rolling period.</p> <p>D. Particulate Matter (PM) emissions shall not exceed 0.05 lb/hr and 0.21 ton per twelve (12) month rolling period.</p> <p>E. Sulfur Dioxide (SO₂) emissions shall not exceed 0.004 lb/hr and 0.02 ton per twelve (12) month rolling period.</p> <p>F. Hazardous Air Pollutants (HAP) emissions shall not exceed 0.01</p>	

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 18

Condition Number	Previous Condition	New Condition	Justification
		lb/hr and 0.05 ton per twelve (12) month rolling period.	
Condition 3 Table 1(b)(2)(iii)		<u>Operational Standards:</u> The Company shall have qualified personnel perform annual tune-ups. <i>[Reference: 7 DE Admin. Code 1112, Section 3.3.2 dated 11/24/93]</i>	Operational standard added to have consistency between both boilers at the facility.
Condition 3 Table 1(b)(2)(vii)	<u>Testing:</u> In addition to the requirements of Conditions 3(b)(1)(ii) of this permit, the Company shall: A. Perform annual tune-up in accordance with the manufacturer recommendations. <i>[Reference: 7 DE Admin. Code 1130, Section 6.1.3.1.2 dated 11/15/93]</i> B. Conduct visual emissions observations in accordance with EPA Reference Method 9 in the Appendix of 40 CFR Part 60 after the annual tune-up is complete and within a maximum of seven (7) days of the annual tune-up in accordance	<u>Testing:</u> In addition to the requirements of Conditions 3(b)(1)(ii) of this permit, the Company shall: A. Perform annual tune-up in accordance with the manufacturer recommendations. <i>[Reference: 7 DE Admin. Code 1130, Section 6.1.3.1.2 dated 12/11/00]</i> B. Conduct visual emissions observations in accordance with EPA Reference Method 9 in the Appendix of 40 CFR Part 60 after the annual tune-up is complete and within a maximum of seven (7) days of the annual tune-up in accordance	Testing added to have consistency between both boilers at the facility.

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 19

Condition Number	Previous Condition	New Condition	Justification
	with Condition 3 – Table 1(b)(4)(vii)(A). <i>[Reference: 7 DE Admin. Code 1130, Section 6.1.3.1.2 dated 12/11/00]</i>	with Condition 3 – Table 1(b)(4)(vii)(A). <i>[Reference: 7 DE Admin. Code 1130, Section 6.1.3.1.2 dated 12/11/00]</i>	
Condition 3 Table 1(b)(2)(x)	<u>Reporting:</u> That required by Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii), and 3(c)(2) of this permit. <i>[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i> A. For each occurrence of excess NO _x emissions, within thirty (30) calendar days of becoming aware of such occurrence, supply the Department with the following information: <u>1</u> The name and location of the facility; <u>2</u> The source(s) that caused the excess emissions; <u>3</u> The time and date of the first observation of the excess emissions; <u>4</u> The cause and expected duration of the excess emissions; <u>5</u> The estimated rate of	<u>Reporting:</u> That required by Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii), and 3(c)(2) of this permit. <i>[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i> A. For each occurrence of excess emissions, within thirty (30) calendar days of becoming aware of such occurrence, supply the Department with the following information: <u>1</u> The name and location of the facility; <u>2</u> The source(s) that caused the excess emissions; <u>3</u> The time and date of the first observation of the excess emissions; <u>4</u> The cause and expected duration of the excess	Condition changed to have facility report any excess emissions, not just excess NO _x emissions.

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 20

Condition Number	Previous Condition	New Condition	Justification
	<p>emissions (expressed in the units of the emission limitation) and the operating data and calculations used in determining the magnitude of the excess emissions; and</p> <p><u>6</u> The proposed corrective actions and schedule to correct the conditions causing the excess.</p>	<p>emissions;</p> <p><u>5</u> The estimated rate of emissions (expressed in the units of the emission limitation) and the operating data and calculations used in determining the magnitude of the excess emissions; and</p> <p><u>6</u> The proposed corrective actions and schedule to correct the conditions causing the excess.</p>	
Condition 3 Table 1(b)(3)(ix)(C)		<p>The Company shall record the operating rate (expressed in pounds [lbs] steam per hour or fuel feed rate in gallons per hour) of the emission unit at the time of the combustion efficiency testing.</p> <p><i>[Reference: 7 DE Admin. Code 1130, Section 6.1.3.1.2 dated 12/11/00]</i></p>	<p>Recordkeeping added to have consistency between both boilers at the facility.</p>

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 21

Emission Unit c

Emission Point No. 4 = Chlorine Storage and Filling Unit

A part of the Facility's customers still require liquid chlorine so Kuehne still fills "1 ton" cylinders of liquid chlorine and ships these cylinders to their customers. Consequently, Kuehne has an alarm system to detect fugitive chlorine leaks which is made up of several chlorine detectors. Due to chlorine being highly toxic, the immediate danger to life and health (IDLH) has been established at 10 ppm. Therefore, the detection limit, incorporated into the Title V Permit, for chlorine detection is 10 ppm and is located in Section (e), Facility Wide Requirements. The Facility is required to monitor the chlorine levels near emission units and along the periphery of the fence-line. If any chlorine detector near each emission unit or sensors along the fence line reach 10 ppm, a facility wide evacuation is implemented. If any chlorine detector near each emission unit is equal or greater than 3 ppm then a localized evacuation is implemented. This alarm system is part of the Facility's leak detection and repair (LDAR) program. The alarm will sound at a chlorine detection of 3 ppm or greater.

7 DE Admin. Code 1119, *Control of Odorous Air Contaminations*, is an applicable State Enforceable requirement for this unit and has been incorporated into the Title V Permit under Facility Wide Requirements. Compliance will be demonstrated by inspection and record review.

7 DE Admin. Code 1121, *Emission Standards for Hazardous Air Pollutants*, is an applicable requirement for the chlorine storage and filling unit. Per Condition 13.0 of said Regulation, the provisions of Subpart V – National Standard for Equipment Leaks (Fugitive Emission Sources), of Part 61, Title 40 of the Code of Federal Regulation is referenced. 40 CFR Part 61, Subpart V, regulates equipment leaks of VHAP's. As per the definition of this Regulation, volatile hazardous air pollutant (VHAP) is defined as benzene and vinyl chloride. It has been determined however that the toxicity of chlorine is much more severe than benzene or vinyl chloride. With this information, the Department requested Kuehne to implement a LDAR program to address the possible leaks of chlorine gas as fugitive emissions.

No changes have been made to this section of the permit for renewal 2.

Emission Unit d

Emission Point No. 3 = Twenty-four (24) electrolyzer chlorine cells with north off-spec tank scrubber and south bygas tank scrubber [ID: 18-14U] (Chlor-Alkali Process)

The bulk of the chlorine the Facility utilizes to manufacture sodium hypochlorite is produced by means of the twenty-four (24) permitted electrolyzer cells. This process uses approximately 11 million watts an hour to produce the required chlorine. The Facility immediately processes the produced chlorine into sodium hypochlorite and then uses the by-product, hydrogen, for steam generation in the Facility's two (2) hydrogen boilers.

During the 2015 renewal, the Facility increased their chlorine production limit to 110 tons of chlorine per day. The increase was due to increased efficiency of the electrolyzer cells and other processes. The below equation shows that when 110 tons of chlorine (9,167 Cl lbs/hr) is produced a day, 3.29 tons of hydrogen (274.8 H lbs/hr) is produced in a day. With the increase of chlorine, the hydrogen limitation was also changed to 275 lbs/hr and 1,204 tons per rolling twelve month period during the 2015. No additional

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 22

changes have been made during the issuance of renewal 2 and the limits remain as 110 tons of chlorine per day, 275 pounds of hydrogen per hour and 1,204 tons of hydrogen per rolling twelve month period.

$$110 \frac{\text{tons } Cl^-}{\text{day}} = 9,166.6 \frac{\text{lbs } Cl^-}{\text{hr}}$$

The net chlorine removed from the cell is approximately 96% efficient. In order to produce 110 tons per day of chlorine at the anode the cell would have to produce 9,548.6 pounds of chlorine per hour.

$$\frac{9,166.6 \frac{\text{lbs } Cl^-}{\text{hr}}}{0.96} = 9,548.6 \frac{\text{lbs } Cl^-}{\text{hr}}$$

For each mole of chlorine produced at the anode, 1 mole of hydrogen is produced at the cathode with 98% efficiency.

$$\left(\frac{9,548.6 \frac{\text{lbs } Cl^-}{\text{hr}}}{0.98} \right) = 9,743.5 \frac{\text{lbs } Cl^-}{\text{hr}}$$

$$\left(9,743.5 \frac{\text{lbs } Cl^-}{\text{hr}} \right) \left(\frac{2 \text{ lbs } H^+}{70.9 \text{ lbs } Cl^-} \right) = 274.8 \frac{\text{lbs } H^+}{\text{hr}} = 1,204 \text{ Tons } H^+ \text{ per year}$$

The Facility operates two reactors denoted as the north and south reactor. The reactor is used to house a reaction between chlorine and sodium hydroxide to produce sodium hypochlorite (bleach). The north reactor is not used often and in 2018 the reactor was used a total of 21 days. The north reactor can be used for both liquid chlorine and chlorine gas and is operated when the south reactor cannot satisfy orders. The south reactor can only accept chlorine gas. Any residual gaseous chlorine is sent from the reactors to the scrubber and then vented from the off-spec on the north side or bygas tank on the south side. The bygas scrubber is capable of handling only one reactor's vent stream at a time; both processes cannot vent to the bygas scrubber simultaneously. The south reactor is only capable of sending product to the bygas scrubber (ID: 18-14U), however the north reactor is capable of sending product to either one of the scrubbers. Both reactors and scrubbers can be used at the same time to produce product.

On February 26, 2015, the Department was sent a letter requesting that the bygas scrubber's chlorine emissions limits be reduced to 0.01 lbs /hr and 0.05 ton per year. The bygas scrubber limits were reduced in renewal 1. A stack test on the bygas scrubber, completed on May 30, 2014, did not show compliance with the permitted chlorine removal efficiency of 99.5%, but instead resulted in 93.1% removal. Therefore the removal efficiency of the bygas scrubber is required to be greater than 90% by the permit.

The chlorine emission limitation for the off-spec scrubber on the north reactor is 0.127 lb/hr or 0.56 ton per year and was last stack tested on August 30-31, 2016. This test showed compliance with the permitted emission limitations at an emission rate of 0.0056 lb/hr. The bygas scrubber's chlorine emissions, both while using the north reactor or the south reactor, also showed compliance with the stack test on August 30-31, 2016.

A SCREEN3 model was ran for the previous renewal (renewal 1) to ensure that the scrubbers' emissions passed the Department's criteria. No additional modeling was completed for this renewal because no

Review MEMORANDUM

Draft/Proposed Permit: AQM-003/00115(Renewal 2)

Kuehne Chemical Company, Inc.

June 7, 2020

Page 23

emission changes or modifications to the equipment has occurred. The TLV for chlorine [CAS #: 7782-50-5] was taken from a SDS sheet provided by Kuehne. The TLV was represented as 0.5 ppm and then converted as seen below to 1.45 mg/m³.

$$\text{mg/m}^3 = \frac{\text{ppm} \times \text{Molecular Weight}}{24.45} = \frac{0.5 \times 71}{24.45} = 1.45 \text{ mg/m}^3$$

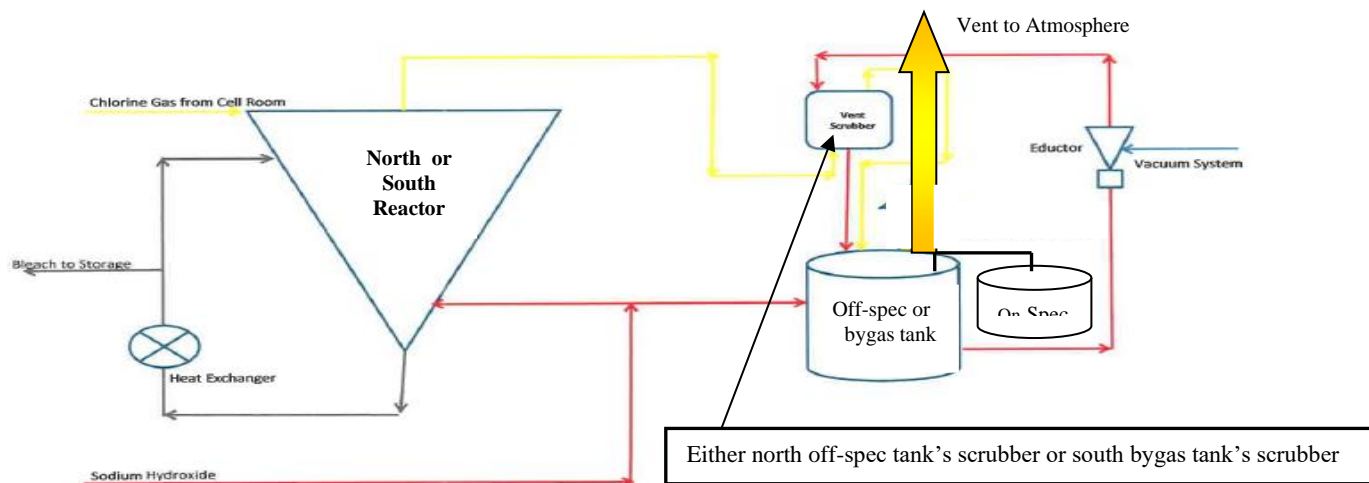
SCREEN3 Modeling Results

	Pollutant	Emission Rate (lb/hr)	Emission Rate (g/sec)	MDC (ug/m3)	Adj. MDC (mg/m3)	TLV (mg/m3)	TLV:MDC Ratio	≥ 100
Bygas Scrubber (ID 18-14U)	Chlorine	0.010	0.001	19.380	0.0136	1.45	107	PASS
Off-spec Scrubber	Chlorine	0.127	0.016	22.580	0.0158	1.45	92	FALSE

The bygas scrubber passes SCREEN3 modeling with a TLV/MDC ratio of 107. The off-spec scrubber was very close to passing with a TLV/MDC ratio of 92. The north reactor's off-spec tank's scrubber is used very little and a limitation was written into the Title V Permit renewal that the more efficient bygas scrubber shall be utilized as the primary scrubber if at all feasibly possible. With the limited use and with the overly conservative modeling method used, the Department finds the TLV/MDC Ratio of 92 acceptable.

To better understand the chlorine path at the facility, below, is a line diagram that depicts the route for the chlorine from the cell room where the twenty-four (24) electrolyzer cells are to the appropriate reactor, the appropriate scrubber, the appropriate tank, and then the vent to the atmosphere.

Typical Reactor Flow Diagram for the North and South Production Lines



7 DE Admin. Code 1102, *Permits*, the Chlor-Alkali Process will emit more than 10 lbs per day of air

Review MEMORANDUM

Draft/Proposed Permit: AQM-003/00115(Renewal 2)

Kuehne Chemical Company, Inc.

June 7, 2020

Page 24

contaminants and hence a permit is required to operate.

7 DE Admin. Code 1114, *Visible Emissions*, is an applicable requirement for the south reactor's bygas scrubber and the north's reactor's off-spec tank's scrubber. Instead of the standard 20% opacity requirement, the opacity has been restricted to 0% due to the acute toxicity of chlorine gas (*Reference Memorandum Permit: APC-2000/0030, Dated Sept 5, 2000, Page 7*). This has been incorporated into the permit renewal.

7 DE Admin. Code 1119, *Control of Odorous Air Contaminations*, is an applicable State Enforceable requirement for this unit and has been incorporated into the Title V Permit under Facility Wide Requirements. Compliance will be demonstrated by inspection and record review.

7 DE Admin. Code 1130, *Title V State Operating Permit Program*, is an applicable requirement due to the amount of hydrogen gas produced by the Facility. The Facility is permitted to produce 1,204 tons per year of hydrogen and is over the major threshold of 100 tons. Kuehne is a major source because the PTE of a regulated air pollutant, hydrogen, is over 100 tons per year per Section 2.0 Definitions, Subpart 2.0 of this regulation. The Facility is a major source and a Title V Permit is required to operate.

Changes to the Permit for Renewal 2:

Included in the application was a letter dated July 25, 2019, signed by Jill Drazek, EES Manager, requesting a change to the operational limitations of the scrubbers. The Company requested that Condition 3 Table 1 (d)(iv)(I), which states "The specific gravity of the scrubber(s) tank solution shall be between 1.18 and 1.23 at a temperature range of 50°F and 122°F while in operation", be removed from the permit. Kuehne claimed that the specific gravity reading will not change much with the absorption of chlorine, and sodium hydroxide concentrations as low as 5% are effective at absorbing chlorine (Kuehne usually operates at around 18%). Kuehne believes that monitoring oxidation reduction potential (ORP) and pH is a more effective in ensuring proper scrubber operation and chlorine removal. The oxidation reduction potential is the measurement (in volts) which shows the ability of a molecule to oxidize or reduce (lose or gain electrons) another molecule.

Other conditions that are affected by the permit change are Condition 3 Table 1 (d)(vi)(I) and Condition 3 Table 1 (d)(ix)(E)(7). In the past Kuehne has had compliance issues with their specific gravity limitation. Kuehne was recently was not in compliance with this condition, from December 21, 2018 through December 31, 2018, when the specific gravity of the scrubber tank solutions was below 1.18 for approximately 262 hours. On August 30 and 31, 2016, a stack test was performed on the bygas scrubber and the off-spec scrubber. Both scrubbers demonstrated compliance when the north or south reactors were in operation and were in compliance with all operation parameters, including specific gravity, during the compliance demonstration.

The Department agreed to remove all conditions that require Kuehne to monitor specific gravity of the scrubber tank solution due to Kuehne having many additional parameters they monitor to ensure that the scrubber is operating properly.

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 25

Condition number	Previous Condition	New Condition	Justification
Condition 3 Table 1 (d)(1)(ii)(A)	Chlorine emissions from the south reactor's bygas tank's scrubber (ID: 18-14U) shall not exceed 0.01 lb/hr and 0.05 ton per twelve (12) consecutive calendar months. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 11/15/93 and APC-2015/0088-C/O]</i>	Chlorine emissions from the south reactor's (ID: 18-14U) or the north reactor's bygas tank's scrubber shall not exceed 0.01 lb/hr and 0.05 ton per rolling twelve (12) month period. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00 and APC-2015/0088-C/O]</i>	Clarification that the emission limit for the bygas scrubber is the same whether the south reactor or north reactor is venting to the bygas scrubber.
Condition 3 Table 1 (d)(1)(iv)(I)	The specific gravity of the scrubber(s) tank solution shall be between 1.18 and 1.23 at a temperature range of 50°F to 122°F while in operation. <i>[Reference 7 DE Admin Code 1130 Section 6.1.3 dated 11/15/93 and APC-2015/0088-C/O]</i>		The Department agreed to remove this operational condition from the permit. Kuehne monitors many other operational parameters to ensure that the scrubbers are operating properly.
Condition 3 Table 1 (d)(1)(v)(A)	Record Keeping to include semi-annual material balances, daily emission summaries for emission units, monthly SCREEN summaries, hourly emission rates and monthly emissions summaries; <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00]</i>	Compliance with the standards and limitations will be demonstrated by adherence to the appropriate monitoring, testing, QA/QC, and recordkeeping requirements. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.7.3, dated 12/11/00]</i>	All necessary recordkeeping requirements not already in the recordkeeping section were added. Then the condition was changed to the current template format.
Condition 3 Table 1 (d)(1)(v)(B)	The latest version of the U.S. EPA "SCREEN" Air Dispersion Model, approved by the Department, shall be run under protocols approved by the Department.		Condition was removed from the permit because the Department already ran the Department approved model

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 26

Condition number	Previous Condition	New Condition	Justification
	<p>Emissions of air contaminants from the source shall be limited so that the concentrations at and beyond the fence-line are less than 1/100th of the established Threshold Limit Value ("TLVs") for all compounds emitted. If TLVs are not available from the American Conference of Governmental Industrial Hygienists ("ACGIH") or the National Institute for Occupational Safety and Health ("NIOSH"), then the Acceptable Exposure Limits (AELs) may be used. If no TLV or AEL is available, then 0.1 mg/m³ shall be used, unless another value is approved by the Department.</p> <p><i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00]</i></p>		<p>for the emission units prior to issuing the previous operating permit. The Department will run the model anytime there is a modification to emission rates, control efficiency, and/or emission units.</p>
Condition 3 Table 1 (d)(1)(vi)(I)	<p>The Company shall monitor the specific gravity and temperature of the bygas scrubber's tank solution. If the specific gravity falls outside the range contained in Condition 3, Table 1(d)(1)(iv)(I) of this permit, this shall be defined as a deviation. If the hourly specific gravity and temperature reading falls outside of the range for two (2) consecutive</p>		<p>The Department agreed to remove this monitoring condition from the permit. Kuehne monitors many other operational parameters to ensure that the scrubbers are operating properly.</p>

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 27

Condition number	Previous Condition	New Condition	Justification
	hourly readings, the Company shall divert chlorine flow from the south reactor to the north reactor and scrubber and complete any necessary repairs or maintenance prior to restarting the south reactor and bygas scrubber (ID: 18-14U). <i>[Reference 7 DE Admin Code 1130 Section 6.1.3 dated 11/15/93 and APC-2015/0088-C/O]</i>		
Condition 3 Table 1 (d)(1)(vii)(B)	Within 1 year of issuing of this Permit, the owner/operator shall perform emissions testing on the north reactor's off-spec tank scrubber and the south reactor's bygas tank scrubber (ID 18-14U) in accordance with the requirements of Condition 3 - Table 1(e)(5) of this permit as well as the reference methods and procedures identified in 40 CFR 60.396 dated 7/1/2010 to demonstrate compliance with the emission limitations of Condition 3 – Table 1(d)(1)(ii)(A) and (B) of this section. Emission testing shall be performed on the three (3) possible alternatives as outline in Condition 3 – Table 1(d)(1)(iv)(M) of this Permit. The owner or operator shall include the	Within 1 year of issuing of this Permit, the owner/operator shall perform emissions testing on the north reactor's off-spec tank scrubber and the south reactor's bygas tank scrubber (ID 18-14U) in accordance with the requirements of Condition 3 - Table 1(e)(5) of this permit as well as the reference methods and procedures identified in 40 CFR 60.396 dated 7/1/2019 to demonstrate compliance with the emission limitations of Condition 3 – Table 1(d)(1)(ii)(A) and (B) of this section. Emission testing shall be performed on the three (3) possible alternatives as outline in Condition 3 – Table	Removed the requirement to test for specific gravity and temperature of the scrubber tank solution. Specific gravity is no longer an operating condition that is required or monitored.

