State of Mississippi

AIR POLLUTION CONTROL PERMIT

To Construct Air Emissions Equipment

THIS CERTIFIES

KiOR Inc
600 Industrial Park Access Road
Columbus, MS
Lowndes County

has been granted permission to construct air emissions equipment to comply with the emission limitations, monitoring requirements and other conditions set forth herein. This permit is issued in accordance with the provisions of the Mississippi Air and Water Pollution Control Law (Section 49-17-1 et. seq., Mississippi Code of 1972), and the regulations and standards adopted and promulgated thereunder.

Mississippi Environmental Quality Permit Board

Mississippi Department of Environmental Quality

Issued/Modified: MAY 2 9 2012
Expires:

Permit No. 1680-00073
Agency Interest # 54589

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Other Relevant Documents:

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Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes, 40 CFR 60, Subpart RRR
Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, 40 CFR 60, Subpart IIII
Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for which Construction, Reconstruction, or Modification Commenced after November 7, 2006, 40 CFR 60, Subpart VVa
Standards of Performance for Volatile Organic Liquid Storage Vessels (including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction or Modification commenced after July 23, 1984, 40 CFR 60, Subpart Kb
Standards of Performance for Volatile Organic Compound (VOC) Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations, 40 CFR 60, Subpart NNN
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National Emission Standard for Equipment Leaks (Fugitive Emission Sources), 40 CFR 61, Subpart V

To Construct Air Emissions Equipment

KiOR Inc
Subject Item Inventory
Permit Number:1680-00073
Activity ID No.: PER20120001

Subject Item Inventory:

ID	Designation	Description
AI54589		Biomass to Bio-crude Refinement
AREA1	FC-001	Fugitive Components (BCCU)
AREA2	FC-002	Fugitive Components (Hydro-treater Unit)
CONT1	BH-001	Hog Bin Vent
CONT2	BH-002	Fuel Bin Vent
CONT3	BH-003	Dry Silo Vent
CONT4	BH-004	Hammermill Silo Filter #1 Vent
CONT5	BH-005	Hammermill Silo Filter #2 Vent
CONT7	BH-007	Regen Bag House controlling emissions from Catalyst M/U Hopper and Spent Catalyst Hopper
CONT9	CD-002	Regenerative Thermal Oxidizer (RTO) -- 1 MMBTU/hr, natural gas-fired
CONT10	CD-003	Wet Gas Scrubber controlling PM and SO2 emissions from the Waste Heat Boiler
EQPT1	TV-001	Process Water Tank (Emissions vented to Waste Heat Boiler) -- 76,000 gallons, fixed roof
EQPT2	TV-002	Crude Bio Buffer Check Tank (Emissions vented to Waste Heat Boiler) -- 38,000 gallons, fixed roof
EQPT3	TV-003	Crude Bio Check Tank (Emissions vented to Waste Heat Boiler) -- 38,000 gallons, fixed roof
EQPT4	TV-004	Torch Oil Tank (Emissions vented to Waste Heat Boiler) -- 32,000 gallons, fixed roof
EQPT5	TV-005	Product Storage Tank 1 (Emissions vented to Waste Heat Boiler) -- 75,000 gallons, fixed roof
EQPT6	TV-006	Product Storage Tank 2 (Emissions vented to Waste Heat Boiler) -- 60,000 gallons, fixed roof
EQPT7	TV-007	Product Storage Tank 3 (Emissions vented to Waste Heat Boiler) -- 25,000 gallon, fixed roof
EQPT8	TV-008	Product Storage Tank 4 (Emissions vented to Waste Heat Boiler) -- 161,000 gallon, fixed roof
EQPT9	LA-001	Loading Area (Emissions vented to Waste Heat Boiler)
EQPT10	FB-001	Chip Dryer (Emissions vented to RTO, Emission Point CD-002) -- 66.2 MMBTU/hr, natural gas-fired equipped with low NOx burners
EQPT11	FB-002	Air Preheater -- 25 MMBTU/hr, natural gas-fired equipped with low NOx burners

To Construct Air Emissions Equipment

KiOR Inc
Subject Item Inventory
Permit Number:1680-00073
Activity ID No.: PER20120001

ID	Designation	Description
EQPT12	FB-003	Catalytic Cracking Unit, Catalyst Regeneration (Emissions vented to Waste Heat Boiler) -- 120.7 MMBTU/hr, natural gas-fired
EQPT13	FB-004	Feed Preheater -- 5.83 MMBTU/hr, natural gas-fired equipped with low NOx burners
EQPT14	FB-005	Hydrogen (H2) Generator -- 17.6 MMBTU/hr, natural gas-fired equipped with low NOx burners
EQPT15	FB-006	Fractionation Heater -- 3.30 MMBTU/hr, natural gas-fired equipped with low NOx burners
EQPT16	FB-007	Steam Stripper (Emissions vented to Waste Heat Boiler) -- 6.60 MMBTU/hr
EQPT17	CD-001	Waste Heat Boiler (Emissions vented to Wet Gas Scrubber for control of SO2 and PM) -- 200 MMBTU/hr
EQPT18	EF-001	Emergency Flare
EQPT19	CC-001	Catalytic Cracking Unit
EQPT20	FW-001	Diesel Firewater Pump Engine
EQPT21	AA-001	Product Upgrading Column (There are no emissions from this source)
EQPT22	AA-002	Fractionation Column (There are no emissions from this source)
EQPT23	TB-001	Temporary Boiler < 100 MMBTU/hr, natural gas fired
EQPT24	TV-009	1000 Gallon Diesel Storage Tank

Subject Item Groups:

ID	Description	Components
GRPT1	Fugitive Components	AREA1 Fugitive Components (BCCU)
		AREA2 Fugitive Components (Hydro-treater Unit)
GRPT2	NSPS Subpart Kb Tanks	EQPT1 Process Water Tank (Emissions vented to Waste Heat Boiler) -- 76,000 gallons, fixed roof
		EQPT2 Crude Bio Buffer Check Tank (Emissions vented to Waste Heat Boiler) -- 38,000 gallons, fixed roof
		EQPT3 Crude Bio Check Tank (Emissions vented to Waste Heat Boiler) -- 38,000 gallons, fixed roof
GRPT3	NSPS Subpart NNN Equipment	EQPT21 Product Upgrading Column (There are no emissions from this source)

To Construct Air Emissions Equipment

KiOR Inc

Subject Item Inventory

Permit Number:1680-00073

Activity ID No.: PER20120001

ID	Description	Components
GRPT3	NSPS Subpart NNN Equipment	EQPT22 Fractionation Column (There are no emissions from this source)

KEY

ACT = Activity	AI = Agency Interest
AREA = Area	CAFO = Concentrated Animal Feeding Operation
CONT = Control Device	EQPT = Equipment
IA = Insignificant Activity	MAFO = Animal Feeding Operation
RPNT = Release Point	TRMT = Treatment

AI0000054589 Biomass to Bio-crude Refinement:

Limitation Requirements:

Condition No.	Parameter	Condition
L-1	Particulate Matter	Particulate Matter: The permittee shall not cause, permit, or allow the emission of smoke from a point source into the open air from any manufacturing, industrial, commercial or waste disposal process which exceed forty (40) percent opacity subject to the exceptions provided in (a) and (b). (a) Startup operations may produce emissions which exceed 40% opacity for up to fifteen (15) minutes per startup in any one hour and not to exceed three (3) startups per stack in any twenty-four (24) hour period. (b) Emissions resulting from soot blowing operations shall be permitted providing such emissions do not exceed 60 percent opacity, and provided further that the aggregate duration of such emissions during any twenty-four (24) hour period does not exceed ten (10) minutes per billion BTU gross heating value of fuel in any one hour. [APC-S-1 3.1]
L-2	Particulate Matter	Particulate Matter: The permittee shall not cause, allow, or permit the discharge into the ambient air from any point source or emissions, any air contaminant of such opacity as to obscure an observer's view to a degree in exceeds of 40% opacity, equivalent to that provided in Condition L-1. This shall not apply to vision obscuration caused by uncombined water droplets. [APC-S-1 3.2]
L-3	Particulate Matter	Particulate Matter: The permittee shall not cause, permit, or allow the emissions of particulate matter in total quantities in any one hour from any manufacturing process, which includes any associated stacks, vents, outlets, or combination thereof, to exceed the amount determined by the relationship: E = 4.1p^0.67 where E is the emission rate in pounds per hour and p is the process weight input rate in tons per hour. Conveyor discharge of coarse solid matter may be allowed if no nuisance is created beyond property boundary where the discharge occurs. [APC-S-1 3.6(a)]
L-4	Sulfur Dioxide	Sulfur Dioxide: The permitee shall not cause or permit the emissions of gas containing sulfur oxides (measured as sulfur dioxide) in excess of 500 ppm (volume) from any process equipment contructed after January 25, 1972. [APC-S-1 4.2(a)]