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 28

Condition number	Previous Condition	New Condition	Justification
	<p>following additional data in the control device initial performance test required by 40 CFR 60.8 (a) or subsequent performance tests at which removal efficiency is determined for the south reactor's bygas scrubber (ID 18-14U):</p> <ol style="list-style-type: none">1. Specific gravity and temperature;2. pH range;3. Inlet Volumetric Gas Flow Rate;4. Outlet Volumetric gas Flow Rate;5. Scrubber Liquid Flow Rate;6. Pressure drop across the scrubber;7. Packing size, packing material, and height of packing.	<p>1(d)(1)(iv)(M) of this Permit. The owner or operator shall include the following additional data in the control device initial performance test required by 40 CFR 60.8 (a) or subsequent performance tests at which removal efficiency is determined for the south reactor's bygas scrubber (ID 18-14U):</p> <ol style="list-style-type: none">1. pH range;2. Inlet Volumetric Gas Flow Rate;3. Outlet Volumetric gas Flow Rate;4. Scrubber Liquid Flow Rate;5. Pressure drop across the scrubber;6. Packing size, packing material, and height of packing.	
Condition 3 Table 1 (d)(1)(ix)(B)	Record daily emissions or shall be a summation of all emission rates modeled for all emission sources under this		Removed from permit. Short term permitted emission limits are not on a daily basis and

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 29

Condition number	Previous Condition	New Condition	Justification
	condition on a daily basis. [Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00]		therefore a record of daily emissions are not necessary. The facility will continue to record monthly and annual emissions on a 12-month rolling basis. Please note that Condition 3 Table 1 (d)(1)(ix)(B)-Condition 3 Table 1 (d)(1)(ix)(F) have been re-numbered due to the removal of this condition.
Condition 3 Table 1 (d)(1)(ix)(D)	Maintain the technical information that includes all calculations of actual emissions in sufficient detail as to permit the assessment of the validity of such calculations. [Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00]	Now Condition 3 Table 1 (d)(1)(ix)(C) due to the above condition being removed. Maintain the technical information that includes all calculations of actual emissions in sufficient detail as to permit the assessment of the validity of such calculations. Including semi-annual material balances and hourly emission rates. [Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00]	Moved information from a condition from the compliance section to the recordkeeping section. The compliance condition stated: <i>Record Keeping to include semi-annual material balances, daily emission summaries for emission units, monthly SCREEN summaries, hourly emission rates and monthly emissions summaries;</i> Semi-annual material balances and hourly emission rates needed added to

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 30

Condition number	Previous Condition	New Condition	Justification
			the recordkeeping section.
Condition 3 Table 1 (d)(1)(ix)(D)(7)	For both scrubber(s), chlor-alkali header pressure (continuously) and a reading each operational hour; and	For both scrubber(s), chlor-alkali header pressure (continuously) and a reading each two operational hours; and	Operators record header pressure every 2 operational hours for this parameter.
Condition 3 Table 1 (d)(1)(ix)(E)(7)	For the bygas scrubber (ID: 18-14U), specific gravity (continuously) and a specific gravity and temperature reading each operational hour;		The Department has agreed to remove this recordkeeping condition from the permit. Kuehne no longer monitors specific gravity of the scrubber solution.

Emission Unit f

Emission Point No. 06 = Emergency Generator 300 kW (3.2 MMBtu/hr input)

The generator located at the facility is an older Model 500FDR70186H generator manufactured by Cummins. The generator is rated at 300 kW and at this rating is below the requirements of requiring a permit. Below is the potential to emit (PTE) for the emergency generator using the EPA recommended 500 hours a year:

300 kW Emergency Generator PTE. Potential to emit is based off of 500 hours and 3.2 MMBtu/hr heat input.				
Fuel	Pollutant	Emission Factor lb/MMBtu ^[1]	Emission Rate lb/hr	Potential to Emit (TPY)
Diesel Fuel	NO _x	4.41	14.11	3.5
	CO	0.95	3.04	0.8
	VOC	0.36	1.15	0.3
	PM	0.31	0.99	0.2
	SO ₂	0.29	0.93	0.23
	HAPs	0.91	2.91	0.728
[1] Emissions factors obtained from AP-42, Table 3.3-1 and 3.3-2				

7 **DE Admin. Code** 1102, *Permits*, the emergency generator will emit more than 10 lbs per day of air contaminants. However, the generator has a standby power rating of 300 kW, which is below the 7 **DE**

Review MEMORANDUM

Draft/Proposed Permit: AQM-003/00115(Renewal 2)

Kuehne Chemical Company, Inc.

June 7, 2020

Page 31

Admin. Code 1102, Appendix A, 32.0, power rating of 450 kW and therefore is exempt from permitting. The original Title V Permit had the emergency generator in the permit and the Facility is performing the required maintenance and visible emission testing.

7 DE Admin. Code 1104, *Fuel Burning Equipment*, is applicable to this emergency generator because it has a heat input greater than 1,000,000 BTU per hour. This regulation requires that the owner or operator of the emergency generator not cause or allow the emission of particulate matter in excess of 0.3 pound per million BTU heat input, maximum two-hour average. The following calculation demonstrates particulate matter emissions at the one hour maximum firing rate when fired on natural gas.

$$\text{Maximum natural gas usage} = \left(\frac{3.2 \text{ MMBtu}}{\text{hr}} \right) \left(\frac{\text{ft}^3}{1,020 \text{ Btu}} \right) = 3,137 \frac{\text{ft}^3}{\text{hr}}$$

$$\text{Maximum particulate emission} = \left(\frac{\text{hr}}{3.2 \text{ MMBtu}} \right) \left(\frac{7.6 \text{ lbs}}{10^6 \text{ ft}^3} \right) \left(\frac{3,137 \text{ ft}^3}{\text{hr}} \right) = 0.00745 \frac{\text{lb}}{\text{MMBtu}}$$

where 7.6 lb/10⁶ ft³ is the particulate matter emission factor for natural gas from AP-42, and 1,020 Btu/ft³ is the maximum heat content of natural gas.

Compliance with the emission standard of **7 DE Admin. Code** 1104 can be consistently demonstrated while these emission units are fired on natural gas, shall be demonstrated with record keeping based upon the fuel fired, and be demonstrated by inspection.

7 DE Admin. Code 1108, *Sulfur Dioxide Emissions from Fuel Burning Equipment*, is applicable to this emission unit. This regulation was revised effective July 11, 2013. The revised standard for distillate fuel oil is prior to July 1, 2016 no person shall offer for sale, sell, deliver, or purchase any distillate fuel having a sulfur content greater than 0.3 percent by weight and on and after July 1, 2016, no person shall offer for sale, sell, deliver, or purchase any distillate fuel having a sulfur content greater than 15 ppm. In order to demonstrate compliance with this requirement, the Company shall maintain a fuel delivery receipt indicating the sulfur content of the fuel or certifying that the sulfur content of the fuel meets the standard.

7 DE Admin. Code 1114, *Visible Emissions*, is applicable to this emergency generator and requires that visible emissions from the emergency generator not exceed 20% opacity for an aggregate of more than three (3) minutes in any one (1) hour, or more than fifteen (15) minutes in any twenty-four (24) hour period. Compliance with this requirement can be demonstrated by the quarterly visible emissions testing requirements and by inspection and record review.

7 DE Admin. Code 1119, *Control of Odorous Air Contaminations*, is an applicable State Enforceable requirement for this unit and has been incorporated into the Title V Permit under Facility Wide Requirements. Compliance will be demonstrated by inspection and record review.

7 DE Admin. Code 1125, *Requirements for Preconstruction Review*, is not applicable to this emergency generator.

7 DE Admin. Code 1144, *Control of Stationary Generator Emissions*, applies this generator and is described in detail below:

Review MEMORANDUM

Draft/Proposed Permit: AQM-003/00115(Renewal 2)

Kuehne Chemical Company, Inc.

June 7, 2020

Page 32

Section 3 requires that the owner or operator shall operate the emergency generator in conformance with the generator manufacturer's instructions, such as following maintenance and operating requirements to help minimize emissions. This requirement is included in the permit.

Section 4 requires that no emergency generator shall be used for testing or maintenance purposes before 5 p.m. on a day which has a Ground Level Ozone Pollution Forecast or Particle Pollution Forecast of "Code Red" or "Code Orange" as announced by the Department with an exception for any day that such testing is required to meet National Fire Protection Association (NFPA) requirements. This requirement is included in the permit.

Section 5 requires that each shipment of diesel fuel or a biodiesel blend received for use in a generator on or after April 11, 2006 shall have a sulfur content equal to or less than 0.05% by weight. However, 40 CFR Part 60 Subpart IIII and 7 **DE Admin. Code** 1108 have a more restrictive sulfur content requirement of 0.0015%. Compliance with this requirement is demonstrated through the sulfur in fuel limits of 40 CFR Part 60 Subpart IIII and 7 **DE Admin. Code** 1108.

Section 6 requires the following:

- An owner shall monitor the monthly and yearly amounts of fuel, or fuels, consumed by their generators. Yearly fuel consumption shall be calculated and recorded each calendar month by recording (for each fuel) the current calendar month's fuel consumption and adding it to those of the previous eleven consecutive months. These requirements are included in the permit.
- A non-resettable hour metering device shall be used by an owner to continuously monitor the monthly and yearly operating hours for each of their generators. Yearly operating hours shall be calculated and recorded each calendar month by recording the current calendar month's operating hours and adding them to those of the previous eleven consecutive months. These requirements are included in the permit.
- Yearly operating hours during which testing or maintenance occurred shall be calculated and recorded each calendar month by recording the current calendar month's testing or maintenance hours and adding them to those of the previous eleven consecutive months. A brief description of each testing or maintenance performed shall also be recorded. These requirements are included in the permit.
- Except as provided for in 6.1.5 of this regulation, for each shipment of liquid fuel (other than liquefied petroleum gas), received for use in a generator, shipping certification shall be obtained from the fuel distributor which identifies:
 - The type of fuel delivered
 - The percentage of sulfur in the fuel (by weight dry basis), and the method used to determine the sulfur content.

As an alternative to 6.1.4 of this regulation, the owner may have the fuel in the generator's fuel tank certified by a third party laboratory, after each shipment of liquid fuel. This certification shall identify:

- the type of fuel delivered
- the percentage of sulfur in the fuel (by weight dry basis), and the method used to determine the sulfur content.

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 33

These requirements are included in the permit.

- The owner shall maintain each record required by 6.1 of this regulation for a minimum of five years after the date the record is made. The owner may retain hard copies (e.g., paper) or electronic copies (e.g., compact discs, computer disks, magnetic tape, etc.) of the records. An owner shall promptly provide the original or a copy of a record or records to the Department upon request. This requirement is included in the permit.

40 CFR Part 60 Subpart IIII, *Standards of Performance for Compression Ignition ICE*. This regulation requires that emergency generators with a standby power rating of 10kW or greater and installed after January 11, 2006 meet the requirements in Table 1. The generator was installed prior to 2006 and this regulation is not applicable.

40 CFR Part 63 Subpart ZZZZ, *National Emission Standards for HAPS for Stationary RICE*. Section 63.6585 exempts existing commercial emergency stationary RICE located at area sources of HAPs from the requirements of this subpart. The definition of commercial emergency stationary *RICE* means, "An emergency stationary RICE used in commercial establishments such as office buildings, hotels, stores, telecommunications facilities, restaurants, financial institutions such as banks, doctor's offices, and sports and performing arts facilities. Kuehne is not one of the listed establishments and is not required to comply with the regulation. The generators must meet the definition of an emergency generator in §63.6675, which includes operating according to the provisions specified in §63.6640(f). The generators can meet this requirement by either limiting maintenance checks to 100 hours a year, or by maintaining records indicating that federal, state, local government, insurance standards, or the manufacturer recommendations require maintenance and testing beyond 100 hours per year. The applicable requirements of 40 CFR Part 63 Subpart ZZZZ have been incorporated into the Title V Permit.

Changes to the Permit for Renewal 2:

Condition Number	Previous Condition	New Condition	Justification
Condition 3 Table 1 (f)(1)(ii)(A-F)		<u>Emission Limitations:</u> Emissions from air contaminants shall not exceed the following: A. Nitrogen Oxides (NO _x) emissions shall not exceed 14.11 lbs/hr and 3.5 tons per twelve (12)	Products of combustion were not in previous permit.

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 34

Condition Number	Previous Condition	New Condition	Justification
		month rolling period. B. Carbon Monoxide (CO) emissions shall not exceed 3.04 lbs/hr and 0.8 ton per twelve (12) month rolling period. C. Volatile Organic Compounds (VOC) emissions shall not exceed 1.15 lbs/hr and 0.3 ton per twelve (12) month rolling period. D. Particulate Matter (PM) emissions shall not exceed 0.99 lb/hr and 0.2 ton per twelve (12) month rolling period. E. Sulfur Dioxide (SO ₂) emissions shall not exceed 0.93	

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 35

Condition Number	Previous Condition	New Condition	Justification
		lb/hr and 0.23 ton per twelve (12) month rolling period. F. Hazardous Air Pollutants (HAP) emissions shall not exceed 2.91 lbs/hr and 0.728 ton per twelve (12) month rolling period.	
Condition 3 Table 1 (f)(1)(iv)(A)(4)	Distillate fuel that meets the requirements of 3.2.8.3.1 that is purchased and received for use on or before June 30, 2017 may be used after June 30, 2017.	Distillate fuel that meets the requirements of Condition 3 Table 1(f)(1)(iv)(3) that is purchased and received for use on or before June 30, 2017 may be used after June 30, 2017.	Changed the reference within the permit to reference Condition 3 Table 1(f)(1)(iv)(3). It is unclear what the previous reference was referring to. The fuel requirements are from 7 DE Admin. Code 1108.

FACILITY WIDE REQUIREMENTS**Emission Unit e**

Facility Wide Requirements

The facility-wide potential to emit (PTE) is provided below. The emission factors were based upon a combination of AP-42 Table, stack test, and manufacturer literature. The PTE for both boilers is based

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 36

upon 8,760 hours of operation. For the emergency generator, the PTE was calculated using 500 hours per year. This value is an EPA appropriate default assumption for estimating the number of hours that an emergency generator could be expected to operate under worst-case conditions. This is considered an "inherent constraint" that allows the use of 500 hours rather than the more traditional 8,760 hours. The Facility is considered major because of the Chlor-Alkali Process. In this process, the by-product, hydrogen, is produced and is over the 100 tons per year limit, other air pollutant major source threshold. Hence, the Facility is a major source for Hydrogen and is a Title V facility.

Facility Wide PTE				
Pollutant	Cleaver Brook Boiler #3 (TPY)	Superior Boiler #2 (TPY)	Emergency Generator (TPY)	Total (TPY)
NO_x	7.75	3.31	3.5	14.56
CO	5.41	2.31	0.8	8.52
VOC	0.4	0.15	0.3	0.85
PM	0.5	0.21	0.2	0.91
SO₂	0.04	0.02	0.23	0.29
HAP	0.13	0.05	0.728	0.908
Chlor Alkali Process (Bygas Scrubber)			Chlorine (Cl)	0.05
Chlor Alkali Process (Off-Spec Scrubber)			Chlorine (Cl)	0.56
Chlor Alkali Process			Hydrogen (H)	1,204

1990 CAAA, Section 112(r)

Hydrogen [*CAS #: 1333-74-0*] is listed as one of the 63 regulated flammable substances under the Accidental Release Prevention Requirements under Section 112(r) of the Clean Air Act { *Table 3, 40 CFR §68.130*}. The threshold quantity for a hydrogen release is listed at 10,000 pounds. As such, hydrogen is considered an air pollutant and a facility is considered a major source when it has the potential to emit over 100 tons per year as per 7 **DE Admin. Code** 1130, Section 2.0 Definitions, Subpart 2.0. The Regulation states, "A major stationary source of air pollutants, as defined in section 302 of the Act, that directly emits, or has the potential to emit, 100 tpy or more of any air pollutant subject to regulation (including any major source of fugitive emissions of any such pollutant, as determined by rule by the Administrator). The fugitive emissions of a stationary source shall not be considered in determining whether it is a major stationary source for the purposes of section 302(j) of the Act, unless the source belongs to one of the following categories of stationary source:". Per section 302, subpart (j) of the Act, a major source is defined as, "Except as otherwise expressly provided, the terms "major stationary source" and "major emitting facility" mean any stationary facility or source of air pollutants which directly emits, or has the potential to emit, one hundred tons per year or more of any air pollutant (including any major emitting facility or source of fugitive emissions of any such pollutant, as determined by rule by the Administrator)." Kuehne is subject to the Act, Section 112(r). In conclusion, Kuehne is a major source because the PTE of a regulated air pollutant, hydrogen, is over 100 tons per year. Kuehne is limiting the amount of hydrogen released to the atmosphere to 275 pounds per hour and 1,204 tons per twelve (12) month rolling period. These limits have been included in the permit.

The facility has also been registered in compliance with the State of Delaware "Regulations for the

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 37

Management of Extremely Hazardous Substances”

The high hazard area in chlorine manufacturing include the following:

- Electrolysis cell
- Chlorine Cooling

1990 CAAA, Title VI

40 CFR Part 82, Refrigeration equipment containing a refrigerant charge greater than 50 pounds.

Kuehne has one process water chiller that uses R-134a as a refrigerant. The charge is 134 pounds for circuit 1 and 143 pounds for circuit 2.

Compliance Schedule

N/A

Permit Shield

The Company has requested a permit shield. The permit shield option of 7 **DE Admin Code** 1130, Section 6.6 provides that compliance with the terms and conditions of the permit shall constitute compliance with 7 Del. C., Chapter 60, for the discharge of any air contaminant specifically identified in the permit application as of the date of permit issuance. The permit contains the standard permit shield language.

Condition 6 – Table 1	
Emission Unit	Applicable Requirement
1. Emission Point 01- Boiler 3	i. 7 DE Admin. Code 1104 Section 2.1
	ii. 7 DE Admin. Code 1108 Section 2.3
	iii. 7 DE Admin. Code 1114 Section 2.1
	iv. 7 DE Admin. Code 1119 Section 2.1
2. Emission Point 02- Boiler 2	i. 7 DE Admin. Code 1104 Section 2.1
	ii. 7 DE Admin. Code 1108 Section 2.3
	iii. 7 DE Admin. Code 1114 Section 2.1
	iv. 7 DE Admin. Code 1119 Section 2.1
3. Emission Point 03- electrolyzer cells, reactors, and scrubbers	i. 7 DE Admin. Code 1114 Section 2.1
	ii. 7 DE Admin. Code 1119 Section 2.1
4. Emission Point 04- Chlorine Storage and Filling	i. 7 DE Admin. Code 1119 Section 2.1
	ii. 7 DE Admin. Code 1121 Section 13
5. Emission Point 06- Emergency Generator	i. 7 DE Admin. Code 1104 Section 2.1
	ii. 7 DE Admin. Code 1108 Section 2.3
	iii. 7 DE Admin. Code 1114 Section 2.3
	iv. 7 DE Admin. Code 1119 Section 2.1

Review MEMORANDUM**Draft/Proposed Permit: AQM-003/00115(Renewal 2)****Kuehne Chemical Company, Inc.**

June 7, 2020

Page 38

Condition 6 – Table 1	
Emission Unit	Applicable Requirement
	v. 7 DE Admin. Code 1144 Section 3,4,5 and 6

Compliance Assurance Monitoring (CAM) Rule

For an emission unit to be subject to 40 CFR Part 64 (the CAM Rule) an emission unit must meet the following three (3) criteria: 1) The unit must be subject to an emission limitation or standard for the applicable regulated air pollutant; 2) The unit must use a control device to achieve compliance with any such emission limitation or standard; and 3) The unit must have potential pre-control device emissions of the applicable regulated air pollutant greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source.

The first step in investigating the CAM rule was to determine which emission units have a control device. The second step was to determine the potential pre-control emissions for that emission unit. The final step was to determine if the control device was inherent process equipment. The Facility is a major source for hydrogen which is a byproduct of the chlor-alkali process. The process is not subject to an emission limitation or standard, does not use a control device to control the hydrogen emissions, and the PTE is greater than the 100 tons per year requirement. The chlor-alkali process does not meet all three (3) steps in the CAM requirements; hence, a CAM Plan is not required.

ADM:KAM:AJM

F:\EngAndCompliance\AJM\AJM19123.doc

pc: Dover Title V File
Angela D. Marconi, P.E., BCEE
Karen A. Mattio, P.E.
Alexa Murphy

Documents				
	Dated	File Number	DNREctory DEN Permit I.D.	DNREctory Document Handle
Application	7/25/19			44226
Permit: AQM- 003/00115(Renewal 1)(Revision 2)		CJB17070		
Permit: AQM- 003/00115(Renewal 1) Technical Memo	6/16/15	CJB15073		12443

**TITLE V PERMIT REVIEW
PERMIT APPLICATION CHECKLIST**

STATE: Delaware

SOURCE NAME: Kuehne Chemical Company, Inc.

AFS PLANT ID:10-003-00115

SOURCE TYPE: Title V

PERMIT #: AQM-003/00115(Renewal 2)

SIC #:

SOURCE LOCATION (COUNTY): New Castle County

I. Is this a general permit? If yes, which one? (Go to Part III).....**YES/NO**
If no, go to Part II.

II. PROGRAM IMPLEMENTATION

Does this permit contain "streamlined limits" (per White Paper #2).....**YES/NO**

Does this permit contain requirements/provisions for:

1. Periodic Monitoring.....**YES/NO**

2. NESHAP/MACT (if so, list subparts).....**YES/NO**

Subpart ZZZZ

3. Case-by-Case MACT.....**YES/NO**

4. NSPS (if so, list subparts).....**YES/NO**

Subpart Dc

5. PSD/NSR.....**YES/NO** (PSD/NSR)

6. Acid Rain Phase II Permit.....**YES/NO**

7. Potential-to-Emit Limits.....**YES/NO**

8. Consent Order Agreement.....**YES/NO**

9. NO_x RACT.....**YES/NO**

10. VOC RACT.....**YES/NO**

11. Does permit application contain confidential information?.....**YES/NO**

III. COMPLIANCE STATUS

Is the Source subject to a compliance schedule?.....**YES/NO**

IV. EPA REVIEW

1. Do you want EPA to review all or part of this permit?.....**YES/NO**

2. Are there other issues you would like to call to EPA's attention?.....**YES/NO**

STATE CONTACT:Angela D. Marconi, P.E., BCEE DATE: Proposed Issue Date

PHONE: 302-323-4542

(for EPA use only) dated entered
13sep96cklst.app

init

action

ver

State of Delaware
Department of Natural Resources and Environmental Control
Division of Air Quality

State Street Commons
100 W. Water Street, Suite 6A
Dover, DE 19904

7 DE Admin. Code 1130 (Title V) Operating Permit
Facility I.D. Number: 1000300115
Draft/Proposed **Permit Number: AQM – 003/00115 (Renewal 2)**

Effective Date: Expiration Date:
Renewal Application Due Date:

Pursuant to 7 **Del. C.**, Ch 60, Section 6003, 7 **DE Admin. Code** 1102 Section 2.0, and 7 **DE Admin. Code** 1130 Section 7.2, approval by the Department of Natural Resources and Environmental Control ("Department") is hereby granted to operate the emission units listed in Condition 1 of this permit subject to the terms and conditions of this permit.

This approval is granted to:

Permittee/Owner (hereafter referred to as "Company/Owner")	Operator (hereafter referred to as "Operator")
Kuehne Chemical Company, Inc. 1645 River Road New Castle, Delaware 19720 Responsible Official: Alan Rogers Title: Plant Manager	Same
Plant Site Location (hereafter referred to as "Facility")	Plant Mailing Address
Same	Same

The nature of business of the Facility is Chemical Manufacturing Facility. The Standard Industrial Classification code is 2812. The North American Industry Classification System code is 325180.

Alexa Murphy / Date
Engineer
Engineering & Compliance Branch
(302) 323-4542

Angela D. Marconi, P.E., BCEE / Date
Program Manager
Engineering & Compliance Branch
(302) 323-4542

Permit: **AQM-003/00115 (Renewal 2)**

Kuehne Chemical Company

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Date x, 202x

Page 2

<u>Table of Contents</u>		
<u>Condition</u>	<u>Title</u>	<u>Page</u>
1	Emission Unit Identification	3
a	Emission Units	3
b	7 DE Admin. Code 1102 Permits	3
2	General Requirements	4
a	Certification	4
b	Compliance	4
c	Confidentiality	6
d	Construction, Installation, or Alteration	6
e	Definitions/Abbreviations	6
f	Duty to Supplement	7
g	Emissions Trading	7
h	Fees	7
i	Inspection and Entry Requirements	7
j	Permit and Application Consultation	8
k	Permit Availability	8
l	Permit Renewal	8
m	Permit Revision and Termination	9
n	Permit Transfer	10
o	Property Rights	10
p	Risk Management Plan	10
q	Protection of Stratospheric Ozone	11
r	Severability	12
3	Specific Requirements	12
a	Emission Limitations/Standards and/or Operational Limitations/Standards	12
b	Compliance Determination Methodology (Monitoring/Testing, QA/QC Procedures as applicable, and Record Keeping) 1. Specific Requirements 2. General Record Keeping Requirements	12
c	Reporting and Compliance Certification 1. Specific Reporting/Certification Requirements 2. General Reporting Requirements 3. General Compliance Certification Requirements	13
3- Table 1	Specific Requirements	17
a	Emission Point 01 , Boiler # 3, 15.00 MMBtu/hr Cleaver Brooks boiler fired on hydrogen gas as primary fuel and natural gas as secondary fuel	17
b	Emission Point 02 , Boiler # 2, 6.402 MMBtu/hr, Superior Boiler fired on hydrogen gas as primary fuel and natural gas as secondary fuel	23
c	Emission Point 04 , Chlorine Storage and Filling Unit	28
d	Emission Point 03 , 24 Electrolyzer chlorine cells with north off-spec tank scrubber and south bygas tank scrubber [ID 18-14U]	29
e	Facility Wide Requirements	39

Permit: AQM-003/00115 (Renewal 2)

Kuehne Chemical Company

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Date x, 202x

Page 3

<u>Table of Contents</u>		
<u>Condition</u>	<u>Title</u>	<u>Page</u>
	<i>Emission Point 06, Emergency Generator -300KW</i>	47
4	Operational Flexibility	53
5	Compliance Schedule	53
6	Permit Shield	53
	Attachment "A"- Revision History	55
	Appendix A – Insignificant Activities	56

Condition 1- Emission Unit Identification

[Reference: 7 DE Admin. Code 1130 Section 3.3 dated 11/15/93]

a. Emission Units Information.

EMISSION UNIT ID	EMISSION POINT ID	EMISSION UNIT DESCRIPTION
Emission Unit a	EP 01	<i>Boiler # 3, 15.00 MMBtu/hr Cleaver Brooks Boiler fired on Hydrogen Gas as primary fuel and Natural Gas as secondary fuel</i>
Emission Unit b	EP 02	<i>Boiler #2, 6.402 MMBtu/hr, Superior Hydrogen/Natural Gas fired Boiler as Standby for Boiler # 3</i>
Emission Unit c	EP 04	<i>Chlorine Storage and Filling Equipment</i>
Emission Unit d	EP 03	<i>Twenty-four (24) electrolyzer chlorine cells with north off-spec tank scrubber and south bygas tank scrubber [ID: 18-14U]</i>
Emission Unit e	-	<i>Facility Wide Requirements</i>
Emission Unit f	EP 06	<i>One (1) Emergency Generator-No. 2 Fuel Oil Fired, 300 KW</i>

b. 7 DE Admin. Code 1102 Permit Identification.

This table identifies the underlying permits whose provisions have been incorporated into this Title V permit and specifies the reference number that will be used to identify the source of the underlying permit condition throughout this Title V permit.

Reference Number	Emission Unit Description
APC-2007/0064-O	Boiler 3, 21 MMBtu/hr (de-rated to 15 MMBtu/hr), Cleaver Brooks Dual fired, Natural Gas/Hydrogen boiler.
APC-2015/0088-C/O-A1	Replacement Scrubber for Chlorine Electrolyzer Process

Permit: AQM-003/00115 (Renewal 2)

Kuehne Chemical Company

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Date x, 202x

Page 4

Reference Number	Emission Unit Description
APC-2000/0320-A3	24 Electrolizer Cells, Boilers 6.3 MMBtu/hr (NG/Hydrogen), and 300 KW Emergency Generator
APC-1982/0461-A1	Chlorine Storage and Filling Equipment

Condition 2 - General Requirements

a. Certification.

1. Each document submitted to the Department/EPA as required by this permit shall be certified by a Responsible Official as to truth, accuracy, and completeness. Such certification shall be signed by a Responsible Official and shall contain the following language: "I certify, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete." [Reference: 7 **DE Admin. Code** 1130 Section 5.6 dated 11/15/93 and 6.3.1 dated 12/11/00]
2. Any report of deviations required under Conditions 3(c)(2)(ii) or 3(c)(2)(iii) that must be submitted to the Department within ten calendar days of discovery of the deviation, may be submitted in the first instance without a certification provided a certification meeting the requirements of Condition 2(a)(1) is submitted to the Department within ten calendar days thereafter, together with any corrected or supplemental information required concerning the deviation. [Reference: 7 **DE Admin. Code** 1130 Section 6.1.3.3.4 dated 12/11/00]
3. Each document submitted to the Department/EPA pursuant to this permit shall be sent to the following addresses except as noted in Condition 2(a)(4):

State of Delaware – DNREC Division of Air Quality State Street Commons 100 W. Water Street, Suite 6A Dover, DE 19904 ATTN: Division Director	U.S. Environmental Protection Agency Region III Enforcement and Compliance Assurance Division (3ED21) 1650 Arch Street Philadelphia, PA 19103-2029
No. of Originals: <u>1</u> & No. of Copies: <u>1</u>	No. of Copies: <u>1</u>

4. In lieu of submitting a physical copy of the Compliance Certification report specified in Condition 3(c)(3) of this permit to the EPA, the Owner and/or Operator may, and is encouraged to, submit an electronic copy of the report to R3_APD_Permits@epa.gov as a PDF document. The signed original annual General Certification report must be submitted to the Department at the address in Condition 2(a)(3).

b. Compliance.

1. The Owner and/or Operator shall comply with all terms and conditions of this permit. Any noncompliance with this permit constitutes a violation of the applicable requirements under the Clean Air Act, and/or 7 **DE Admin. Code** 1100, and is grounds for an enforcement action; for

Permit: AQM-003/00115 (Renewal 2)

Kuehne Chemical Company

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Date x, 202x

Page 5

Condition 2- General Requirement (Cont.)

permit termination, revocation, and reissuance or modification; or for denial of a permit renewal. [Reference: 7 DE Admin. Code 1130 Section 6.1.7.1 dated 12/11/00]

2.
 - i. For applicable requirements with which the source is in compliance, the Owner and/or Operator shall continue to comply with such requirements. [Reference: 7 DE Admin. Code 1130 Sections 5.4.8.3.1 dated 11/15/93 and 6.3.3 dated 12/11/00]
 - ii. For applicable requirements that will become effective during the term of this permit, the Owner and/or Operator shall meet such requirements on a timely basis unless a more detailed schedule is expressly required by the applicable requirement. [Reference: 7 DE Admin. Code 1130 Sections 5.4.8.3.2 dated 11/15/93 and 6.3.3 dated 12/11/00]
3. Nothing in Condition 2(b)(1) of this permit shall be construed to preclude the Owner and/or Operator from making changes consistent with Condition 2(m)(3) [Minor Permit Modifications] or Condition 4(a) [Operational Flexibility]. [Reference: 7 DE Admin. Code 1130 Sections 6.8 dated 12/11/00 and 7.5.1.5 dated 12/11/00]
4. The fact that it would have been necessary to halt or reduce an activity in order to maintain compliance with the terms and conditions of this permit shall not constitute a defense for the Owner and/or Operator in any enforcement action. Nothing in this permit shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in assessing penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continuing operations. [Reference: 7 DE Admin. Code 1130 Section 6.1.7.2 dated 12/11/00]
5. The Owner and/or Operator may seek to establish that noncompliance with a technology-based emission limitation under this permit was due to an emergency or malfunction if both the record keeping requirements in Condition 3(b)(2)(iii) and the reporting requirements in Condition 3(c)(2)(ii)(A) are satisfied. [Reference: 7 DE Admin. Code 1130 Section 6.7.2 dated 12/11/00]
6.
 - i. In any enforcement proceeding, the Owner and/or Operator seeking to establish the occurrence of an emergency or malfunction has the burden of proof. [Reference: 7 DE Admin. Code 1130 Section 6.7.4 dated 12/11/00]
 - ii. The provisions of 7 DE Admin. Code 1130 pertaining to Emergency/Malfunctions as defined in Conditions Nos. 2(b)(5); 2(b)(6); 3(b)(2)(iii); and 3(c)(2)(ii)(A) of this permit are in addition to any emergency or malfunction provision contained in any applicable requirement. [Reference: 7 DE Admin. Code 1130 Section 6.7.5 dated 12/11/00]
7. Reserved.
8. If required, the schedule of compliance in Condition 5 of this permit is supplemental to and shall not sanction noncompliance with the applicable requirements upon which it is based. [Reference: 7 DE Admin. Code 1130 Section 5.4.8.3.3 dated 11/15/93]
9. Nothing in this permit shall be interpreted to preclude the use of any credible evidence to demonstrate noncompliance with any term of this permit. [Reference: 62 FR 8314 dated 2/24/97]
10. All terms and conditions of this permit are enforceable by the Department and by the U.S. Environmental Protection Agency ("EPA") unless specifically designated as "State Enforceable Only" [Reference: 7 DE Admin. Code 1130 Section 6.2.1 dated 12/11/00]

Permit: AQM-003/00115 (Renewal 2)

Kuehne Chemical Company

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Date x, 202x

Page 6

Condition 2- General Requirement (Cont.)

- c. Confidentiality.** The Owner and/or Operator may make a claim of confidentiality for any information or records submitted to the Department. However, by submitting a permit application, the Owner and/or Operator waives any right to confidentiality as to the contents of its permit, and the permit contents will not be entitled to protection under 7 Del. C., Ch 60, § 6014. [Reference: 7 DE Admin. Code 1130 Sections 5.1.4 dated 11/15/93, 6.1.3.3.5 dated 12/11/00, and 6.1.7.5 dated 12/11/00]
1. Confidential information shall meet the requirements of 7 Del. C., Ch 60, § 6014, and 29 Del. C., Ch 100. [Reference: 7 DE Admin. Code 1130 Section 5.1.4 dated 11/15/93]
 2. If the Owner and/or Operator submits information to the Department under a claim of confidentiality, the Owner and/or Operator shall also submit a copy of such information directly to the EPA, if the Department requests that the Owner and/or Operator do so. [Reference: 7 DE Admin. Code 1130 Section 5.1.4 dated 11/15/93]
- d. Construction, Installation, or Alteration.** The Owner and/or Operator shall not initiate construction, installation, or alteration of any equipment or facility or air contaminant control device which will emit or prevent the emission of an air contaminant prior to submitting an application to the Department under 7 DE Admin. Code 1102, and, when applicable, 7 DE Admin. Code No. 1125, and receiving approval of such application from the Department; except as exempted in 7 DE Admin. Code 1102 Section 2.2. [Reference: 7 DE Admin. Code 1102 Section 2.1 dated 6/1/97 and 7 DE Admin. Code 1130 Section 7.2.3 dated 12/11/00]
- e. Definitions/Abbreviations.** Except as specifically provided for below, for the purposes of this permit, terms used herein shall have the same meaning accorded to them under the applicable requirements of the Clean Air Act and 7 DE Admin. Code 1100.
1. "Act" means the Clean Air Act, as amended by the Clean Air Act Amendments of November 15, 1990, 42 U.S.C. 7401 *et seq.* [Reference: 7 DE Admin. Code 1130 Section 2 dated 11/15/93]
 2. "AP-42" means the Compilation of Air Pollutant Emission Factors, Fifth Edition, AP-42, dated January 15, 1995, as amended with Supplements and Updates.
 3. "CFR" means Code of Federal Regulations.
 4. "Emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the sources, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under this permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error. [Reference: 7 DE Admin. Code 1130 Section 6.7.1 dated 12/11/00]
 5. "Malfunction" means any sudden and unavoidable failure of air pollution control equipment or of a process to operate in a normal or usual manner, and that causes the source to exceed a technology-based emission limitation under this permit, due to unavoidable increases in emissions attributable to the malfunction. A malfunction shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error. [Reference: 7 DE Admin. Code 1130 Section 6.7.1 dated 12/11/00]
 6. "Number 2 fuel oil" and "No. 2 fuel oil" means distillate oil.
 7. "Reg." and "Regulation" mean the regulations covered under 7 DE Admin. Code 1100.

Permit: AQM-003/00115 (Renewal 2)

Kuehne Chemical Company

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Date x, 202x

Page 7

Condition 2- General Requirement (Cont.)

8. "Regulations Governing the Control of Air Pollution" means the codification of those regulations enacted by the Delaware Department of Natural Resources and Environmental Control, in accordance with 7 Del. C., Ch 60, § 6010.

f. Duty to Supplement.

1. Upon becoming aware of a failure to submit any relevant facts or a submittal of incorrect information in any permit application, the Owner and/or Operator shall promptly submit to the Department such supplementary facts or corrected information. *[Reference: 7 DE Admin. Code 1130 Section 5.2 dated 11/15/93]*
2. The Owner and/or Operator shall promptly submit to the Department information as necessary to address any requirements that become applicable to the source after the date it filed a complete application but prior to the release of a corresponding draft permit. *[Reference: 7 DE Admin. Code 1130 Section 5.2 dated 11/15/93]*
3. The Owner and/or Operator shall furnish to the Department, upon receipt of a written request and within a reasonable time specified by the Department:
 - i. Any information that the Department determines is reasonably necessary to evaluate or take final action on any permit application submitted in accordance with Condition 2(l) or 2(m) of this permit. The Owner and/or Operator may request an extension to the deadline the Department may impose on the response for such information. *[Reference: 7 DE Admin. Code 1130 Section 5.1.2.3 dated 11/15/93]*
 - ii. Any information that the Department requests to determine whether cause exists to modify, terminate, or revoke this permit, or to determine compliance with the terms and conditions of this permit. *[Reference: 7 DE Admin. Code 1130 Section 6.1.7.5 dated 12/11/00]*
 - iii. Copies of any records required to be kept by this permit. *[Reference: 7 DE Admin. Code 1130 Section 6.1.7.5.7 dated 12/11/00]*

- g. Emission Trading.** No permit revision shall be required under any approved economic incentives, marketable permits, emissions trading, and other similar programs or processes for changes that are provided for in the permit. *[Reference: 7 DE Admin. Code 1130 Section 6.1.9 dated 12/11/00]*

- h. Fees.** The Owner and/or Operator shall pay fees to the Department consistent with the fee schedule established by the Delaware General Assembly. *[Reference: 7 DE Admin. Code 1130 Section 6.1.8 dated 12/11/00 and Section 9.0 dated 11/15/93]*

- i. Inspection and Entry Requirements.** Upon presentation of identification, the Owner and/or Operator shall allow authorized officials of the Department to perform the following:
1. Enter upon the Owner and/or Operator's premises where a source is located or an emissions-related activity is conducted, or where records that must be kept under the terms and conditions of this permit are located. *[Reference: 7 DE Admin. Code 1130 Section 6.3.2.1 dated 12/11/00]*
 2. Have access to and copy, at reasonable times, any records that must be kept under the terms and conditions of this permit. *[Reference: 7 DE Admin. Code 1130 Section 6.3.2.2 dated 12/11/00]*
 3. Inspect, at reasonable times and using reasonable safety practices, any facility, equipment (including monitoring and air pollution control equipment), practice, or operation regulated or required under this permit. *[Reference: 7 DE Admin. Code 1130 Section 6.3.2.3 dated 12/11/00]*

Permit: AQM-003/00115 (Renewal 2)

Kuehne Chemical Company

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Date x, 202x

Page 8

Condition 2- General Requirement (Cont.)