AI0000054589 (continued):

Monitoring Requirements:

Condition No.	Parameter	Condition
M-1		For all emission sources with specific pound per hour emission limits specified herein, the permitee shall perform an Initial performance test within 60 days after achieving the maximum production rate at which the facility or emission source will be operated, but not later than 180 days after initial startup. The permittee shall submit a test protocol at least thirty (30) days prior to the scheduled test date to ensure that all test methods and procedures are acceptable to the DEQ. The DEQ must be notified at least ten (10) days prior to the scheduled test date so that an observer may be scheduled to witness the test(s). A stack test report containing the results of the test(s) shall be submitted within sixty (60) days of completion of the required test(s). [APC-S-2 II.B(11)]

Submittal/Action Requirements:

Condition No.	Condition
S-1	General Condition: The permittee shall submit certification of construction: Due within thirty (30) days of completion of construction or installation of an approved stationary source or prior to startup, whichever is earlier. The notification shall certify that construction or installation was performed in accordance with the approved plans and specifications. In the event there is any change in construction from the previously approved plans and specifications or permit, the permittee shall promptly notify MDEQ in writing. If MDEQ determines the changes are substantial, MDEQ may require the submission of a new application to construct with "as built" plans and specifications. Notwithstanding any provision herein to the contrary, the acceptance of an "as built" application shall not constitute a waiver of the right to seek compliance penalties pursuant to State Law. [APC-S-2 V.D]
S-2	Within fifteen (15) days of beginning actual construction, the permittee must notify DEQ in writing that construction has begun. [APC-S-2 V.C(2)]
S-3	The permittee must notify DEQ in writing when construction does not begin within eighteen (18) months of issuance or if construction is suspended for eighteen (18) months or more. [APC-S-2 V.C(3)]

AI0000054589 (continued):

Narrative Requirements:

General Condition:

Condition No.	Condition
T-1	General Condition: The stationary source shall be designed and constructed so as to operate without causing a violation of any Applicable Rules and Regulations or this permit, without interfering with the attainment and maintenance of State and National Ambient Air Quality Standards, and such that the emission of air toxics does not result in an ambient concentration sufficient to adversely affect human health and well-being or unreasonably and adversely affect plant or animal life beyond the stationary source boundaries. [APC-S-2 V.A]
T-2	General Condition: Any activities not identified in the application are not authorized by this permit. [Miss. Code Ann. 49_17_29 1.b]
T-3	General Condition: The necessary facilities shall be constructed so that solids removed in the course of control of air emissions may be disposed of in a manner such as to prevent the solids from becoming windborne and to prevent the materials from entering State waters without the proper environmental permits. [Miss. Code Ann. 49_17_29]
T-4	General Condition: The air pollution control facilities shall be constructed such that diversion from or bypass of collection and control facilities is not needed except as provided for in Regulation APC-S-1, "Air Emission Regulations for the Prevention, Abatement, and Control of Air Contaminants", Section 10. [APC-S-1 10]
T-5	General Condition: The permittee shall allow the Mississippi Environmental Quality Commission, the Mississippi Environmental Quality Permit Board, MDEQ staff and/or their authorized representatives, upon the presentation of credentials: a. To enter upon the permittee's premises where an air emission source is located or in which any records are required to be kept under the terms and conditions of this permit; and b. At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit, to inspect any monitoring equipment or monitoring method required in this permit, and to sample any air emission. [Miss. Code Ann. 49_17_21]
T-6	General Condition: After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term for good cause shown including, but not limited to, the following: a. Persistant violation of any terms or conditions of this permit; b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or c. A change in any condition that requires either a temporary or permanent reduction or elimination of previously authorized air emissions. [APC-S-2 II.C]
T-7	General Condition: Except for data determined to be confidential under the Mississippi Air & Water Pollution Control Law, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Mississippi Department of Environmental Quality Office of Pollution Control. [Miss. Code Ann. 49_17_39]