4. Sample or monitor, at reasonable times, any substance or parameter for the purpose of assuring compliance with this permit or any applicable requirement. [Reference: 7 DE Admin. Code 1130 Section 6.3.2.4 dated 12/11/00]
- j. **Permit and Application Consultation.** The Owner and/or Operator is encouraged to consult with Department personnel before submitting an application or, at any other time, concerning the operation, construction, expansion, or modification of any installation, or concerning the required pollution control devices or system, the efficiency of such devices or system, or the pollution problem related to the installation. [Reference: 7 DE Admin. Code 1130 Section 5.1.1.7 dated 11/15/93]
- k. **Permit Availability.** The Owner and/or Operator shall have available at the facility at all times a copy of this permit and shall provide a copy of this permit to the Department upon request. [Reference: 7 DE Admin. Code 1102 Section 8.1 dated 6/1/97]
- l. **Permit Renewal.** This permit expires on *<maximum is no more than the issue date plus 5 years>* except as provided in Condition 2(l)(4) below. [Reference: 7 DE Admin. Code 1130 Section 6.1.2 dated 12/11/00]
 1. Applications for permit renewal shall be subject to the same procedural requirements, including those for public participation, affected state comment, and EPA review, that apply to initial permit issuance under 7 DE Admin. Code 1130 Section 7.1, except that an application for permit renewal may address only those portions of the permit that the Department determines require revision, supplementing, or deletion, incorporating the remaining permit terms by Reference: from the previous permit. The Department may similarly, in issuing a draft renewal permit or proposed renewal permit, specify only those portions that will be revised, supplemented, or deleted, incorporating the remaining permit terms by Reference:.. [Reference: 7 DE Admin. Code 1130 Section 7.3.1 dated 12/11/00]
 2. The Owner and/or Operator's right to operate shall cease upon the expiration date unless a timely and complete renewal application has been submitted to the Department *<date renewal application is due; no later than 12 months prior to the expiration date of the permit>*. [Reference: 7 DE Admin. Code 1130 Section 7.3.2 dated 12/11/00]
 3. The Department shall review each application for completeness and shall inform the applicant within 60 days of receipt if the application is incomplete. Unless the Department requests additional information or otherwise notifies the applicant of incompleteness within 60 days of an application, an application will be deemed complete if it contains the information required by the application form and 7 DE Admin. Code 1130 Section 5.4. [Reference: 7 DE Admin. Code 1130 Section 5.1.2.1 dated 11/15/93]
 4. If a timely and complete application for a permit renewal is submitted to the Department pursuant to 7 DE Admin. Code 1130, Section 5.1.2.4 (dated 11/15/93) and Section 7.3.1 (dated 12/11/00) and the Department, through no fault of the Owner and/or Operator, fails to take final action to issue or deny the renewal permit before the end of the term of this permit, then this permit shall not expire until the renewal permit has been issued or denied, and any permit shield granted for the permit shall continue in effect during that time. [Reference: 7 DE Admin. Code 1130 Section 7.3.3 dated 12/11/00]

Permit: AQM-003/00115 (Renewal 2)

Kuehne Chemical Company

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Date x, 202x

Page 9

Condition 2- General Requirement (Cont.)

m. Permit Revision and Termination.

1.
 - i. This permit may be modified, revoked, reopened, and reissued, or terminated for cause. *[Reference: 7 DE Admin. Code 1130 Section 6.1.7.3 dated 12/11/00]*
 - ii. Except as provided under Condition 2(m)(3) ["Minor Permit Modification"], the filing of a request by the Owner and/or Operator for a permit modification, revocation and reissuance, or termination, or of a modification of planned changes or anticipated noncompliance does not stay any term or condition of this permit. *[Reference: 7 DE Admin. Code 1130 Section 6.1.7.3 dated 12/11/00 and 7.5.1.5 dated 12/11/00]*
2. "Administrative Permit Amendment." When required, the Owner and/or Operator shall submit to the Department a request for an administrative permit amendment in accordance with **7 DE Admin. Code 1130 Section 7.4.** *[Reference: 7 DE Admin. Code 1130 Section 7.4 dated 12/11/00]*
3. "Minor Permit Modification." When required, the Owner and/or Operator shall submit to the Department an application for a minor permit modification in accordance with **7 DE Admin. Code 1130 Section 7.5.1 and 7.5.2.** *[Reference: 7 DE Admin. Code 1130 Section 7.5.1 dated 12/11/00 and 7.5.2 dated 12/11/00]*
 - i. For a minor permit modification, during the period of time between the time the Owner and/or Operator makes the change or changes proposed in the minor permit modification application and the time that the Department takes action on the application, the Owner and/or Operator shall comply with both the applicable requirements governing the change and the proposed permit terms and conditions. During this period the Owner and/or Operator, at its own risk, need not comply with the existing terms and conditions of this permit that it seeks to modify. *[Reference: 7 DE Admin. Code 1130 Section 7.5.1.5 dated 12/11/00 and 7.5.2.5 dated 12/11/00]*
 - ii. If the Owner and/or Operator fail to comply with its proposed permit terms and conditions during this time period, the existing terms and conditions of this permit may be enforced against the Owner and/or Operator. *[Reference: 7 DE Admin. Code 1130 Section 7.5.1.5 dated 12/11/00 and 7.5.2.5 dated 12/11/00]*
4. "Significant Permit Modification." When required, the Owner and/or Operator shall submit to the Department an application for a significant permit modification in accordance with **7 DE Admin. Code 1130 Section 7.5.3.** *[Reference: 7 DE Admin. Code 1130 Section 7.5.3 dated 12/11/00]*
5.
 - i. When the Owner and/or Operator is required to meet the requirements under Section 112(g) of the Act or to obtain a preconstruction permit under **7 DE Admin. Code 1100**, the Owner and/or Operator shall file a complete application to revise this permit within 12 months of commencing operation of the construction or modification. *[Reference: 7 DE Admin. Code 1130 Section 5.1.1.4 dated 11/15/93]*
 - ii. When the Owner and/or Operator is required to obtain a preconstruction permit, the Owner and/or Operator may submit an application to revise this permit for concurrent processing. The revision request for this permit when submitted for concurrent processing shall be submitted to the Department with the Owner and/or Operator's preconstruction review application or at such later time as the Department may allow. Where this permit would prohibit such construction or change in operation, the Owner and/or Operator shall obtain a

Permit: AQM-003/00115 (Renewal 2)

Kuehne Chemical Company

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Date x, 202x

Page 10

Condition 2- General Requirement (Cont.)

permit revision before commencing operation. [Reference: 7 DE Admin. Code 1102 Sections 11.2.10, 11.5 and 12.4, dated 6/11/06, and 7 DE Admin. Code 1130 Section 5.1.1.4 dated 11/15/93]

- iii. Where an application is not submitted for concurrent processing, the Owner and/or Operator shall obtain an operating permit under 7 DE Admin. Code 1100 prior to commencing operation of the construction or modification to cover the period between the date operation is commenced and until such time as operation is approved under 7 DE Admin. Code 1130. [Reference: 7 DE Admin. Code 1102 Section 2.1 dated 6/11/06]
6. "Permit Termination." The Owner and/or Operator may at any time apply for termination of this permit in accordance with 7 DE Admin. Code 1130 Section 7.8.4 or Section 7.8.5. [Reference: 7 DE Admin. Code 1130 Sections 7.8.4 dated 12/11/00 and 7.8.5 dated 12/11/00]

n. Permit Transfer.

1. A change in ownership or operational control of this facility shall be treated as an administrative permit amendment where the Department has determined that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new owner has been submitted to the Department. [Reference: 7 DE Admin. Code 1130 Section 7.4.1.4 dated 12/11/00]
2. In addition to any written agreement submitted by the Owner and/or Operator in accordance with Condition 2(n)(1), the Owner and/or Operator shall have on file at the Department a statement meeting the requirements of 7 Del. C., Ch 79, Section 7902. *This permit condition is state enforceable only.* [Reference: 7 Del. C., Ch 79 Section 7902 dated 8/28/2007]
3. The written agreement required in Condition 2(n)(1) of this permit shall be provided to the Department within a minimum of 30 calendar days prior to the specific date for transfer and shall indicate that the transfer is agreeable to both the current and new owner. [Reference: 7 DE Admin. Code 1102 Section 7.1 dated 6/1/97]

- o. Property Rights.** This permit does not convey any property rights of any sort, or any exclusive privilege. [Reference: 7 DE Admin. Code 1130 Section 6.1.7.4 dated 12/11/00]

p. Risk Management Plan Submissions.

1. In the event this stationary source, as defined in the State of Delaware 7 DE Admin. Code 1201 "Accidental Release Prevention Regulation" Section 4.0, is subject to or becomes subject to Section 5.0 of 7 DE Admin. Code 1201 (as amended March 11, 2006), the owner or operator shall submit a risk management plan (RMP) to the Environmental Protection Agency's RMP Reporting Center by the date specified in Section 5.10 and required revisions as specified in Section 5.190. A certification statement shall also be submitted as mandated by Section 5.185. [Reference: 7 DE Admin. Code 1130 Section 6.1.4 dated 12/11/00, 7 DE Admin. Code 1201 as amended March 11, 2006 and Delaware; Approval of Accidental Release Prevention Program, Federal Register Vol. 6, No. 11 pages 30818-22 dated June 8, 2001]
2. If this stationary source, as defined in 7 DE Admin. Code 1201 Section 4.0, is not subject to Section 5.0 but is subject or becomes subject to Section 6.0 (as amended March 11, 2006), the owner or operator shall submit a Delaware RMP to the State of Delaware's Accidental Release Prevention group by the date as specified in Section 6.6.10 and required revisions as specified by Section 6.6.1. *Note: State enforceable only.* [Reference: 7 DE Admin. Code 1201 as amended March 11, 2006]

Permit: AQM-003/00115 (Renewal 2)

Kuehne Chemical Company

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Date x, 202x

Page 11

Condition 2- General Requirement (Cont.)

q. Protection of Stratospheric Ozone.

When applicable, this Facility shall comply with the following requirements: *[Reference: 40 CFR Part 82 "Protection of Stratospheric Ozone" revised as of 7/1/97 and 7 DE Admin. Code 1130 Section 2.0 dated 11/15/93]*

1. The permittee shall comply with the standards for labeling of products using ozone-depleting substances pursuant to 40 CFR Part 82, Subpart E:
 - i. All containers in which a class I or class II substance is stored or transported, all products containing a class I substance, and all products directly manufactured with a process that uses a class I substance must bear the required warning statement if it is being introduced into interstate commerce pursuant to §82.106.
 - ii. The placement of the required warning statement must comply with the requirements pursuant to §82.108.
 - iii. The form of the label bearing the required warning statement must comply with the requirements pursuant to §82.110.
 - iv. No person may modify, remove, or interfere with the required warning statement except as described in §82.112.
2. Any person servicing, maintaining, or repairing appliances, except for motor vehicles, shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F, except as provided for Motor Vehicle Air Conditioners (MVACs) in Subpart B. In addition, Subpart F applies to refrigerant reclaimers, appliance owners, and manufacturers of appliances and recycling and recovery equipment.
 - i. Persons owning appliances for maintenance, service, repair, or disposal must comply with the prohibitions and required practices pursuant to §82.154 and §82.156.
 - ii. Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to §82.158.
 - iii. Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to §82.161.
 - iv. Persons performing maintenance, service, repair, or disposal of appliances must certify with the Administrator pursuant to §82.158 and §82.162.
 - v. Persons disposing of small appliances, MVACs, and MVAC-like appliances must comply with record keeping requirements pursuant to §82.166. ("MVAC-like appliance" as defined at §82.152)
 - vi. Persons owning commercial or industrial process refrigeration equipment must comply with the leak repair requirements pursuant to §82.156.
3. Owners/Operators of appliances normally containing 50 or more pounds of refrigerant must keep records of refrigerant purchased and added to such appliances pursuant to 40 CFR Part 82, Subpart F §82.166.
4. If the permittee manufactures, transforms, destroys, imports, or exports a class I or class II substance, the permittee is subject to all the requirements as specified in 40 CFR Part 82, Subpart A, "Production and Consumption Controls".

Permit: AQM-003/00115 (Renewal 2)

Kuehne Chemical Company

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Date x, 202x

Page 12

Condition 2- General Requirement (Cont.)

5. If the permittee performs a service on motor (fleet) vehicles when this service involves ozone-depleting substance refrigerant (or regulated substitute substance) in the MVAC, the permittee is subject to all the applicable requirements as specified in 40 CFR Part 82, Subpart B, "Servicing of Motor Vehicle Air Conditioners".
 - i. The term "motor vehicle" as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed. The term "MVAC" as used in Subpart B does not include the air-tight sealed refrigeration system used as refrigerated cargo, or system used on passenger buses using HCFC-22 refrigerant. These systems are regulated under 40 CFR Part 82, Subpart F.
6. The permittee shall be allowed to switch from any ozone-depleting substance to any alternative that is listed as acceptable in the Significant New Alternatives Program (SNAP) promulgated pursuant to 40 CFR Part 82, Subpart G, Significant New Alternatives Policy Program.
- r. **Severability**. The provisions of this permit are severable. If any part of this permit is held invalid, the application of such part to other persons or circumstances and the remainder of this permit shall not be affected thereby and shall remain valid and in effect. [Reference: 7 DE Admin. Code 1130 Section 6.1.6 dated 12/11/00]

Condition 3- Specific Requirements

- a. **Emission Limitations Emission Standards, Operational Limitations, and Operational Standards**. The Owner and/or Operator shall comply with the limitations and standards detailed in Condition 3 – Table 1 of this permit. [Reference: 7 DE Admin. Code 1130 Section 6.1.1 dated 12/11/00]
- b. **Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)**. The Owner and/or Operator shall maintain records of all required monitoring data and support information for a period of at least five years from the date of the monitoring sample, measurement, report, or application. Support information includes all original strip-chart recordings, where appropriate, for continuous monitoring instrumentation, and copies of all reports required by the permit. Where appropriate, the permit may specify that records may be maintained in computerized form. [Reference: 7 DE Admin. Code 1130 Section 6.1.3.2.2 dated 12/11/00]
 1.
 - i. **Specific Requirements**. The Owner and/or Operator shall comply with the operational limitations, monitoring, testing, and record keeping requirements detailed in Condition 3 – Table 1 which are in addition to those in Conditions 3(b)(1)(ii) and 3(b)(2) of this permit. [Reference: 7 DE Admin. Code 1130 Sections 6.1.1 dated 12/11/00, 6.1.3.1 dated 12/11/00, and 6.1.10 dated 12/11/00]
 - ii. **General Testing Requirements**. Upon written request of the Department, the Owner and/or Operator shall, at the Owner and/or Operator's expense, sample the emissions of, or fuel used by, an air contaminant emission source, maintain records, and submit reports to the Department on the results of such sampling. [Reference: 7 DE Admin. Code 1117 Section 2.2 dated 7/17/84]
 2. **General Record Keeping Requirements**. The Owner and/or Operator shall record, at a minimum, all of the following information:

Permit: AQM-003/00115 (Renewal 2)

Kuehne Chemical Company

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Date x, 202x

Page 13

Condition 3- Specific Requirements (Cont.)

- i. If required, for each operating scenario identified in Condition 3 – Table 1 of this permit, a log that indicates the operating scenario under which each particular emission unit is operating. The Owner and/or Operator shall, contemporaneously with changing from one operating scenario to another, record in this log the time at which the operating scenario under which it is operating is changed. *[Reference: 7 DE Admin. Code 1130 Section 6.1.10 dated 12/11/00]*
- ii. The following information to the extent specified in Condition 3 – Table 1 of this permit. *[Reference: 7 DE Admin. Code 1130 Section 6.1.3.2.1 dated 12/11/00]*
 - A. The date, place, and time of the sampling or measurements. *[Reference: 7 DE Admin. Code 1130 Section 6.1.3.2.1.1 dated 12/11/00]*
 - B. The dates analyses were performed. *[Reference: 7 DE Admin. Code 1130 Section 6.1.3.2.1.2 dated 12/11/00]*
 - C. The Owner and/or Operator or entity that performed the analyses. *[Reference: 7 DE Admin. Code 1130 Section 6.1.3.2.1.3 dated 12/11/00]*
 - D. The analytical techniques or methods used. *[Reference: 7 DE Admin. Code 1130 Section 6.1.3.2.1.4 dated 12/11/00]*
 - E. The results of such analyses. *[Reference: 7 DE Admin. Code 1130 Section 6.1.3.2.1.5 dated 12/11/00]*
 - F. The operating conditions as existing at the time of sampling or measurement. *[Reference: 7 DE Admin. Code 1130 Section 6.1.3.2.1.6 dated 12/11/00]*
- iii. If the Owner and/or Operator is claiming the affirmative defense of emergency or malfunction as provided in Condition 2(b)(5); a properly signed, contemporaneous operating logs, or other relevant evidence which indicates that: *[Reference: 7 DE Admin. Code 1130 Section 6.7.3 dated 12/11/00]*
 - A. An emergency or malfunction occurred and the causes of the emergency or malfunction. *[Reference: 7 DE Admin. Code 1130 Section 6.7.3.1 dated 12/11/00]*
 - B. The facility was at the time of the emergency or malfunction being operating in a prudent and professional manner and in compliance with the generally accepted industry operations and maintenance procedures. *[Reference: 7 DE Admin. Code 1130 Section 6.7.3.2 dated 12/11/00]*
 - C. During the period of the emergency or malfunction the Owner and/or Operator took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements of this permit. *[Reference: 7 DE Admin. Code 1130 Section 6.7.3.3 dated 12/11/00]*
- iv. A copy of the written notice required by Condition 3(c)(2)(iii) for each change made under Condition 4(c) [Operational Flexibility] of this permit shall be maintained with a copy of this permit. *[Reference: 7 DE Admin. Code 1130 Section 6.8.1 dated 12/11/00]*

c. Reporting and Compliance Certification Requirements.

1. Specific Reporting/Certification Requirements. The Owner and/or Operator shall comply with the Reporting/Certification Requirements detailed in Condition 3– Table 1 of this permit, which are in addition to those of Conditions 3(c)(2) and 3(c)(3) of this permit. Each report that contains any deviations from the terms of Condition 3– Table 1 shall identify the probable cause of the

Permit: AQM-003/00115 (Renewal 2)

Kuehne Chemical Company

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Date x, 202x

Page 14

Condition 3- Specific Requirements (Cont.)

deviations and any corrective actions or preventative measures taken. *[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.3 dated 12/11/00, 6.1.3.3.3.3 dated 12/11/00, and 6.1.3.3.3.4 dated 12/11/00]*

2. General Reporting Requirements.

- i. The Owner and/or Operator shall submit to the Department a report of any required monitoring not later than the first day of August (covering the period from January 1 through June 30 of the current calendar year) and the first day of February (covering the period July 1 through December 31 of the previous calendar year) of each calendar year. Each report shall identify any deviations from the monitoring, record keeping, and reporting requirements under this permit; and the probable cause of the deviations; and any corrective actions or preventative measures taken. If no deviations have occurred, such shall be stated in the report. *[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.3.1 dated 12/11/00, 6.1.3.3.2 dated 12/11/00, and 6.1.3.3.3.4 dated 12/11/00]*
- ii. In addition to the semiannual monitoring reports required under Condition 3(c)(2)(i), the Owner and/or Operator shall submit to the Department supplemental written reports and/or notices identifying all deviations from permit conditions, probable cause of the deviations, and any corrective actions or preventative measures as follows: *[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.3.3.3 dated 12/11/00 and 6.1.3.3.3.4 dated 12/11/00]*
 - A. If the Owner and/or Operator is claiming the affirmative defense of emergency or malfunction as provided in Condition 2(b)(5) of this permit, a notice of any deviation resulting from emergency or malfunction conditions shall be reported to the Department within two working days of the time when the technology-based emission limitations were exceeded. Such notice shall contain a description of the emergency or malfunction, any steps taken to mitigate emissions, and any corrective actions taken. *[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.3.3.1 dated 12/11/00 and 6.7.3.4 dated 12/11/00]*
 - B. Emissions in excess of any permit condition or emissions which create a condition of air pollution shall be reported to the Department immediately upon discovery and after activating the appropriate site emergency plan, in the following manner: *[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.3.3.3 dated 12/11/00 and 6.1.3.3.3.2 dated 12/11/00]*
 1. Emissions that pose an imminent and substantial danger to public health, safety or the environment must be reported by calling the Department's Environmental Emergency Notification and Complaint number (800) 662-8802. *[Reference: 7 DE Admin. Code No 1130, Section 6.1.3.3.3.2 dated 12/11/2000]*
 2. Emissions in excess of any permit condition or emissions which create a condition of air pollution but do not pose an imminent and substantial danger to public health, safety or the environment must either be called in to the Environmental Emergency Notification and Complaint number (800) 662-8802 or faxed to (302) 855-1902. The ability to fax notifications to the Department may be revoked by the Department upon written notice to the Company and at the Department's sole discretion. *[Reference: 7 DE Admin. Code No 1130, Section 6.1.3.3.3.2 dated 12/11/2000]*
 - C. All emissions in excess of any permit condition or emissions which create a condition of air pollution shall be reported to the Department in a written report pursuant to Condition 3(c)(2)(1) and/or the specific reporting requirements listed in Condition 3 – Table 1 of this permit. *[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.3.3.3 dated 12/11/00 and 6.1.3.3.3.4 dated 12/11/00]*

Permit: AQM-003/00115 (Renewal 2)

Kuehne Chemical Company

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Date x, 202x

Page 15

Condition 3- Specific Requirements (Cont.)