AI0000054589 (continued):

Narrative Requirements:

Condition No.	Condition
T-8	General Condition:This permit is for air pollution control purposes only. [APC-S-2 I.D]
T-9	General Condition: The knowing submittal of a permit application with false information may serve as the basis for the Permit Board to void the permit issued pursuant thereto or subject the applicant to penalties for operating without a valid permit pursuant to State Law. [APC-S-2 II.B(5)]
T-10	General Condition: It is the responsibility of the applicant/permittee to obtain all other approvals, permits, clearances, easements, agreements, etc., which may be required including, but not limited to, all required local government zoning approvals or permits. [APC-S-2 I.D(6)]
T-11	General Condition: The issuance of a permit does not release the permittee from liability for constructing or operating air emissions equipment in violation of any applicable statute, rule, or regulation of state or federal environmental authorities. [APC-S-2 II.B(7)]
T-12	General Condition: It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit, unless halting or reducing activity would create an imminent and substantial endangerment threatening the public health and safety of the lives and property of the people of this state. [APC-S-2 II.B(15)a]
T-13	General Condition: The permit and/or any part thereof may be modified, revoked, reopened, and reissued, or terminated for cause. Sufficient cause for a permit to be reopened shall exist when an air emissions stationary source becomes subject to Title V. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition. [APC-S-2 II.B(15)b]
T-14	General Condition: The permit does not convey any property rights of any sort, or any exclusive privilege. [APC-S-2 II.B(15)c]
T-15	General Condition: The permittee shall furnish to the DEQ within a reasonable time any information the DEQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the DEQ copies of records required to be kept by the permit or, for information claimed to be confidential, the permittee shall furnish such records to the DEQ along with a claim of confidentiality. The permittee may furnish such records directly to the Administrator along with a claim of confidentiality. [APC-S-2 II.B(15)d]
T-16	General Condition: This permit shall not be transferred except upon approval of the Permit Board. [APC-S-2 XVI.B]

AI0000054589 (continued):

Narrative Requirements:

Condition No.	Condition
T-17	General Condition: The provisions of this permit are severable. If any provision of the permit, or the application of any provision of the permit to any circumstances, is challenged or held invalid, the validity of the remaining permit provisions and/or portions thereof or their application to other persons or sets of circumstances, shall not be affected thereby. [APC-S-2 I.D(7)]
T-18	General Condition: The permit to construct will expire if construction does not begin within eighteen (18) months from the date of issuance or if construction is suspended for eighteen (18) months or more. [APC-S-2 V.C(1)]
T-19	General Condition: A new stationary source issued a Permit to Construct cannot begin operation until certification of construction by the permittee. [APC-S-2 V.D(3)]
T-20	General Condition: Except as prohibited in APC-S-2, Section V.D.7, after certification of construction by the permittee, the Permit to Construct shall be deemed to satisfy the requirement for a permit to operate until the date the application for issuance or modification of the Title V Permit or the application for issuance or modification of the State Permit to Operate, whichever is applicable, is due. This provision is not applicable to a source excluded from the requirement for a permit to operate as provided by APC-S-2, Section XIII.G. [APC-S-2 V.D(4)]
T-21	General Condition: Except as otherwise specified in APC-S-2, Section V.D.7, the application for issuance or modification of the State Permit to Operate or the Title V Permit, whichever is applicable, is due twelve (12) months after beginning operation or such earlier date or time as specified in the Permit to Construct. The Permit Board may specify an earlier date or time for submittal of the application. Beginning operation will be assumed to occur upon certification of construction, unless the permittee specifies differently in writing. [APC-S-2 V.D(5)]
T-22	General Condition: Except as otherwise specified in APC-S-2, Section V.D.7, upon submittal of a timely and complete application for issuance or modification of a State Permit to Operate or a Title V Permit, whichever is applicable, the applicant may continue to operate under the terms and conditions of the Permit to Construct and in compliance with the submitted application until the Permit Board issues, modifies, or denies the Permit to Operate. [APC-S-2 V.D(6)]
T-23	General Condition: For moderate modifications that require contemporaneous enforceable emissions reductions from more than one emission point in order to net out of PSD/NSR, the applicable Title V Permit to Operate or State Permit to Operate must be modified prior to beginning operation of the modified facilities. [APC-S-2 V.D(7)]