- D. Discharges to the atmosphere in excess of any quantity specified in the 7 DE Admin. Code 1203 ("**Reporting of a Discharge of a Pollutant or an Air Contaminant**") shall be reported, immediately upon discovery and after activating the appropriate site emergency plan, either in person or to the Department's 24-hour Environmental Emergency Notification and Complaint line (1-800-662-8802). Discharges in compliance with this permit and excess emissions previously reported under Condition 3(c)(2)(ii)(B) of this permit are exempt from this reporting requirement. *[Reference: 7 DE Admin. Code 1130 Section 6.1.3.3.3.5 dated 12/11/00 and 7 DE Admin. Code 1203]*
- iii. Prior to making a change as provided in Condition 4 [**Operational Flexibility**] of this permit the Owner and/or Operator shall give written notice to the Department and EPA at least seven calendar days before the change is to be made. *[Reference: 7 DE Admin. Code 1130 Section 6.8.1 dated 12/11/00]*
- A. The seven day period may be shortened or eliminated as necessary for a change that must be implemented more quickly to address unanticipated conditions posing a significant health, safety, or environmental hazard. *[Reference: 7 DE Admin. Code 1130 Section 6.8.1 dated 12/11/00]*
- B. If less than seven calendar days notice is provided because of a need to respond more quickly to such unanticipated conditions, the Owner and/or Operator shall provide notice to the Department and EPA as soon as possible after learning of the need to make the change, together with the reasons why advance notice could not be given. *[Reference: 7 DE Admin. Code 1130 Section 6.8.1 dated 12/11/00]*
- C. The written notice shall include all of the following information: *[Reference: 7 DE Admin. Code 1130 Section 6.8.1 dated 12/11/00]*
1. The identification of the affected emission units and a description of the change to be made.
 2. The date on which the change will occur.
 3. Any changes in emissions.
 4. Any permit terms and conditions that are affected, including any new applicable requirements.
- iv. The Owner and/or Operator shall submit to the Department an annual emissions statement in accordance with 7 DE Admin. Code 1117 Section 7.0 not later than April 30 of each year, or other date as established by the Department, unless an extension by the Department is granted. Such emissions statement shall cover the preceding calendar year. *[Reference: 7 DE Admin. Code 1117 Section 7.0 dated 1/11/93]*
- v. If required, the Owner and/or Operator shall submit to the Department a progress report for applicable requirements identified in Condition 5 – Table 1 of this permit. Such reports shall be submitted not later than the first day of August (covering the period from January 1 through June 30 of the current calendar year) and the first day of February (covering the period July 1 through December 31 of the previous calendar year) of each calendar year. Each progress report shall include the following: *[Reference: 7 DE Admin. Code 1130 Sections 5.4.8 dated 11/15/93 and 6.3.4 dated 12/11/00]*

Permit: AQM-003/00115 (Renewal 2)

Kuehne Chemical Company

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Date x, 202x

Page 16

Condition 3- Specific Requirements (Cont.)

- A. Dates for achieving the activities, milestones, or compliance required in the schedule of compliance, and dates when such activities, milestones or compliance *were achieved*.
[Reference: 7 DE Admin. Code 1130 Section 6.3.4.1 dated 12/11/00]
- B. An explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted. [Reference: 7 DE Admin. Code 1130 Section 6.3.4.2 dated 12/11/00]
- vi. Nothing herein shall relieve the Owner and/or Operator from any reporting requirements under federal, state, or local laws. [Reference: 7 DE Admin. Code 1130 Section 6.1.3.3.5 dated 12/11/00]
- 3. General Compliance Certification Requirements.
 - i. Compliance with terms and conditions of this permit shall be certified to the Department not later than the first day of February of each year unless the terms or conditions in Condition 3– Table 1 of this permit require compliance certifications to be submitted more frequently. Such certification shall cover the previous calendar year and shall be submitted on Form AQM-1001BB. The Compliance Certification shall include the following information:
[Reference: 7 DE Admin. Code 1130 Section 6.3.5.1 dated 12/11/00]
 - A. The identification of each term or condition of the permit that is the basis of the certification. [Reference: 7 DE Admin. Code 1130 Section 6.3.5.3.1 dated 12/11/00]
 - B. The Owner and/or Operator's current compliance status, as shown by monitoring data and other information reasonably available to the Owner and/or Operator. [Reference: 7 DE Admin. Code 1130 Section 6.3.5.3.2 dated 12/11/00]
 - C. Such certification shall indicate whether compliance was continuous or intermittent during the covered period. [Reference: 7 DE Admin. Code 1130 Section 6.3.5.3.3 dated 12/11/00]
 - D. The methods used for determining the compliance status of the Owner and/or Operator, currently and over the reporting period as required by the monitoring, record keeping, and reporting required under Condition 3. [Reference: 7 DE Admin. Code 1130 Section 6.3.5.3.4 dated 12/11/00]
 - E. Such other facts as the Department may require to determine the compliance status of the source. [Reference: 7 DE Admin. Code 1130 Section 6.3.5.3.5 dated 12/11/00]
 - ii. Each compliance certification shall be submitted to the Department and EPA and shall be certified in accordance with Condition 2(a) of this permit. [Reference: 7 DE Admin. Code 1130 Section 6.3.5.4 dated 12/11/00]
 - iii. Any additional information possessed by the Owner and/or Operator that demonstrates non-compliance with any applicable requirement must also be used as the basis for compliance certifications. [Reference: 62 CFR 8314 dated 2/24/97]

Permit: AQM-003/00115 (Renewal 2)

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Kuehne Chemical Company

Date x, 202x

Page 17

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
a. Emission Point 01: Cleaver Brooks Boiler rated heat input of 15.00 MMBtu/hr; fired on Natural and Hydrogen Gas (Boiler #3)		
<p>1. Hydrogen</p> <p>i. <u>Emission Standards</u>: None.</p> <p>ii. <u>Emission Limitations</u>: None.</p> <p>iii. <u>Operational Standards</u>: None.</p> <p>iv. <u>Operational Limitations</u>: Natural gas may be used when it is operationally impossible to start up this unit with hydrogen gas. [Reference: 7 DE Admin. Code 1130, Section 6.1.1 dated 12/11/00]</p>	<p>v. <u>Compliance Methods</u>: Compliance with this emission standard and these operation limitations will be demonstrated by adherence to the appropriate monitoring, testing, QA/QC, and recordkeeping requirements. [Reference: 7 DE Admin. Code 1130 Section 6.3.1, dated 12/11/00]</p> <p>vi. <u>Monitoring</u>: For each month and rolling twelve (12) month period, monitor the type and amount of fuel combusted in the boiler. [Reference: 7 DE Admin. Code 1117 Section 2.1 dated 7/17/84]</p> <p>vii. <u>Testing</u>: That required by Condition 3(b)(1)(ii) of this permit.</p> <p>viii. <u>Quality Assurance/Quality Control</u>: None.</p> <p>ix. <u>Recordkeeping</u>: In addition to the requirements of Conditions 3(b)(1)(ii) and 3(b)(2) of this permit: [Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.2 and 6.2.1 dated 12/11/00] A. No. of hours of operation and dates B. Type of fuel burned C. Amount of fuel burned</p>	<p>x. <u>Reporting</u>: That required by Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii), and 3(c)(2) of this permit. [Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</p> <p>xi. <u>Certification</u>: That required by Condition 3(c)(3) of this permit. [Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</p>

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<p>2. Criteria Pollutants- Products of Combustion</p> <p>i. <u>Emission Standards:</u></p> <p>A. The Company shall not cause or allow the emission of particulate matter in excess of 0.3 lb/MMBtu heat input, maximum 2-hour average. <i>[Reference: 7 DE Admin. Code 1104, Section 2.0 dated 1/11/17]</i></p> <p>B. The Company shall maintain the proper operation and maintenance of the boilers by conducting annual tune-ups by certified personnel. <i>[Reference: 7 DE Admin. Code 1112, Section 3.3.2 dated 11/24/93]</i></p> <p>ii. <u>Emission Limitations:</u></p> <p>Emissions from air contaminants shall not exceed the following:</p> <p>A. Nitrogen Oxides (NO_x) emissions shall not exceed 1.77 lbs/hr and 7.8 tons per twelve (12) month rolling period.</p> <p>B. Carbon Monoxide (CO) emissions shall not exceed 1.24 lbs/hr and 5.4 tons per twelve (12) month rolling period.</p> <p>C. Volatile Organic Compounds (VOC) emissions shall not exceed 0.08 lb/hr and 0.4 ton per twelve (12) month rolling period.</p> <p>D. Particulate Matter (PM) emissions shall not exceed 0.11 lb/hr and 0.5 ton per twelve (12) month rolling period.</p> <p>E. Sulfur Dioxide (SO₂) emissions shall not exceed 0.01 lb/hr and 0.04 ton per twelve (12) month rolling period.</p>		
	<p>v. <u>Compliance Methods:</u></p> <p>Compliance with the standards and limitations will be demonstrated by adherence to the appropriate monitoring, testing, QA/QC, and recordkeeping requirements. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.7.3, dated 12/11/00]</i></p> <p>vi. <u>Monitoring:</u></p> <p>None.</p> <p>vii. <u>Testing:</u></p> <p>In addition to the requirements of Conditions 3(b)(1)(ii) of this permit, the Company shall:</p> <p>A. Perform annual tune-up in accordance with the manufacturer recommendations. <i>[Reference: 7 DE Admin. Code 1130, Section 6.1.3.1.2 dated 12/11/00]</i></p> <p>B. Conduct visual emissions observations in accordance with EPA Reference Method 9 in the Appendix of 40 CFR Part 60 after the annual tune-up is complete and within a maximum of seven (7) days of the annual tune-up in accordance with Condition 3 – Table 1(a)(4)(vi)(A). <i>[Reference: 7 DE Admin. Code 1130, Section 6.1.3.1.2 dated 12/11/00]</i></p> <p>C. At least once during the term of this permit the owner/operator shall perform emissions testing in accordance with EPA Method 7 to establish NO_x emission factor for hydrogen gas and natural gas as fuel in accordance with the requirements of Condition 3, Table-1 (e)(5) of this permit to demonstrate compliance with the emission limitations of</p>	<p>x. <u>Reporting:</u></p> <p>That required by Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii), and 3(c)(2) of this permit. <i>[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i></p> <p>A. For each occurrence of excess emissions, within thirty (30) calendar days of becoming aware of such occurrence, supply the Department with the following information:</p> <ol style="list-style-type: none"> 1. The name and location of the facility; 2. The source(s) that caused the excess emissions; 3. The time and date of the first observation of the excess emissions; 4. The cause and expected duration of the excess emissions; 5. The estimated rate of emissions (expressed in the units of the emission limitation) and the operating data and calculations used in determining the magnitude of the excess emissions; and 6. The proposed corrective actions and schedule to correct the conditions causing the excess. <p>xi. <u>Certification:</u></p> <p>That required by Condition 3(c)(3) of this permit. <i>[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i></p>

Permit: AQM-003/00115 (Renewal 2)

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Kuehne Chemical Company

Date x, 202x

Page 19

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<p>F. Hazardous Air Pollutants (HAP) emissions shall not exceed 0.03 lb/hr and 0.13 ton per twelve (12) month rolling period. <i>[Reference: Permit: APC-2007/0064-Operation(NSPS)]</i></p> <p>iii. <u>Operational Standards:</u> The Company shall have qualified personnel perform annual tune-ups. <i>[Reference: 7 DE Admin. Code 1112, Section 3.3.2 dated 11/24/93]</i></p> <p>iv. <u>Operational Limitations:</u> Natural gas or hydrogen gas can be consumed in this boiler. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.1 dated 12/11/00 and APC-2007/0064-Operation(NSPS)]</i></p>	<p>Condition 3, Table-1(a)(2)(ii)(A) of this section. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.1, dated 12/11/00]</i></p> <p>viii. <u>Quality Assurance/Quality Control:</u> None.</p> <p>ix. <u>Recordkeeping:</u> In addition to the requirements of Conditions 3(b)(1)(ii) and 3(b)(2) of this permit, the Company shall maintain all of the following records: <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.2 and 6.2.1 dated 12/11/00]</i></p> <p>A. The log of all tune-ups performed on each boiler to include the date and details of the work performed;</p> <p>B. The qualifications of the personnel performing the annual tune-ups; and Visible Emissions Observations as outlined in Condition 3 – Table 1(a)(4) of this Permit.</p>	
<p>3. Combustion Efficiency</p> <p>i. <u>Emission Standards:</u> None.</p> <p>ii. <u>Emission Limitations:</u> None.</p> <p>iii. <u>Operational Standards:</u> Each boiler's startup and shutdown periods shall be minimized and startups and shutdowns shall be conducted according to the manufacturer's recommended procedures. If the manufacturer's recommended procedures</p>	<p>v. <u>Compliance Methods:</u> Compliance with the standards and limitations will be demonstrated by adherence to the appropriate monitoring, testing, QA/QC, and recordkeeping requirements. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.7.3, dated 12/11/00]</i></p> <p>vi. <u>Monitoring:</u> The efficiency shall be determined by flue gas oxygen or carbon dioxide analysis and flue gas net temperature. If the equipment is operated intermittently, the Company shall determine the</p>	<p>x. <u>Reporting:</u> That required by Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii), and 3(c)(2) of this permit. <i>[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i></p> <p>xi. <u>Certification:</u> That required by Condition 3(c)(3) of this permit. <i>[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i></p>

Permit: AQM-003/00115 (Renewal 2)

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Kuehne Chemical Company

Date x, 202x

Page 20

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<p>are not available, recommended procedures for a unit of similar design for which manufacturer's recommended procedures are available shall be followed. <i>[Reference: 40 CFR 63.11201 dated July 1, 2019]</i></p> <p>iv. <u>Operational Limitations:</u> During all periods of operation, the boiler shall be operated at the highest practical combustion efficiency, but at no time shall the combustion efficiency be less than seventy-five percent (75%). <i>[Reference: APC-2007/0064-Operation(NSPS)]</i> <i>(STATE ENFORCEABLE ONLY)</i></p>	<p>combustion efficiency a minimum of once per year. <i>[Reference: 7 DE Admin. Code 1130, Section 6.1.3.1.2 dated 12/11/00]</i></p> <p>vii. <u>Testing:</u> In addition to the requirements of Conditions 3(b)(1)(ii) of this permit, the efficiency shall be determined by flue gas oxygen or carbon dioxide analysis and flue gas net temperature. If the equipment is operated intermittently, the Company shall determine the combustion efficiency a minimum of once per year. <i>[Reference: 7 DE Admin. Code 1130, Section 6.1.3.1.2 dated 12/11/00]</i></p> <p>viii. <u>Quality Assurance/Quality Control:</u> None.</p> <p>ix. <u>Recordkeeping:</u> In addition to the requirements of Conditions 3(b)(1)(ii) and 3(b)(2) of this permit, the Company shall maintain all of the following records: <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.2 and 6.2.1 dated 12/11/00]</i></p> <p>A. The Company shall record the combustion efficiency and the date the test was performed. <i>[Reference: 7 DE Admin. Code 1130, Section 6.1.3.1.2 dated 12/11/00]</i></p> <p>B. The Company shall record the method used to determine the combustion efficiency. <i>[Reference: 7 DE Admin. Code 1130, Section 6.1.3.1.2 dated 12/11/00]</i></p> <p>C. The Company shall record the operating rate (expressed in pounds [lbs] steam per hour or fuel feed rate in gallons per hour) of the</p>	

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
	emission unit at the time of the combustion efficiency testing. <i>[Reference: 7 DE Admin. Code 1130, Section 6.1.3.1.2 dated 12/11/00]</i>	
4. Visible Emissions		
<p>i. <u>Emission Standards:</u> No person shall cause or allow the emission of visible air contaminants and/or smoke from any emission unit, the shade or appearance of which is greater than twenty (20%) percent opacity for an aggregate of more than three (3) minutes in any one (1) hour or more than fifteen (15) minutes in any twenty-four (24) hour period. <i>[Reference: 7 DE Admin. Code 1114, Section 2.1 dated 11/11/13]</i></p> <p>ii. <u>Emission Limitations:</u> None.</p> <p>iii. <u>Operational Standards:</u> None.</p> <p>iv. <u>Operational Limitations:</u> Opacity limits apply at all times, including, startup, shutdown, and malfunction. <i>[Reference: 7 DE Admin. Code 1130 Section 6 dated 12/11/00]</i></p>	<p>v. <u>Compliance Methods:</u> Compliance with the standards and limitations will be demonstrated by adherence to the appropriate monitoring, testing, QA/QC, and recordkeeping requirements. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.7.3, dated 12/11/00]</i></p> <p>vi. <u>Monitoring:</u> In addition to the requirements of Conditions 3(b)(1)(ii) of this permit, the Company shall: A. Within seven (7) days after the annual tune-up, conduct visual observations at fifteen-second intervals for a period of not less than one hour except that the observations may be discontinued whenever a violation of the standard is recorded in accordance with Subsection 1.5.3 of 7 DE Admin. Code 1120. The additional procedures, qualification and testing to be used for visually determining the opacity shall be those specified in Section 2 & 3 (except for Section 2.5 and the second sentence of Section 2.4) of EPA Reference Method 9 set forth in Appendix A, 40 CFR, Part 60, revised July 1, 1982. <i>[Reference: 7 DE Admin. Code 1120, Section 1.5.3 dated 12/7/88]</i> B. Conduct <u>daily</u> qualitative visible emissions observations to determine the presence of</p>	<p>x. <u>Reporting:</u> In addition to the requirements of Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii), and 3(c)(2) of this permit, the Company shall report all records indicating any exceedances of the standard in accordance with Condition 3(c)(3) of this permit. <i>[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i></p> <p>xi. <u>Certification:</u> That required by Condition 3(c)(3) of this permit. <i>[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i></p>

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
	<p>any visible emissions when the units are in operation during daylight hours.</p> <ol style="list-style-type: none">1. If visible emissions are observed, the Company shall take corrective actions and/or conduct a visible observation to ensure compliance to Condition 3, Table-1(a)(4)(i).2. If no visible emissions are observed, no further action is required. <p><i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00]</i></p> <p>vii. <u>Testing</u>: That required by Condition 3(b)(1)(ii) of this permit.</p> <p>viii. <u>Quality Assurance/Quality Control</u>: None.</p> <p>ix. <u>Recordkeeping</u>: In addition to the requirements of Conditions 3(b)(1)(ii) and 3(b)(2) of this permit, the Company shall maintain all of the following: <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.2 and 6.2.1 dated 12/11/00]</i></p> <ol style="list-style-type: none">A. Include daily logs of qualitative stack observations;B. Include logs of EPA Reference Method 9 in the Appendix of 40 CFR Part 60 observations; andC. Indicate any deficiencies in accordance with the standard as specified in Condition 3 – Table 1(a)(4). <p><i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.2 dated 12/11/00]</i></p>	

Permit: AQM-003/00115 (Renewal 2)

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Kuehne Chemical Company

Date x, 202x

Page 23

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
b. Emission Point 02: Superior Boiler rated heat input of 6.402 MMBtu/hr; fired on Natural and Hydrogen Gas (Boiler #2)		
1. Hydrogen		
<p>i. <u>Emission Standards:</u> None.</p> <p>ii. <u>Emission Limitations:</u> None.</p> <p>iii. <u>Operational Standards:</u> None.</p> <p>iv. <u>Operational Limitations:</u> The boiler may be used when it is operationally required for production needs with natural gas and hydrogen gas as fuel. [Reference: 7 DE Admin. Code 1130 Section 6.1.1 dated 12/11/00 and Permit: APC-2000/0320-A3]</p>	<p>v. <u>Compliance Methods:</u> Compliance with the standards and limitations will be demonstrated by adherence to the appropriate monitoring, testing, QA/QC, and recordkeeping requirements. [Reference: 7 DE Admin. Code 1130 Section 6.1.7.3, dated 12/11/00]</p> <p>vi. <u>Monitoring:</u> For each month and rolling twelve (12) month period, monitor the type and amount of fuel combusted in the boiler. [Reference: 7 DE Admin. Code 1117 Section 2.1 dated 7/17/84]</p> <p>vii. <u>Testing:</u> That required by Condition 3(b)(1)(ii) of this permit.</p> <p>viii. <u>Quality Assurance/Quality Control:</u> None.</p> <p>ix. <u>Recordkeeping:</u> In addition to the requirements of Conditions 3(b)(1)(ii) and 3(b)(2) of this permit: [Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.2 and 6.2.1 dated 12/11/00] A. No. of hours of operation and dates B. Type of fuel burned C. Amount of fuel burned</p>	<p>x. <u>Reporting:</u> That required by Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii), and 3(c)(2) of this permit. [Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</p> <p>xi. <u>Certification:</u> That required by Condition 3(c)(3) of this permit. [Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</p>

Permit: AQM-003/00115 (Renewal 2)

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Kuehne Chemical Company

Date x, 202x

Page 24

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<p>2. Criteria Pollutants- Products of Combustion</p> <p>i. <u>Emission Standards:</u></p> <p>A. The Company shall not cause or allow the emission of particulate matter in excess of 0.3 lb/MMBtu heat input, maximum 2-hour average. <i>[Reference: 7 DE Admin. Code 1104, Section 2.1 dated 1/11/17]</i></p> <p>B. The Company shall maintain the proper operation and maintenance of the boilers by conducting annual tune-ups by certified personnel. <i>[Reference: 7 DE Admin. Code 1112, Section 3.3.2 dated 11/24/93]</i></p> <p>ii. <u>Emission Limitations:</u></p> <p>Emissions from air contaminants shall not exceed the following:</p> <p>A. Nitrogen Oxides (NO_x) emissions shall not exceed 0.76 lb/hr and 3.31 tons per twelve (12) month rolling period.</p> <p>B. Carbon Monoxide (CO) emissions shall not exceed 0.53 lb/hr and 2.31 tons per twelve (12) month rolling period.</p> <p>C. Volatile Organic Compounds (VOC) emissions shall not exceed 0.03 lb/hr and 0.15 ton per twelve (12) month rolling period.</p> <p>D. Particulate Matter (PM) emissions shall not exceed 0.05 lb/hr and 0.21 ton per twelve (12) month rolling period.</p> <p>E. Sulfur Dioxide (SO₂) emissions shall not exceed 0.004 lb/hr and 0.02 ton per twelve (12) month rolling period.</p>		
	<p>v. <u>Compliance Methods:</u></p> <p>Compliance with the standards and limitations will be demonstrated by adherence to the appropriate monitoring, testing, QA/QC, and recordkeeping requirements. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.7.3, dated 12/11/00]</i></p> <p>vi. <u>Monitoring:</u></p> <p>None.</p> <p>vii. <u>Testing:</u></p> <p>In addition to the requirements of Conditions 3(b)(1)(ii) of this permit, the Company shall:</p> <p>A. Perform annual tune-up in accordance with the manufacturer recommendations. <i>[Reference: 7 DE Admin. Code 1130, Section 6.1.3.1.2 dated 12/11/00]</i></p> <p>B. Conduct visual emissions observations in accordance with EPA Reference Method 9 in the Appendix of 40 CFR Part 60 after the annual tune-up is complete and within a maximum of seven (7) days of the annual tune-up in accordance with Condition 3 – Table 1(b)(4)(vii)(A). <i>[Reference: 7 DE Admin. Code 1130, Section 6.1.3.1.2 dated 12/11/00]</i></p> <p>viii. <u>Quality Assurance/Quality Control:</u></p> <p>None.</p> <p>ix. <u>Recordkeeping:</u></p> <p>In addition to the requirements of Conditions 3(b)(1)(ii) and 3(b)(2) of this permit, the</p>	<p>x. <u>Reporting:</u></p> <p>That required by Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii), and 3(c)(2) of this permit. <i>[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i></p> <p>A. For each occurrence of excess emissions, within thirty (30) calendar days of becoming aware of such occurrence, supply the Department with the following information:</p> <ol style="list-style-type: none">1. The name and location of the facility;2. The source(s) that caused the excess emissions;3. The time and date of the first observation of the excess emissions;4. The cause and expected duration of the excess emissions;5. The estimated rate of emissions (expressed in the units of the emission limitation) and the operating data and calculations used in determining the magnitude of the excess emissions; and6. The proposed corrective actions and schedule to correct the conditions causing the excess. <p>xi. <u>Certification:</u></p> <p>That required by Condition 3(c)(3) of this permit. <i>[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i></p>

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<p>F. Hazardous Air Pollutants (HAP) emissions shall not exceed 0.01 lb/hr and 0.05 ton per twelve (12) month rolling period.</p> <p>iii. <u>Operational Standards</u>: The Company shall have qualified personnel perform annual tune-ups. [Reference: 7 DE Admin. Code 1112, Section 3.3.2 dated 11/24/93]</p> <p>iv. <u>Operational Limitations</u>: Natural gas or hydrogen gas can be consumed in this boiler.</p>	<p>Company shall maintain all of the following: [Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.2 and 6.2.1 dated 12/11/00]</p> <p>A. The log of all tune-ups performed on each boiler to include the date and details of the work performed;</p> <p>B. The qualifications of the personnel performing the annual tune-ups; and Visible Emissions Observations as outlined in Condition 3 – Table (1)(b)(4).</p>	
3. Combustion efficiency		
<p>i. <u>Emission Standards</u>: None.</p> <p>ii. <u>Emission Limitations</u>: None.</p> <p>iii. <u>Operational Standards</u>: Each boiler's startup and shutdown periods shall be minimized and startups and shutdowns shall be conducted according to the manufacturer's recommended procedures. If the manufacturer's recommended procedures are not available, recommended procedures for a unit of similar design for which manufacturer's recommended procedures are available shall be followed. [Reference: 40 CFR 63.11201 dated July 1, 2019]</p>	<p>v. <u>Compliance Methods</u>: Compliance with the standards and limitations will be demonstrated by adherence to the appropriate monitoring, testing, QA/QC, and recordkeeping requirements. [Reference: 7 DE Admin. Code 1130 Section 6.1.7.3, dated 12/11/00]</p> <p>vi. <u>Monitoring</u>: None.</p> <p>vii. <u>Testing</u>: In addition to the requirements of Conditions 3(b)(1)(ii) of this permit, the efficiency shall be determined by flue gas oxygen or carbon dioxide analysis and flue gas net temperature. If the equipment is operated intermittently, the Company shall determine the combustion efficiency a minimum of once per year. [Reference: 7 DE Admin. Code 1130, Section 6.1.3.1.2 dated 12/11/00]</p>	<p>x. <u>Reporting</u>: That required by Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii), and 3(c)(2) of this permit. [Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</p> <p>xi. <u>Certification</u>: That required by Condition 3(c)(3) of this permit. [Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</p>

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<p>iv. <u>Operational Limitations</u>:</p> <p>During all periods of operation, each boiler shall be operated at the highest practical combustion efficiency, but at no time shall the combustion efficiency be less than seventy-five percent (75%). [Reference: Permit APC-2000/0302-C/O-A3(SM)] (STATE ENFORCEABLE ONLY)</p>	<p>viii. <u>Quality Assurance/Quality Control</u>:</p> <p>None.</p> <p>ix. <u>Recordkeeping</u>:</p> <p>In addition to the requirements of Conditions 3(b)(1)(ii) and 3(b)(2) of this permit, the Company shall: [Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.2 and 6.2.1 dated 12/11/00]</p> <p>A. Record the combustion efficiency and the date the test was performed. [Reference: 7 DE Admin. Code 1130, Section 6.1.3.1.2 dated 12/11/00]</p> <p>B. Record the method used to determine the combustion efficiency. [Reference: 7 DE Admin. Code 1130, Section 6.1.3.1.2 dated 12/11/00]</p> <p>C. The Company shall record the operating rate (expressed in pounds [lbs] steam per hour or fuel feed rate in gallons per hour) of the emission unit at the time of the combustion efficiency testing. [Reference: 7 DE Admin. Code 1130, Section 6.1.3.1.2 dated 12/11/00]</p>	
4. Visible Emissions		
<p>i. <u>Emission Standards</u>:</p> <p>No person shall cause or allow the emission of visible air contaminants and/or smoke from any emission unit, the shade or appearance of which is greater than twenty (20%) percent opacity for an aggregate of more than three (3) minutes in any one (1) hour or more than fifteen (15) minutes in any twenty-four (24) hour period.</p>	<p>v. <u>Compliance Methods</u>:</p> <p>Compliance with the standards and limitations will be demonstrated by adherence to the appropriate monitoring, testing, QA/QC, and recordkeeping requirements. [Reference: 7 DE Admin. Code 1130 Section 6.1.7.3, dated 12/11/00]</p> <p>vi. <u>Monitoring</u>:</p> <p>None.</p>	<p>x. <u>Reporting</u>:</p> <p>In addition to the requirements of Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii), and 3(c)(2) of this permit, the Company shall report all records indicating any exceedances of the standard in accordance with Condition 3(c)(3) of this permit. [Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</p>

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<p><i>[Reference: 7 DE Admin. Code 1114, Section 2.1 dated 11/11/13]</i></p> <p>ii. <u>Emission Limitations</u>: None.</p> <p>iii. <u>Operational Standards</u>: None.</p> <p>iv. <u>Operational Limitations</u>: Opacity limits apply at all times, including, startup, shutdown, and malfunction. <i>[Reference: 7 DE Admin. Code 1130 Section 6 dated 12/11/00]</i></p>	<p>vii. <u>Testing</u>: In addition to the requirements of Conditions 3(b)(1)(ii) of this permit, the Company shall:</p> <p>A. Within seven (7) days of the annual tune-up, conduct visual observations at fifteen-second intervals for a period of not less than one hour except that the observations may be discontinued whenever a violation of the standard is recorded in accordance with Subsection 1.5.3 of 7 DE Admin. Code 1120. The additional procedures, qualification and testing to be used for visually determining the opacity shall be those specified in Section 2 & 3 (except for Section 2.5 and the second sentence of Section 2.4) of EPA Reference Method 9 set forth in Appendix A, 40 CFR, Part 60, revised July 1, 1982. <i>[Reference: 7 DE Admin. Code 1120, Section 1.5.3 dated 12/7/88]</i></p> <p>B. Conduct <u>daily</u> qualitative visible emissions observations to determine the presence of any visible emissions when the units are in operation.</p> <p>1. If visible emissions are observed, the Company shall take corrective actions and/or conduct a visible observation in accordance with Paragraph (A) above.</p> <p>2. If no visible emissions are observed, no further action is required. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00]</i></p>	<p>xi. <u>Certification</u>: That required by Condition 3(c)(3) of this permit. <i>[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i></p>

Permit: AQM-003/00115 (Renewal 2)

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Kuehne Chemical Company

Date x, 202x

Page 28

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
	<p>viii. <u>Quality Assurance/Quality Control</u>: None.</p> <p>ix. <u>Recordkeeping</u>: In addition to the requirements of Conditions 3(b)(1)(ii) and 3(b)(2) of this permit, the Company shall: <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.2 and 6.2.1 dated 12/11/00]</i></p> <p>A. Include daily logs of qualitative stack observations; and</p> <p>B. Include logs of EPA Reference Method 9 in the Appendix of 40 CFR Part 60 observations; and</p> <p>C. Indicate any deficiencies in accordance with the standard as specified in Condition 3 – Table 1(b)(5). <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.2 dated 12/11/00]</i></p>	
c. Emission Point 04: Chlorine Storage and Filling Equipment		
1. Chlorine		
<p>i. <u>Emission Standards</u>: None.</p> <p>ii. <u>Emission Limitations</u>: There shall be no fugitive emissions of chlorine gas during the chlorine filling operation.</p> <p>iii. <u>Operational Standards</u>: None.</p> <p>iv. <u>Operational Limitations</u>: During the chlorine filling operation, the alarm system for chlorine detection system shall be</p>	<p>v. <u>Compliance Methods</u>: Compliance with the standards and limitations will be demonstrated by adherence to the appropriate monitoring, testing, QA/QC, and recordkeeping requirements. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.7.3, dated 12/11/00]</i></p> <p>vi. <u>Monitoring</u>: A. The company shall monitor the monthly total tonnage of chlorine filled in cylinders. <i>[Reference: 7 DE Admin. Code 1124 Section 31.5.2 dated 11/29/94]</i> B. The Company shall monitor the bi-monthly calibration of all chlorine sensors. <i>[Reference: 7</i></p>	<p>x. <u>Reporting</u>: That required by Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii), and 3(c)(2) of this permit. <i>[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i></p> <p>xi. <u>Certification</u>: That required by Condition 3(c)(3) of this permit. <i>[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i></p>

Permit: AQM-003/00115 (Renewal 2)

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Kuehne Chemical Company

Date x, 202x

Page 29

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<p>activated and shall sound at a chlorine detection level equal to or greater than 3 ppm. Limitations as seen in Condition 3, Table-1 (e)(1)(iii)(B) of this Permit, shall be followed. [Reference: 7 DE Admin. Code 1124 Section 31.1.2.3 dated 11/29/94 and Permit:APC-82/0461 A1]</p>	<p>DE Admin. Code 1130 Section 6.1.7.3, dated 12/11/00]</p> <p>vii. <u>Testing</u>: Chlorine alarm system shall be calibrated every two (2) months as per the manufacturer's calibration procedure.</p> <p>viii. <u>Quality Assurance/Quality Control</u>: None.</p> <p>ix. <u>Recordkeeping</u>: In addition to the requirements of Conditions 3(b)(1)(ii) and 3(b)(2) of this permit, the Company shall maintain records showing the total monthly chlorine filled and the bi-monthly calibration of the chlorine detectors which are part of the chlorine alarm system per Condition 3, Table - 1(c)(1)(vii). [Reference: 7 DE Admin. Code 1124 Section 31.5.2 dated 11/29/94]</p>	
d. Emission Point 03: Twenty-four (24) Electrolyzer Cells – Chlor-Alkali Process with associated north and south reactors with associated scrubbers		
1. Chlorine Production		
<p>i. <u>Emission Standards</u>: None.</p> <p>ii. <u>Emission Limitations</u>: A. Chlorine emissions from the south reactor's (ID: 18-14U) or the north reactor's bygas tank's scrubber shall not exceed 0.01 lb/hr and 0.05 ton per rolling twelve (12) month period.</p>	<p>v. <u>Compliance Methods</u>: Compliance with the standards and limitations will be demonstrated by adherence to the appropriate monitoring, testing, QA/QC, and recordkeeping requirements. [Reference: 7 DE Admin. Code 1130 Section 6.1.7.3, dated 12/11/00]</p> <p>vi. <u>Monitoring</u>: A. The Company shall monitor operating parameters and technical information for</p>	<p>x. <u>Reporting</u>: In addition to the requirements of Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii), and 3(c)(2) of this permit, the Company shall, on or before July 31st and January 31st of each year, submit a semi-annual report to the Department covering the first six (6) months of the year and the second six (6) months of the year, respectively. The semi-annual report shall include a certification by the facility manager</p>

Permit: AQM-003/00115 (Renewal 2)

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Kuehne Chemical Company

Date x, 202x

Page 30

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<p><i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00 and Permit: APC-2015/0088-C/O-A1]</i></p> <p>B. Chlorine emissions from the north reactor's off-spec tank's scrubber shall not exceed 0.127 lb/hr and 0.56 ton per rolling twelve (12) month period.</p> <p><i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00 and Permit: APC-2000/0320-C/O-A3]</i></p> <p>C. Emissions of hydrogen gas generated from chlorine cells shall be combusted in Cleaver Brooks (EP 01) and Superior (EP 02) boilers. Hydrogen gas not combusted and therefore, emitted to the atmosphere, shall not exceed 275 pounds per hour and 1,204 tons per rolling twelve (12) month period. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00 and Permit: APC-2015/0088-C/O-A1]</i></p> <p>iii. <u>Operational Standard:</u> None.</p> <p>iv. <u>Operational Limitations:</u></p> <p>A. Emissions of visible air contaminants from the Chlor-Alkali Process shall not exceed zero (0) percent opacity. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00 and Permit: APC-2015/0088-C/O-A1]</i></p> <p>B. The Chlor-Alkali Chlorine header pressure shall not exceed twenty-four (24) inches of water. <i>[Reference: 7 DE Admin. Code 1102 Section 2.1.3 dated 6/11/2006 and Permit: APC-2015/0088-C/O-A1]</i></p> <p>C. The Oxidation-Reduction Potential (ORP) shall be within the range of 360 mv to 510 mv. If it exceeds 510 mv, a system interlock</p>	<p>each source. Proper operation of differential gauges and scrubber flow meter for the bygas scrubber (ID: 18-14U) shall be considered a necessary part of the operation of the scrubber. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.2 dated 12/11/00 and Permit: APC-2015/0088-C/O-A1]</i></p> <p>B. The Company shall monitor the chlorine production. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00]</i></p> <p>C. The Company shall monitor all other air contaminant emissions via engineering calculations. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00]</i></p> <p>D. The Company shall continuously monitor the flow rate to the bygas scrubber (ID: 18-14U) when in operation. In the event the scrubber flow rate falls below 120 gallons per minute, this shall be defined as a deviation. The Company shall divert chlorine flow from the south reactor to the north reactor and scrubber and complete any necessary repairs or maintenance prior to restarting the south reactor and the bygas scrubber (ID:18-14U). In the event of scrubber flow meter(s) malfunction, the Company shall demonstrate compliance with the emission limitations of Condition 3 - Table 1(d)(1)(ii)(A) of this permit by maintaining the differential pressure of the scrubber specified ranges of Condition 3 - Table 1(d)(1)(iv)(J) of this permit at all times the scrubber flow meter(s) is/are not functioning. <i>[Reference: 7 DE Admin. Code 1130</i></p>	<p>that the emissions caps were not exceeded during the previous year. <i>[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i></p> <p>xi. <u>Certification:</u> That required by Condition 3(c)(3) of this permit. <i>[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i></p>

Permit: AQM-003/00115 (Renewal 2)

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Kuehne Chemical Company

Date x, 202x

Page 31

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<p>shall automatically activate an alarm system and initiate shut down of the chlorine production process. [Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00 and Permit: APC-2015/0088-C/O-A1]</p> <p>D. The pH of either scrubber's solution shall be between 9 - 14 when in operation. [Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00 and Permit: APC-2015/0088-C/O-A1]</p> <p>E. A vacuum in the Knock Out Pot (KOP) system shall be maintained. [Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00 and Permit: APC-2015/0088-C/O-A1]</p> <p>F. Total Chlor-Alkali Production of chlorine gas shall not exceed 110 tons per day. [Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00 and Permit: APC-2015/0088-C/O-A1]</p> <p>G. The Company shall maintain the Department approved Leak Detection and Repair Program (LDARP) to minimize fugitive release of chlorine from the facility. [Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00 and Permit: APC-2015/0088-C/O-A1]</p> <p>H. The chlorine removal efficiency of the bygas scrubber (ID: 18-14U) shall be greater than 90%. [Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00 and Permit: APC-2015/0088-C/O-A1]</p> <p>I. The pressure drop across the bygas scrubber (ID: 18-14U) shall be in the range of 4 to 11 inches of water while in operation. [Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00 and Permit: APC-2015/0088-C/O-A1]</p> <p>J. The bygas scrubber's (ID: 18-14U) inlet volumetric gas flow rate shall be less than</p>	<p><i>Section 6.1.3 dated 12/11/00 and Permit: APC-2015/0088-C/O-A1]</i></p> <p>E. The Company shall continuously monitor the differential pressure across the bygas scrubber (ID: 18-14U) when in operation. If the differential pressure falls outside of the specified range contained in Condition 3 - Table 1(d)(1)(iv)(J) of this permit, this shall be defined as a deviation. If the hourly average differential pressure reading falls outside the range contained in Condition 3 - Table 1(d)(1)(iv)(J) of this permit for two (2) consecutive hourly average readings, as recorded in Condition 3 - Table 1(d)(1)(ix)(E)(5) of this permit, then the Company shall divert chlorine flow from the south reactor to the north reactor and scrubber and complete any necessary repairs or maintenance prior to restarting the south reactor and bygas scrubber (ID:18-14U). [Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00 and Permit: APC-2015/0088-C/O-A1]</p> <p>F. The Company shall continuously monitor the ORP (<i>Oxidation Reduction Potential</i>) for the scrubber(s) while in operation. If the ORP falls outside of the specified range contained in Condition 3 - Table 1(d)(1)(iv)(C) of this permit, this shall be defined as a deviation. If the hourly ORP reading falls outside the range contained in Condition 3 - Table 1(d)(1)(iv)(C) of this permit for two (2) consecutive hourly readings, as recorded in Condition 3 -</p>	

Permit: AQM-003/00115 (Renewal 2)