AI0000054589 (continued):

Narrative Requirements:

Condition No.	Condition
T-24	General Condition: Regarding compliance testing: (a) The results of any emissions sampling and analysis shall be expressed both in units consistent with the standards set forth in any Applicable Rules and Regulations or this permit and in units of mass per time. (b) Compliance testing will be performed at the expense of the permittee. (c) Each emission sampling and analysis report shall include but not be limited to the following: 1. detailed description of testing procedures; 2. sample calculation(s); 3. results; and 4. comparison of results to all Applicable Rules and Regulations and to emission limitations in the permit. [APC-S-2 VI.B(3, 4 and 6)]
T-25	General Condition: The construction of the stationary source shall be performed in such a manner so as to reduce fugitive dust emissions from construction activities to a minimum. [APC-S-2 V.A(4)]
T-26	The permittee is subject to and shall comply with National Emission Standard for Benzene Waste Operations and General Provisions (40 CFR Part 61, Subparts A and FF). [40 CFR 61.340(a)]

CONT0000000001 (BH-001) Hog Bin Vent:

Limitation Requirements:

Condition No.	Parameter	Condition
L-1	Particulate Matter	Particulate Matter: The maximum discharge of Particulate Matter shall not exceed 1.03 pounds per hour and 4.51 tons per year as determined by EPA Test Methods 1 - 5, 40 CFR 60, Appendix A. [APC-S-2 B.10]
L-2	Particulate Matter (10 microns or less)	Particulate Matter (10 microns or less): The maximum discharge of Particulate Matter shall not exceed 1.03 pounds per hour and 4.51 tons per year as determined by EPA Test Methods 1 - 5, 40 CFR 60, Appendix A. [APC-S-2 B.10]
L-3		The permittee shall operate the vent filter at all times when emissions are vented to it. [APC-S-2 B.10]

CONT0000000002 (BH-002) Fuel Bin Vent:

Limitation Requirements:

Condition No.	Parameter	Condition
L-1	Particulate Matter	Particulate Matter: The maximum discharge of Particulate Matter shall not exceed 0.26 pounds per hour and 1.13 tons per year as determined by EPA Test Methods 1 - 5, 40 CFR 60, Appendix A. [APC-S-2 B.10]
L-2	Particulate Matter (10 microns or less)	Particulate Matter (10 microns or less): The maximum discharge of Particulate Matter shall not exceed 0.26 pounds per hour and 1.13 tons per year as determined by EPA Test Methods 1 - 5, 40 CFR 60, Appendix A. [APC-S-2 B.10]
L-3		The permittee shall operate the vent filter at all times when emissions are vented to it. [APC-S-2 B.10]

CONT0000000003 (BH-003) Dry Silo Vent:

Limitation Requirements:

Condition No.	Parameter	Condition
L-1	Particulate Matter	Particulate Matter: The maximum discharge of Particulate Matter shall not exceed 0.64 pounds per hour and 2.82 tons per year as determined by EPA Test Methods 1 - 5, 40 CFR 60, Appendix A. [APC-S-2 B.10]
L-2	Particulate Matter (10 microns or less)	Particulate Matter (10 microns or less): The maximum discharge of Particulate Matter shall not exceed 0.64 pounds per hour and 2.82 tons per year as determined by EPA Test Methods 1 - 5, 40 CFR 60, Appendix A. [APC-S-2 B.10]
L-3		The permittee shall operate the vent filter at all times when emissions are vented to it. [APC-S-2 B.10]

CONT0000000004 (BH-004) Hammermill Silo Filter #1 Vent:

Limitation Requirements:

Condition No.	Parameter	Condition
L-1	Particulate Matter	Particulate Matter: The maximum discharge of Particulate Matter shall not exceed 3.36 pounds per hour and 14.74 tons per year as determined by EPA Test Methods 1 - 5, 40 CFR 60, Appendix A. [APC-S-2 B.10]
L-2	Particulate Matter (10 microns or less)	Particulate Matter (10 microns or less): The maximum discharge of Particulate Matter shall not exceed 3.36 pounds per hour and 14.74 tons per year as determined by EPA Test Methods 1 - 5, 40 CFR 60, Appendix A. [APC-S-2 B.10]
L-3		The permittee shall operate the vent filter at all times when emissions are vented to it. [APC-S-2 B.10]