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Kuehne Chemical Company

Date x, 202x

Page 32

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<p>450 acfm at 140 degrees Fahrenheit. [Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00 and Permit: APC-2015/0088-C/O-A1]</p> <p>K. The bygas scrubber's (ID: 18-14U) outlet volumetric gas flow rate shall be less than 400 acfm at 140 degrees Fahrenheit. [Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00 and Permit: APC-2015/0088-C/O-A1]</p> <p>L. The bygas scrubber's (ID: 18-14U) liquor flow rate shall not be less than 120 gallons per minute. [Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00 and Permit: APC-2015/0088-C/O-A1]</p> <p>M. The north and south reactors shall have the capability to vent to the bygas scrubber (ID: 18-14U). The bygas scrubber shall be the primary scrubber and shall be utilized when at all times as practicable. The north reactor shall be the only reactor with the capability to vent to the north off-spec tank's scrubber. [Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00]</p> <p>N. The north reactor can function on both, liquid chlorine and/or chlorine gas. The south reactor shall only function on chlorine gas. [Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00]</p>	<p>Table 1(d)(1)(ix)(E)(2) of this permit, then the Company shall divert chlorine flow from the south reactor to the north reactor and scrubber and complete any necessary repairs or maintenance prior to restarting the south reactor and bygas scrubber (ID: 18-14U). [Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00 and Permit: APC-2015/0088-C/O-A1]</p> <p>G. The Company shall continuously monitor the pH for the scrubber(s). If the pH falls outside of the specified range contained in Condition 3 - Table 1(d)(1)(iv)(D) of this permit, this shall be defined as a deviation. If the hourly pH reading falls outside the range contained in Condition 3 - Table 1(d)(1)(iv)(D) of this permit for two (2) consecutive hourly readings, the Company shall divert chlorine flow from the south reactor to the north reactor and scrubber and complete any necessary repairs or maintenance prior to restarting the south reactor and bygas scrubber. [Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00 and Permit: APC-2015/0088-C/O-A1]</p> <p>H. The owner or operator shall monitor visible emissions once per day when the scrubber(s) is/are in operation by conducting a survey during daylight hours to detect the presence or absence of visible emissions according to the following procedure:</p> <p>1. The detection of the presence or absence of visible emissions shall be</p>	

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
	<p>in accordance with the procedures of EPA Reference Method 22 (40 CFR 60, Appendix A) paragraphs 4 and 5.</p> <p><u>2.</u> This procedure does not require that the opacity of the emissions be determined. Since this procedure requires only the determination of whether a visible emission occurs and does not require the determination of opacity levels, observer certification according to the procedures of EPA Reference Method 9 (40 CFR 60, Appendix A) is not required. However, it is necessary that the observer is educated on the general procedures for determining the presence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects on visibility of emissions caused by background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor).</p> <p><u>3.</u> If visible emissions are observed, the visible emission survey shall be stopped and corrective actions shall be taken. This shall be defined as a deviation. If visible emissions are observed from the bygas scrubber</p>	

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification									
	<p>(ID: 18-14U) the Company shall divert chlorine flow from the south reactor to the north reactor and scrubber and complete any necessary repairs or maintenance until zero (0) visible emissions are observed per Condition 3 - Table 1(d)(1)(iv)(A) of this permit. If visible emissions are observed from the north reactor's scrubber, the chlorine electrolyzer process shall be taken off-line and corrective action shall be taken until zero (0) visible emissions are observed per Condition 3 - Table 1(d)(1)(iv)(A) of this permit.</p> <p>I. The Company shall monitor the chlor-alkali header pressure continuously. Exceedance of 24 inches of water as seen in Condition 3 - Table 1(d)(1)(iv)(B) of this permit shall be defined as a deviation. The Company shall shut down the chlorine electrolyzer process and complete any necessary repairs or maintenance prior to restarting. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00 and Permit: APC-2015/0088-C/O-A1]</i></p> <p>J. Monitor and alarm system points for the south reactor's bygas scrubber (ID:18-14U):</p> <table border="1"> <tr> <th></th><th>Operating Parameter Monitored</th><th>Alarm Trigger Point</th></tr> <tr> <td>1.</td><td>pH</td><td><9</td></tr> <tr> <td>2.</td><td>ORP</td><td><370 mV,</td></tr> </table>		Operating Parameter Monitored	Alarm Trigger Point	1.	pH	<9	2.	ORP	<370 mV,	
	Operating Parameter Monitored	Alarm Trigger Point									
1.	pH	<9									
2.	ORP	<370 mV,									

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification																					
	<table border="1"> <tr> <td></td><td></td><td>>500 mV</td></tr> <tr> <td>3.</td><td>Tank Level</td><td><2.0', >6.0'</td></tr> <tr> <td>4.</td><td>Scrubber Inlet Liquid Temperature</td><td>>130 degree F</td></tr> <tr> <td>5.</td><td>Vacuum Indication</td><td>-1.00 psig</td></tr> <tr> <td>6.</td><td>Pressure Drop</td><td><4.5", >10.0" of H₂O</td></tr> <tr> <td>7.</td><td>LDARP (Cl₂ concentration)</td><td>>3 ppm of Cl₂</td></tr> <tr> <td>8.</td><td>Scrubbing liquor flow rate</td><td><120 GPM</td></tr> </table> <p><i>[Reference Permit: APC-2015/0088-C/O-A1]</i></p> <p>vii. Testing: A. That required by Condition 3(b)(1)(ii) of this permit. B. Within 1 year of issuing of this Permit, the owner/operator shall perform emissions testing on the north reactor's off-spec tank scrubber and the south reactor's bygas tank scrubber (ID 18-14U) in accordance with the requirements of Condition 3 - Table 1(e)(5) of this permit as well as the reference methods and procedures identified in 40 CFR 60.396 dated 7/1/2019 to demonstrate compliance with the emission limitations of Condition 3 – Table 1(d)(1)(ii)(A) and (B) of this section. Emission testing shall be performed on the three (3) possible alternatives as outline in Condition 3 – Table 1(d)(1)(iv)(M) of this</p>			>500 mV	3.	Tank Level	<2.0', >6.0'	4.	Scrubber Inlet Liquid Temperature	>130 degree F	5.	Vacuum Indication	-1.00 psig	6.	Pressure Drop	<4.5", >10.0" of H ₂ O	7.	LDARP (Cl ₂ concentration)	>3 ppm of Cl ₂	8.	Scrubbing liquor flow rate	<120 GPM	
		>500 mV																					
3.	Tank Level	<2.0', >6.0'																					
4.	Scrubber Inlet Liquid Temperature	>130 degree F																					
5.	Vacuum Indication	-1.00 psig																					
6.	Pressure Drop	<4.5", >10.0" of H ₂ O																					
7.	LDARP (Cl ₂ concentration)	>3 ppm of Cl ₂																					
8.	Scrubbing liquor flow rate	<120 GPM																					

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
	<p>Permit. The owner or operator shall include the following additional data in the control device initial performance test required by 40 CFR 60.8 (a) or subsequent performance tests at which removal efficiency is determined for the south reactor's bygas scrubber (ID 18-14U):</p> <ol style="list-style-type: none">1. pH range;2. Inlet Volumetric Gas Flow Rate;3. Outlet Volumetric gas Flow Rate;4. Scrubber Liquid Flow Rate;5. Pressure drop across the scrubber;6. Packing size, packing material, and height of packing. <p>C. In addition to emission testing, an EPA Reference Method 9 in the Appendix of 40 CFR Part 60 visible emission test shall be performed to demonstrate compliance with Condition 3, Table 1 (d)(1)(iv)(A) of this Permit on both the north off-spec tank and south bygas tank's stacks.</p> <p><i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.1, dated 12/11/00 and Permit: APC-2015/0088-C/O-A1]</i></p> <p>viii. <u>Quality Assurance/Quality Control</u>: None.</p> <p>ix. <u>Recordkeeping</u>: In addition to the requirements of Conditions 3(b)(1)(ii) and 3(b)(2) of this permit, the Company shall: <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.2 and 6.2.1 dated 12/11/00]</i></p>	

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
	<p>A. Maintain a file of Chlorine production. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00]</i></p> <p>B. Record monthly and annual chlorine/hydrogen emissions on a monthly and 12-month rolling cumulative basis, respectively. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00]</i></p> <p>C. Maintain the technical information that includes all calculations of actual emissions in sufficient detail as to permit the assessment of the validity of such calculations. Including semi-annual material balances and hourly emission rates. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00]</i></p> <p>D. The owner or operator shall record the following information:</p> <ol style="list-style-type: none">1. For both scrubber(s), operational pH (continuously) and a reading each operational hour;2. For both scrubber(s), ORP data (continuously) and a reading each operational hour;3. For the bygas scrubber (ID: 18-14U), inlet liquid temperature (continuously) and a reading each operational hour.4. For both scrubber(s), vacuum indication (continuously);5. For the bygas scrubber (ID: 18-14U), pressure differential (continuously) and an hourly average each operational hour;	

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
	<p>(a) The hourly average will be calculated by recording a reading each minute and averaged over a one (1) hour period.</p> <p>6. For the bygas scrubber (ID: 18-14U), scrubber liquor flow rate (continuously) and a reading each operational hour;</p> <p>7. For both scrubber(s), chlor-alkali header pressure (continuously) and a reading each two operational hours; and</p> <p>8. For both scrubber(s), daily visible emissions per Condition 3 - Table 1(d)(1)(vi)(H) of this permit.</p> <p>(a) The records shall include the date and time of all visible emission evaluations, the name of the person who conducted evaluations, an assessment of the site conditions existing at the time (visible emissions seen/not seen), any corrective action taken in response to any visible emissions, and the date and time the corrective action was taken.</p> <p>E. The owner or operator shall maintain a file of all measurements, including continuous monitoring system, monitoring device and performance testing measurements, all continuous monitoring system performance evaluations, all continuous monitoring system or monitoring device calibration checks, adjustment and maintenance</p>	

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
	<p>performed on these systems or devices, and all other information required by this part recorded in a permanent form suitable for inspection for a minimum of five (5) years and shall immediately submit this information to the Department upon verbal or written request. [Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.2 dated 12/11/00 and Permit: APC-2015/0088-C/O-A1]</p>	
e. Facility Wide Requirements		
1. Work Practice Standard: Chlorine		
<p>i. <u>Emission Standard:</u> None.</p> <p>ii. <u>Emission Limitation:</u> None.</p> <p>iii. <u>Operational Standard:</u></p> <p>A. The company shall implement and follow LDARP for controlling fugitive chlorine gas emissions from the process.</p> <p>B. The company shall activate an alarm system to detect fugitive chlorine leaks near each emission unit and along the periphery of the fence line. The alarm system shall be made up of chlorine sensors located as per manufacturer's requirements (i.e. height off ground and recommended distance to another sensor).</p> <p>1. The detectors near each emission unit shall sound at a chlorine detection level equal to or greater than 3 ppm. At this level, a localized evacuation shall be implemented.</p>	<p>v. <u>Compliance Methods:</u> Compliance with the standards and limitations will be demonstrated by adherence to the appropriate monitoring, testing, QA/QC, and recordkeeping requirements. [Reference: 7 DE Admin. Code 1130 Section 6.1.7.3, dated 12/11/00]</p> <p>vi. <u>Monitoring:</u> Monitor the LDARP for controlling of fugitive chlorine gas emissions.</p> <p>vii. <u>Testing:</u> That required by Condition 3(b)(1)(ii) of this permit and Condition 3, Table-1 (c)(1)(vii) of this Permit.</p> <p>viii. <u>Quality Assurance/Quality Control:</u> None.</p> <p>ix. <u>Recordkeeping:</u> In addition to the requirements of Conditions 3(b)(1)(ii) and 3(b)(2) of this permit, the Company shall maintain records the bi-monthly</p>	<p>x. <u>Reporting:</u> That required by Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii), and 3(c)(2) of this permit. [Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</p> <p>xi. <u>Certification:</u> That required by Condition 3(c)(3) of this permit. [Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</p>

Permit: AQM-003/00115 (Renewal 2)

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Kuehne Chemical Company

Date x, 202x

Page 40

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<p>2. If, at any time, any chlorine detector near each emission unit or sensors along the periphery of the fence line reaches a level of 10 ppm, a facility wide evacuation shall be implemented immediately.</p> <p>iv. <u>Operational Limitations:</u> None.</p>	<p>calibration of the chlorine detectors which are part of the chlorine alarm system per Condition 3, Table - 1(c)(1)(vii). [Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.2 and 6.2.1 dated 12/11/00]</p>	
2. Odor (<i>State Enforceable Only</i>)		
<p>i. <u>Emission Standards:</u> The Company shall not cause or allow the emission of an odorous air contaminant in such quantities as to interfere with any person’s enjoyment of life or property. [Reference: 7 DE Admin. Code 1119 Section 2.1 Dated 2/1/81]</p> <p>ii. <u>Emission Limitations:</u> None.</p> <p>iii. <u>Operational Standards:</u> None.</p> <p>iv. <u>Operational Limitations:</u> None.</p>	<p>v. <u>Compliance Methods:</u> Compliance with the standards and limitations will be demonstrated by adherence to the appropriate monitoring, testing, QA/QC, and recordkeeping requirements. [Reference: 7 DE Admin. Code 1130 Section 6.1.7.3, dated 12/11/00]</p> <p>vi. <u>Monitoring:</u> Methods for determining a condition of air pollution resulting from an odorous air contaminant include, but is not limited to, scentometer tests, air quality monitoring, and affidavits from affected citizens and investigators. [Reference: 7 DE Admin. Code 1119 Section 1.2 dated 2/1/81]</p> <p>vii. <u>Testing:</u> That required by Condition 3(b)(1)(ii) of this permit.</p> <p>viii. <u>Quality Assurance/Quality Control:</u> None.</p>	<p>x. <u>Reporting:</u> That required by Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii), and 3(c)(2) of this permit. [Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</p> <p>xi. <u>Certification:</u> That required by Condition 3(c)(3) of this permit. [Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</p>

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
	ix. <u>Recordkeeping</u> : That required by Conditions 3(b)(1)(ii) and 3(b)(2) of this permit. [Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.2 and 6.2.1 dated 12/11/00]	
3. Visible Emissions		
i. <u>Emission Standards</u> : Excluding condensable vapors, the emissions of visible air contaminants from the north's off-spec tank or the south's bygas tank shall not exceed zero (0) percent opacity. From all other sources, no person shall cause or allow the emission of visible air contaminants and/or smoke from a stationary or mobile source, the shade or appearance of which is greater than twenty (20%) percent opacity for an aggregate of more than three (3) minutes in any one (1) hour or more than fifteen (15) minutes in any twenty-four (24) hour period. [Reference: 7 DE Admin. Code 1114 Section 2.1 dated 11/11/13, and Permit: APC-2015/0088-C/O-A1] ii. <u>Emission Limitations</u> : None. iii. <u>Operational Standards</u> : Only for Chlorine processes, the opacity limit shall not exceed zero (0) percent on any time. iv. <u>Operational Limitations</u> :	v. <u>Compliance Methods</u> : Compliance with the standards and limitations will be demonstrated by adherence to the appropriate monitoring, testing, QA/QC, and recordkeeping requirements. [Reference: 7 DE Admin. Code 1130 Section 6.1.7.3, dated 12/11/00] vi. <u>Monitoring</u> : Daily stack observations as outline in Condition 3, Table-1 (e)(3)(vii) of this section. vii. <u>Testing</u> : In addition to the requirements of Conditions 3(b)(1)(ii) of this permit, the Company shall: A. For all site combustion emission sources, except those excluded in this section, once every six months or whenever excess visible emissions are observed, the Company shall conduct during daylight hours a qualitative visible emission survey (similar to EPA Reference Method 22 of 40 CFR Part 60) to evaluate the presence or absence of smoke and/or opacity for a continuous five (5) minute period when the equipment is in operation. This must be completed prior to the January 31 Annual Compliance	x. <u>Reporting</u> : That required by Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii), and 3(c)(2) of this permit. [Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00] xi. <u>Certification</u> : That required by Condition 3(c)(3) of this permit. [Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<p>Opacity limits apply at all times, including, startup, shutdown, and malfunction. <i>[Reference: 7 DE Admin. Code 1130 Section 6 dated 12/11/00]</i></p>	<p>Certification and July 31 Semi-Annual Report Title V Certification Report(s).</p> <p>B. If opacity is detected for emission source other than EP 03, the Company shall take immediate corrective actions to eliminate the cause of the opacity and repeat the qualitative observation to allow that the actions were effective as per following: In accordance with Subsection 1.5.3 of 7 DE Admin. Code 1120, conduct visual observations at fifteen-second intervals for a period of not less than one hour except that the observations may be discontinued whenever a violation of standard is recorded. The additional procedures, qualification and testing to be used for visually determining the opacity shall be those specified in Section 2 and 3 (except for Section 2.5 and the second sentence of Section 2.4) of Reference Method 9 set forth in Appendix A, 40 CFR Part 60, Revised July 1, 1982. If opacity is detected for EP 03 then refer an follow Condition 3, Table-1(d)(1)(vi)(H) of this Permit. <i>[Reference: 7 DE Admin. Code 1120, Section 1.5.3 dated 12/7/1988]</i></p> <p>C. If corrective action does not eliminate the excess opacity observed during the qualitative visible emission observation, then perform the opacity testing using EPA Reference Method 9 set forth in Appendix A, 40 CFR, Part 60. Opacity observation shall be conducted in consecutive 15 seconds intervals for no less than one (1) hour. If</p>	

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
	<p>opacity observation is greater than zero (0) percent opacity for an aggregate of more than three (3) minute in any one (1) hour or more than fifteen (15) minute in any twenty four (24) hour period, then the unit shall be shut down until the opacity is maintained within the standard.</p> <p><i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.2 dated 12/11/00]</i></p> <p>D. For all non-combustion site emission sources, whenever excess emissions are observed, the Company shall have qualified personnel conduct a qualitative visible emission survey to evaluate the presence or absence of smoke and/or opacity, if opacity is observed, the Company shall take immediate corrective actions to eliminate the cause of the opacity.</p> <p><i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.2 dated 12/11/00]</i></p> <p>viii. <u>Quality Assurance/Quality Control</u>: None.</p> <p>ix. <u>Recordkeeping</u>: In addition to the requirements of Conditions 3(b)(1)(ii) and 3(b)(2) of this permit, the Company shall record all of the following: <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.2 and 6.2.1 dated 12/11/00]</i></p> <p>A. The Company shall maintain all necessary records, the results of all visible emission inspections and EPA Reference Method 9 set</p>	

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
	<p>forth in Appendix A, 40 CFR, Part 60 observations, conducted for any emission source at the facility, in a readily accessible location, for a period of five (5) years. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.2 dated 12/11/00]</i></p> <p>B. The records must include the date and time of each inspection (visible emission seen/not seen), the name of the inspector, a description of the weather conditions at the time of the inspection, the inspector's assessment of the site conditions existing at the time, any corrective action taken in response to any visible emission with the date and time. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.2 dated 12/11/00]</i></p> <p>C. If an opacity test was conducted as a result of the inspection, a record of the Method 9 opacity measurement and corrective action taken shall be maintained. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.2 dated 12/11/00]</i></p>	
4. Operation/ Maintenance		
<p>i. <u>Emission Standards</u>: None.</p> <p>ii. <u>Emission Limitations</u>: None.</p> <p>iii. <u>Operational Standards</u>: None.</p> <p>iv. <u>Operational Limitations</u>:</p>	<p>v. <u>Compliance Methods</u>: Compliance with the standards and limitations will be demonstrated by adherence to the appropriate monitoring, testing, QA/QC, and recordkeeping requirements. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.7.3, dated 12/11/00]</i></p> <p>vi. <u>Monitoring</u>: Vendor Specifications and Industrial Standards. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00]</i></p>	<p>x. <u>Reporting</u>: That required by Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii), and 3(c)(2) of this permit. <i>[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i></p> <p>xi. <u>Certification</u>: That required by Condition 3(c)(3) of this permit. <i>[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i></p>

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<p>All structural and mechanical components of the equipment covered by this permit shall be maintained in proper operating condition and such equipment shall be operated at all times in a manner consistent with good air pollution control practice. <i>[Reference: 7 DE Admin. Code 1101 Section 3 dated 11/11/13 and 7 DE Admin. Code 1102 Operating Permits]</i></p>	<p>vii. <u>Testing</u>: That required by Condition 3(b)(1)(ii) of this permit.</p> <p>viii. <u>Quality Assurance/Quality Control</u>: None.</p> <p>ix. <u>Recordkeeping</u>: That required by Conditions 3(b)(1)(ii) and 3(b)(2) of this permit. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.2 and 6.2.1 dated 12/11/00]</i></p>	
5. Emissions Testing Procedural Requirements		
<p>i. <u>Emission Standard</u>: None.</p> <p>ii. <u>Emission Limitation</u>: None.</p> <p>iii. <u>Operational Standard</u>: The procedures of this section shall be followed whenever emissions or stack testing is required, unless other requirements are specified in the referencing section. <i>[Reference: 7 DE Admin. Code 1117 Section 2.2 dated 7/17/1984]</i></p> <p>iv. <u>Operational Limitation</u>: None.</p>	<p>v. <u>Compliance Method</u>:</p> <p>A. One (1) original and one (1) copy of the test protocol shall be submitted a minimum of forty-five (45) days in advance of the tentative test date to the following address:</p> <p>State of Delaware – DNREC Division of Air Quality State Street Commons 100 W. Water Street, Suite 6A Dover, DE 19904</p> <p>B. The test protocol shall be approved by the Department prior to initiating any testing. Upon approval of the test protocol, the Department will notify the owner or operator and the Company shall schedule a test date with the source testing</p>	<p>x. <u>Reporting</u>:</p> <p>A. The final results of the testing shall be submitted to the Department within sixty (60) days of the test completion. One (1) original and one (1) copy of the test report shall be submitted to the addresses below:</p> <p>Original to: Engineering & Compliance Attn: Permitting Engineer State Street Commons 100 W. Water Street, Suite 6A Dover, DE 19904</p> <p>One (1) Copy To: Engineering & Compliance Attn: Source Testing Engineer 715 Grantham Lane</p>

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
	<p>engineer. The Department must observe the test for the results to be considered for acceptance. <i>[Reference: 7 DE Admin. Code 1102 Sections 11.7 dated 6/11/06]</i></p> <p>vi. <u>Monitoring:</u> Parameters to be monitored shall be included in the test protocol.</p> <p>vii. <u>Testing:</u> The tests shall be conducted in accordance with the State of Delaware and Federal requirements.</p> <p>viii. <u>Quality Assurance/Quality Control:</u> None.</p> <p>ix. <u>Recordkeeping:</u> That required by Conditions 3(b)(1)(ii) and 3(b)(2) of this permit. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.2 and 6.2.1 dated 12/11/00]</i></p>	<p>New Castle, DE 19720</p> <p>B. The final report of the results must meet the following requirements to be considered valid:</p> <ol style="list-style-type: none">1. The full report shall include the emissions test report (including raw data from the test) as well as a summary of the results and statement of compliance or non-compliance with the permit conditions;2. <u>Summary of Results and Statement of Compliance or Non-Compliance</u> The owner or operator shall supplement the report from the emissions testing firm with a summary of results that includes the following information:<ol style="list-style-type: none">a) A statement that the owner or operator has reviewed the report from the emissions testing firm and agrees with the findings;b) Permit number(s) and condition(s) which are the basis for the compliance evaluation;c) Summary of results with respect to each permit condition;d) Statement of compliance or non-compliance with each permit condition.3. The results must demonstrate to the Department's satisfaction that the emission unit is operating in

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
		<p>compliance with the applicable regulations and conditions of this permit; if the final report of the test results shows non-compliance, the owner or operator shall propose corrective action(s). Failure to demonstrate compliance through the test may result in enforcement action. <i>[Reference: 7 DE Admin. Code 1102 Section 11.3 dated 6/11/06]</i></p> <p>xi. <u>Certification:</u> The test report shall be certified by a Responsible Official as to truth, accuracy, and completeness. Such certification shall be signed by a Responsible Official and shall contain the following language:</p> <p>"I certify, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete." <i>[Reference: 7 DE Admin. Code 1130 Section 5.6 dated 11/15/93 and 6.3.1 dated 12/11/00]</i></p>
f. Emission Point 06: Emergency Generator 300KW		
1. Criteria Pollutants- Products of Combustion		
i. <u>Emission Standards:</u> No person shall cause or allow the emission of visible air contaminants and/or smoke from any emission unit, the shade or appearance of	v. <u>Compliance Method:</u> Compliance with this emission standard and these operation limitations will be demonstrated by adherence to the appropriate	x. <u>Reporting:</u> In addition to that required by Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii), and 3(c)(2) of this permit, if the emergency generator is

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<p>which is greater than twenty (20%) percent opacity for an aggregate of more than three (3) minutes in any one (1) hour or more than fifteen (15) minutes in any twenty-four (24) hour period. <i>[Reference: 7 DE Admin. Code 1114, Section 2.1 dated 11/11/13]</i></p> <p>ii. <u>Emission Limitations:</u> Emissions from air contaminants shall not exceed the following:</p> <ul style="list-style-type: none"> A. Nitrogen Oxides (NO_x) emissions shall not exceed 14.11 lbs/hr and 3.5 tons per twelve (12) month rolling period. B. Carbon Monoxide (CO) emissions shall not exceed 3.04 lbs/hr and 0.8 ton per twelve (12) month rolling period. C. Volatile Organic Compounds (VOC) emissions shall not exceed 1.15 lbs/hr and 0.3 ton per twelve (12) month rolling period. D. Particulate Matter (PM) emissions shall not exceed 0.99 lb/hr and 0.2 ton per twelve (12) month rolling period. E. Sulfur Dioxide (SO₂) emissions shall not exceed 0.93 lb/hr and 0.23 ton per twelve (12) month rolling period. F. Hazardous Air Pollutants (HAP) emissions shall not exceed 2.91 lbs/hr and 0.728 ton per twelve (12) month rolling period. <p>iii. <u>Operational Standards:</u></p> <ul style="list-style-type: none"> A. The emergency generator may only operate for an unlimited number of hours during an emergency as defined below: 	<p>monitoring, testing, QA/QC, and recordkeeping requirements. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3.2.3, dated 12/11/00]</i></p> <p>vi. <u>Monitoring:</u> Monitor the following information:</p> <ul style="list-style-type: none"> 1. The date, time, duration, and reason for each emergency generator startup; 2. The monthly fuel usage; and 3. The quarterly visible emissions testing. <i>[Reference: 7 DE Admin. Code 1130 Section 6 dated 12/11/00]</i> <p>vii. <u>Testing:</u></p> <ul style="list-style-type: none"> A. The Department reserves the right to require that the Facility perform emission tests using methods approved in advance by the Department. B. Sulfur content of each shipment of diesel fuel or biodiesel blend shall be determined using the following sampling and testing methods as described in 40 CFR Section 80.580 (July 1, 2004): <ul style="list-style-type: none"> 1. Manual Sampling: American Society for Testing and Materials (ASTM) method D4057-95 or D5842-95 if there is no contamination present that could affect the sulfur testing requirements; 2. Automatic Sampling: ASTM method D4177-95; 3. Sulfur Testing Method: ASTM method 2622-03; 4. Alternative Sulfur Testing Method: ASTM methods D4294-03, D5453-03a, or 	<p>to be reclassified from an emergency generator to a distributed generator, the owner or operator shall submit a letter stating that the generator is to be reclassified. Reclassification shall not occur without written permission from the Department. <i>[Reference: 7 DE Admin. Code 1144 Section 1.3.3 dated 1/11/2006]</i></p> <p>xi. <u>Compliance Certification:</u> In addition to that required by Condition 3(c)(3) of this permit, compliance with the emission and operational requirements shall be based upon record keeping. <i>[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.2.3 and 6.2.2 dated 12/11/00]</i></p>

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<p><i>[Reference: 7 DE Admin. Code 1144, Section 4.1 dated 1/11/06]</i></p> <ol style="list-style-type: none"> 1. An electrical power outage due to: a failure of the electrical grid; on-site disaster; local equipment failure; or public service emergencies such as flood, fire, natural disaster, or severe weather conditions (e.g. hurricane, tornado, blizzard, etc.); or 2. When there is a deviation of voltage or frequency from the electrical provider to the premises of three percent (3%) or greater above, or five percent (5%) or greater below, standard voltage or frequency. <p>B. The emergency generator may operate for 100 hours during testing or for maintenance purposes, pursuant to the definition of emergency generator as defined in 7 DE Admin. Code 1144, except as restricted by Condition 3 – Table 1(f)(1)(iii)(C). <i>[Reference: 40 CFR Part 63, Subpart ZZZZ, §63.6640(f)(2) dated 7/1/2019]</i></p> <p>C. The emergency generator shall not be operated for testing or maintenance purposes before 5 p.m. on any day which has a Ground Level Ozone Pollution Forecast or Particulate Forecast of "Code Purple," "Code Red," or "Code Orange" as announced by the Department. <i>[Reference: 7 DE Admin. Code 1144, Section 4.2 dated 1/11/06]</i></p> <p>D. Despite Condition 3 - Table 1(f)(1)(iii)(C), the emergency generator may be tested on any day that such testing is required to</p>	<p>D6428-99, provided that the refiner or importer test result is correlated with the appropriate method specified in Condition 3 – Table 1(f)(1)(vii)(B)(3); or</p> <ol style="list-style-type: none"> 5. Alternative Sulfur Testing Method: Sulfur content may be determined using any test method approved under 40 CFR Part 80, Subpart I, Section 80.585. 6. As an alternate to (1) through (5), the operator may have the fuel in the emergency generator's associated storage tank certified by a third party lab after each shipment of fuel. This certification shall identify the percentage of sulfur (by weight dry basis) and the method used to determine the sulfur content. <p><i>[Reference: 7 DE Admin. Code 1108 dated 7/11/2013]</i></p> <p>C. The owner or operator shall perform the following visible emission testing once a quarter during daylight hours: <i>[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.1.2 and 6.2.1 dated 12/11/00]</i></p> <ol style="list-style-type: none"> 1. The emergency generator shall be observed for the presence or absence of visible emissions for at least five minutes while the equipment is operating. The five minute observation window must start as soon as generator power is stabilized. Compliance with this condition shall be demonstrated by a visible emission log book which may be an electronic version. The visible emissions 	

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<p>meet National Fire Protection Association (NFPA) Standards. <i>[Reference: 7 DE Admin. Code 1144, Section 4.5 dated 1/11/06]</i></p> <p>E. The emergency generator shall be equipped with a properly functioning non-resettable hour metering device. <i>[Reference: 7 DE Admin. Code 1144, Section 6.1.2 dated 1/11/06]</i></p> <p>F. The emergency generator shall not be operated in conjunction with a voluntary demand reduction program or any other interruptible power supply arrangement with a utility, other market participant, or system operator (e.g. Delmarva Power, Delaware Electric Cooperative, PJM, etc.). <i>[Reference: 7 DE Admin. Code 1144 Section 4.2 dated 1/11/2006]</i></p> <p>G. The emergency generator shall not be transferred off-site without first obtaining a permit from the Department for the new site. <i>[Reference: 7 DE Admin. Code 1102 Section 7.1 dated 6/1/1997]</i></p> <p>H. The emergency generator shall have the following: <i>[Reference: 40 CFR 63, Subpart ZZZZ, §63.6603, Table 2d, dated 7/1/2019]</i></p> <ol style="list-style-type: none">1. Change oil and filter every 1,000 hours of operation or annually whichever comes first.2. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary;3. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.	<p>log book shall record the identity of the observer, the date and time of all visible emission evaluations, a description of the weather conditions at the time of the inspection, an assessment of the site conditions existing at the time (visible emissions seen/not seen), any corrective action taken in response to any visible emissions, and the date and time the corrective action was taken.</p> <p>2. If visible emissions are observed during the five minute observation period, the owner or operator shall take actions per the manufacturer's recommendations to correct the problem as soon as possible. After corrective actions are taken, the owner or operator shall observe visible emissions the next time the emergency generator is operating to ensure compliance with Condition 3 – Table 1, (f)(1)(i) of this Permit. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00]</i></p> <p>viii. <u>Quality Assurance/ Quality Control:</u> None.</p> <p>ix. <u>Recordkeeping:</u> In addition to the requirements of Conditions 3(b)(1)(ii) and 3(b)(2) of this permit, the Company shall maintain records of the following: <i>[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.1.2 and 6.2.1 dated 12/11/00]</i></p> <p>A. Maintain all records necessary to determine compliance with this permit, in a readily</p>	

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<p>iv. <u>Operational Limitations:</u></p> <p>A. Each shipment of diesel fuel received for use in the emergency generators shall meet the following requirements: <i>[Reference: 7 DE Admin. Code 1108 dated 7/11/2013]</i></p> <p>1. Prior to July 1, 2016, each shipment of diesel fuel received for use in the emergency generators shall have a sulfur content equal to or less than 0.05 percent by weight.</p> <p>2. On and after July 1, 2016, each shipment of diesel fuel received for use in the emergency generators shall have a sulfur content equal to or less than 15 ppm by weight.</p> <p>3. Distillate fuel stored within Delaware prior to July 1, 2016 may be used through June 30, 2017, provided records are kept for a period of two (2) years which document and certify the fuel was stored within Delaware prior to July 1, 2016.</p> <p>4. Distillate fuel that meets the requirements of Condition 3 Table 1(f)(1)(iv)(3) that is purchased and received for use on or before June 30, 2017 may be used after June 30, 2017.</p> <p>B. The emergency generator shall be serviced annually by a manufacturer's representative or by personnel trained to perform maintenance according to the manufacturer's recommendations.</p>	<p>accessible location at the facility, for five (5) years and shall make these records available to the Department upon written or verbal request.</p> <p>B. Record the following information in a log book or electronic database for the emergency generator:</p> <p>1. The duration and reason for each startup;</p> <p>2. The total hours of operation for each month and the cumulative 12 month rolling total operation hours;</p> <p>3. The hours of testing and/or maintenance operation on a monthly and cumulative rolling twelve (12) month basis;</p> <p>4. The total fuel usage for each month and the cumulative 12 month rolling period as follows:</p> <p>a. Fuel usage shall be calculated using manufacturer's design data or generally accepted fuel consumption rates if manufacturer's data is not available, and the recorded hours of operation;</p> <p>b. When the information is available, fuel consumption rates will assume "no load" conditions during the testing and maintenance and "full load" conditions during emergency</p>	

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<p><i>[Reference: 7 DE Admin. Code 1102 Section 6.1.1 & 6.2.1 dated 12/11/00]</i></p> <p>C. The owner or operator shall operate the generator in conformance with the generator manufacturer's instructions, such as following maintenance and operating requirements to help minimize emissions. <i>[Reference: 7 DE Admin. Code 1144, Section 3.1.1 dated 1/11/06]</i></p> <p>D. Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply. <i>[Reference: 40 CFR Part 63, Subpart ZZZZ, §63.6625(h), dated 7/1/2019]</i></p>	<p>operations, otherwise "full load" conditions are assumed.</p> <p>5. For each shipment of liquid fuel, received for use in a generator, a shipping receipt and certification shall be obtained from the fuel distributor which identifies:</p> <p>a. The name, address, and telephone number of the oil supplier;</p> <p>b. The name, address, and telephone number of the fuel oil purchaser and the address where the fuel oil was delivered; and</p> <p>c. The sulfur content of the oil as determined by ASTM methods D129, D1552, D2622 or D4294. <i>[Reference: 7 DE Admin. Code 1108 Section 5 dated 7/11/13 and 7 DE Admin. Code 1144 Section 6 dated 1/11/2006]</i></p> <p>6. Visible Emissions records per Condition 3, Table - 1(f)(1)(vii)(C) of this Permit.</p> <p>C. A copy of the initial notification as required by 7 DE Admin. Code 1144. <i>[Reference: 7 DE Admin. Code 1144 Section 1.4 dated 1/11/06]</i></p> <p>D. A copy of the manufacturer's maintenance and operational recommendations. <i>[Reference: 7 DE Admin. Code 1144 Section 3.1.1 dated 1/11/06]</i></p> <p>E. A copy of the annual service performed in accordance with Condition 3 – Table 1(f)(1)(iii)(H) and Condition 3 – Table 1(f)(1)(iv)(B). <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3.1.2 & 6.2.1 dated 12/11/00]</i></p>	

Permit: AQM-003/00115 (Renewal 2)

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Kuehne Chemical Company

Date x, 202x

Page 53

Condition 4- Operational Flexibility

- a. In addition to the operational flexibility specifically provided in the terms and conditions detailed in Condition 3 – Table 1 of this permit, the Owner and/or Operator is authorized to make any changes within the facility which contravenes the terms and conditions of this permit without a permit revision if the change:
1. Is not a modification or otherwise prohibited under any provision of Title I of the Act or the State Implementation Plan (SIP); and [Reference: 7 DE Admin. Code 1130 Section 6.8 dated 12/11/00]
 2. Does not involve a change in any compliance schedule date; and [Reference: 7 DE Admin. Code 1130 Section 6.8 dated 12/11/00]
 3. Does not result in a level of emissions exceeding the emissions allowable under this permit, whether expressed herein as a rate of emissions or in terms of total emissions. [Reference: 7 DE Admin. Code 1130 Section 6.8 dated 12/11/00]
- b. Before making a change under the provisions of Condition 4(a) of this permit, the Owner and/or Operator shall provide advance written notice to the Department and to the EPA in accordance with Condition 3(c)(2)(iii) of this permit. [Reference: 7 DE Admin. Code 1130 Section 6.8.1 dated 12/11/00]
- c. The Owner and/or Operator shall keep records of any changes made under Condition 4 of this permit in accordance with Condition 3(b)(2)(iv) of this permit. [Reference: 7 DE Admin. Code 1130 Section 6.8.1 dated 12/11/00]

Condition 5- Compliance Schedule

This permit does not contain a compliance schedule. [Reference: 7 DE Admin. Code 1130 Section 6.3.3 dated 12/11/00]

Condition 6. Permit Shield.

- a. Permit Shield: Compliance with the terms and conditions of this permit shall constitute compliance with 7 Del. C. Ch 60 for the discharge of any air contaminant specifically identified in the permit application as of the day of permit issuance. However, nothing in this permit shield shall in any way limit or affect the following:
1. The provisions of section 303 (Emergency Orders) of the Act, including the authority of the Administrator under that section; or
 2. The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance; or
 3. The applicable requirements of the acid rain program consistent with section 408(a) of the Act; or
 4. The ability of EPA to obtain information from a source pursuant to section 114 of the Act. [Reference: 7 DE Admin. Code 1130 Sections 6.6.4 dated 12/11/00]

Condition 6 – Table 1	
Emission Unit	Applicable Requirement
1. Emission Point 01-Boiler 3	i. 7 DE Admin. Code 1104 Section 2.1
	ii. 7 DE Admin. Code 1108 Section 2.3
	ii. 7 DE Admin. Code 1114 Section 2.1
	iv. 7 DE Admin. Code 1119 Section 2.1

Permit: AQM-003/00115 (Renewal 2)

7 **DE Admin. Code** 1130 Draft/Proposed Operating Permit

Kuehne Chemical Company

Date x, 202x

Page 54

Condition 6 – Table 1	
Emission Unit	Applicable Requirement
2. Emission Point 02-Boiler 2	i. 7 DE Admin. Code 1104 Section 2.1
	ii. 7 DE Admin. Code 1108 Section 2.3
	iii. 7 DE Admin. Code 1114 Section 2.1
	iv. 7 DE Admin. Code 1119 Section 2.1
3. Emission Point 03-electrolyzer cells, reactors, and scrubbers	i. 7 DE Admin. Code 1114 Section 2.1
	ii. 7 DE Admin. Code 1119 Section 2.1
4. Emission Point 04-Chlorine Storage and Filling	i. 7 DE Admin. Code 1119 Section 2.1
	ii. 7 DE Admin. Code 1121 Section 13
5. Emission Point 06-Emergency Generator	i. 7 DE Admin. Code 1104 Section 2.1
	ii. 7 DE Admin. Code 1108 Section 2.3
	iii. 7 DE Admin. Code 1114 Section 2.3
	iv. 7 DE Admin. Code 1119 Section 2.1
	v. 7 DE Admin. Code 1144 Section 3,4,5 and 6

- b.** The permit shield granted in Condition 6 of this permit shall not extend to any changes made pursuant to Condition 2(m)(3) [Minor Permit Modifications] or Condition 4 [Operational Flexibility] of this permit. *[Reference: 7 **DE Admin. Code** 1130 Sections 6.8.2 dated 12/11/00, 7.5.1.6 dated 12/11/00, and 7.5.2.6 dated 12/11/00]*

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 Alexa Murphy

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7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Kuehne Chemical Company

Date x, 202x

Page 55

Attachment "A"- Revision History

<u>Date</u>	<u>Number</u>	<u>Revision Type</u>	<u>Description</u>	<u>Pages Revised</u>
May 15, 2011	AQM-003/00115	NA	Initial Permit	All
August 6, 2015	Renewal 1	Renewal	Renewal of permit; updated to reflect operating conditions and limitations, Significant Permit Mod. for APC-2015/0088	All
May 10, 2016	Revision 1	Admin. Amend	Update to Departments Address	1, 4, & 45
July 17, 2017	Revision 2	Admin. Amend	Update to Facility Address	1
Date xx, xxx	Renewal 2	Renewal	Renewal of Permit; removed operation and monitoring conditions for specific gravity of scrubber solution.	All

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Permit: AQM-003/00115 (Renewal 2)

7 DE Admin. Code 1130 Draft/Proposed Operating Permit

Kuehne Chemical Company

Date x, 202x

Page 56

Appendix A:
Insignificant Activities

Equipment Description	Capacity	Units
Wastewater Treatment Operations	10,000	GPD
Non-Contact Cooling Water Towers	3	Towers
Diesel Fuel Storage Tank	10,000	Gallons
Maintenance Shop Natural Gas Heaters (2)	305,000	BTU/hr

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