CONT0000000005 (BH-005) Hammermill Silo Filter #2 Vent:

Limitation Requirements:

Condition No.	Parameter	Condition
L-1	Particulate Matter	Particulate Matter: The maximum discharge of Particulate Matter shall not exceed 3.36 pounds per hour and 14.74 tons per year as determined by EPA Test Methods 1 - 5, 40 CFR 60, Appendix A. [APC-S-2 B.10]
L-2	Particulate Matter (10 microns or less)	Particulate Matter (10 microns or less): The maximum discharge of Particulate Matter shall not exceed 3.36 pounds per hour and 14.74 tons per year as determined by EPA Test Methods 1 - 5, 40 CFR 60, Appendix A. [APC-S-2 B.10]
L-3		The permittee shall operate the vent filter at all times when emissions are vented to it. [APC-S-2 B.10]

CONT0000000007 (BH-007) Regen Bag House controlling emissions from Catalyst M/U Hopper and Spent Catalyst Hopper:

Limitation Requirements:

Condition No.	Parameter	Condition
L-1	Particulate Matter	Particulate Matter: The maximum discharge of Particulate Matter shall not exceed 0.02 pounds per hour and 0.10 tons per year as determined by EPA Test Methods 1 - 5, 40 CFR 60, Appendix A. [APC-S-2 B.10]
L-2	Particulate Matter (10 microns or less)	Particulate Matter (10 microns or less): The maximum discharge of Particulate Matter shall not exceed 0.02 pounds per hour and 0.10 tons per year as determined by EPA Test Methods 1 - 5, 40 CFR 60, Appendix A. [APC-S-2 B.10]
L-3		The permittee shall operate the vent filter at all times when emissions are vented to it. [APC-S-2 B.10]

CONT0000000009 (CD-002) Regenerative Thermal Oxidizer (RTO) -- 1 MMBTU/hr, natural gas-fired:

Limitation Requirements:

Condition No.	Parameter	Condition
L-1	Carbon Monoxide	Carbon Monoxide: The maximum discharge of Carbon Monoxide shall not exceed 0.35 pounds per hour and 1.55 tons per year as determined by EPA Test Method 10A, 40 CFR 60, Appendix A. [APC-S-2 B.10]
L-2	Particulate Matter	Particulate Matter: The maximum discharge of Particulate Matter shall not exceed 5.13 pounds per hour and 22.45 tons per year as determined by EPA Test Methods 1 - 5, 40 CFR 60, Appendix A. [APC-S-2 B.10]
L-3	Particulate Matter	Particulate Matter: The maximum permissible emission of ash and/or particulate matter from fossil fuel burning installations of less tha 10 million BTU per hour heat input shall not exceed 0.6 pounds per million BTU per hour heat input. [APC-S-1 3.4(a)1]
L-4	Nitrogen oxides	Nitrogen oxides: The maximum discharge of Nitrogen Oxides shall not exceed 2.08 pounds per hour and 9.10 tons per year as determined by EPA Test Method 7, 40 CFR 60, Appendix A. [APC-S-2 B.10]
L-5	Particulate Matter (10 microns or less)	Particulate Matter (10 microns or less): The maximum discharge of Particulate Matter shall not exceed 5.13 pounds per hour and 22.45 tons per year as determined by EPA Test Methods 1 - 5, 40 CFR 60, Appendix A. [APC-S-2 B.10]
L-6	Sulfur Dioxide	Sulfur Dioxide: The maximum discharge of sulfur dioxides from any fuel burning installation in which the fuel is burned primarily to produce heat or power by indirect heat transfer shall not exceed 4.8 pounds (measured as sulfur dioxide) per million BTU heat input. [APC-S-1 4.1(a)]
L-7	VOC	VOC: The maximum discharge of Volatile Organic Compounds shall not exceed 0.01 pounds per hour and 0.05 tons per year as determined by EPA Test Methods 25 or 25A (expressed as propane), 40 CFR 60, Appendix A. [APC-S-2 B.10]

Narrative Requirements:

Condition No.	Condition
T-1	Emissions from FB-001 shall be vented to the RTO (Emission Point CD-002) at all times except during upsets or malfunctions which can be vented to the emergency flare (Emission Point EF-001). [APC-S-2 B.10]

CONT0000000010 (CD-003) Wet Gas Scrubber controlling PM and SO2 emissions from the Waste Heat Boiler:

Limitation Requirements:

Condition No.	Parameter	Condition
L-1	Carbon Monoxide	Carbon Monoxide: The maximum discharge of Carbon Monoxide shall not exceed 10.35 pounds per hour and 45.32 tons per year as determined by EPA Test Method 10A, 40 CFR 60, Appendix A. [APC-S-2 B.10]
L-2	Particulate Matter	Particulate Matter: The maximum discharge of Particulate Matter shall not exceed 0.01 pounds per hour and 0.06 tons per year as determined by EPA Test Methods 1 - 5, 40 CFR 60, Appendix A. [APC-S-2 B.10]
L-3	Particulate Matter	Particulate Matter: The maximum permissible emission of ash and/or particulate matter from fossil fuel burning installations greater than 10 million BTU per hour heat input shall not exceed an emission rate as determined by the relationship E=0.8808*I^-0.1667 Where E is the emission rate in pounds per million BTU per hour heat input and I is the heat input in millions of BTU per hour. [APC-S-1 3.4(a)2]
L-4	Hydrogen sulfide	Hydrogen sulfide: The permittee shall not cause or permit the emission of any gas stream which contains hydrogen sulfide in excess of one grain per 100 standard cubic feet. Gas streams containing hydrogen sulfide in excess of one grain per 100 standard cubic feet shall be incinerated at temperataures of no less than 1600 degrees F for a period of no less than 0.5 seconds, or processed in such manner which is equivalent to or more effective for the removal of hydrogen sulfide. [APC-S-1 4.2(b)]
L-5	Nitrogen oxides	Nitrogen oxides: The maximum discharge of Nitrogen Oxides shall not exceed 16.90 pounds per hour and 74.04 tons per year as determined by EPA Test Method 7, 40 CFR 60, Appendix A. [APC-S-2 B.10]
L-6	Particulate Matter (10 microns or less)	Particulate Matter (10 microns or less): The maximum discharge of Particulate Matter shall not exceed 0.01 pounds per hour and 0.06 tons per year as determined by EPA Test Methods 1 - 5, 40 CFR 60, Appendix A. [APC-S-2 B.10]
L-7	Phenol	Phenol: The maximum discharge of Phenol shall not exceed 0.52 pounds per hour and 2.27 tons per year as determined by EPA Test Methods 1 - 2 and 18, 40 CFR 60, Appendix A. [APC-S-2 B.10]
L-8	Sulfur Dioxide	Sulfur Dioxide: The maximum discharge of Sulfur Dioxide shall not exceed 4.22 pounds per hour and 18.49 tons per year as determined by EPA Test Method 6C, 40 CFR 60, Appendix A. [APC-S-2 B.10]

CONT0000000010 (continued):

Limitation Requirements:

Condition No.	Parameter	Condition
L-9	Sulfur Dioxide	Sulfur Dioxide: The maximum discharge of sulfur dioxides from any fuel burning installation in which the fuel is burned primarily to produce heat or power by indirect heat transfer shall not exceed 4.8 pounds (measured as sulfur dioxide) per million BTU heat input. [APC-S-1 4.1(a)]
L-10	VOC	VOC: The maximum discharge of Volatile Organic Compounds shall not exceed 6.61 pounds per hour and 28.95 tons per year as determined using EPA Test Methods 1 - 2 and 18 (or other EPA-approved alternative), 40 CFR 60, Appendix A. [APC-S-2 B.10]

EQPT0000000011 (FB-002) Air Preheater -- 25 MMBTU/hr, natural gas-fired equipped with low NOx burners:

Limitation Requirements:

Condition No.	Parameter	Condition
L-1	Particulate Matter	Particulate Matter: The maximum permissible emission of ash and/or particulate matter from fossil fuel burning installations greater than 10 million BTU per hour heat input shall not exceed an emission rate as determined by the relationship E=0.8808*I^-0.1667 Where E is the emission rate in pounds per million BTU per hour heat input and I is the heat input in millions of BTU per hour. [APC-S-1 3.4(a)2]
L-2	Sulfur Dioxide	Sulfur Dioxide: The maximum discharge of sulfur dioxides from any fuel burning installation in which the fuel is burned primarily to produce heat or power by indirect heat transfer shall not exceed 4.8 pounds (measured as sulfur dioxide) per million BTU heat input. [APC-S-1 4.1(a)]
L-3		The permittee shall burn natural gas only. [APC-S-2 B.10]

EQPT0000000013 (FB-004) Feed Preheater -- 5.83 MMBTU/hr, natural gas-fired equipped with low NOx burners:

Limitation Requirements:

Condition No.	Parameter	Condition
L-1	Particulate Matter	Particulate Matter: The maximum permissible emission of ash and/or particulate matter from fossil fuel burning installations of less than 10 million BTU per hour heat input shall not exceed 0.6 pounds per million BTU per hour heat input. [APC-S-1 3.4(a)1]
L-2	Sulfur Dioxide	Sulfur Dioxide: The maximum discharge of sulfur dioxides from any fuel burning installation in which the fuel is burned primarily to produce heat or power by indirect heat transfer shall not exceed 4.8 pounds (measured as sulfur dioxide) per million BTU heat input. [APC-S-1 4.1(a)]
L-3		The permittee shall burn natural gas only. [APC-S-2 B.10]

EQPT0000000014 (FB-005) Hydrogen (H2) Generator -- 17.6 MMBTU/hr, natural gas-fired equipped with low NOx burners:

Limitation Requirements:

Condition No.	Parameter	Condition
L-1	Particulate Matter	Particulate Matter: The maximum permissible emission of ash and/or particulate matter from fossil fuel burning installations greater than 10 million BTU per hour heat input shall not exceed an emission rate as determined by the relationship E=0.8808*I^-0.1667 Where E is the emission rate in pounds per million BTU per hour heat input and I is the heat input in millions of BTU per hour. [APC-S-1 3.4(a)2]
L-2	Sulfur Dioxide	Sulfur Dioxide: The maximum discharge of sulfur dioxides from any fuel burning installation in which the fuel is burned primarily to produce heat or power by indirect heat transfer shall not exceed 4.8 pounds (measured as sulfur dioxide) per million BTU heat input. [APC-S-1 4.1(a)]
L-3		The permittee shall burn natural gas only. [APC-S-2 B.10]

EQPT0000000015 (FB-006) Fractionation Heater -- 3.30 MMBTU/hr, natural gas-fired equipped with low NOx burners:

Limitation Requirements:

Condition No.	Parameter	Condition
L-1	Particulate Matter	Particulate Matter: The maximum permissible emission of ash and/or particulate matter from fossil fuel burning installations of less than 10 million BTU per hour heat input shall not exceed 0.6 pounds per million BTU per hour heat input. [APC-S-1 3.4(a)1]
L-2	Sulfur Dioxide	Sulfur Dioxide: The maximum discharge of sulfur dioxides from any fuel burning installation in which the fuel is burned primarily to produce heat or power by indirect heat transfer shall not exceed 4.8 pounds (measured as sulfur dioxide) per million BTU heat input. [APC-S-1 4.1(a)]
L-3		The permittee shall burn natural gas only. [APC-S-2 B.10]

EQPT0000000017 (CD-001) Waste Heat Boiler (Emissions vented to Wet Gas Scrubber for control of SO2 and PM) -- 200 MMBTU/hr:

Limitation Requirements:

Condition No.	Parameter	Condition
L-1	Nitrogen oxides	Nitrogen oxides: The permittee shall not cause to be discharged into the atmosphere from that affected facility any gases that contain NOX(expressed as NO2) in excess of 86 ng/J (0.20 lb/MMBtu) heat input unless the affected facility has an annual capacity factor for coal, oil, and natural gas of 10 percent (0.10) or less and is subject to a federally enforceable requirement that limits operation of the facility to an annual capacity factor of 10 percent (0.10) or less for coal, oil, and natural gas. [40 CFR 60.44b(l)(1)]
L-2	Sulfur Dioxide	Sulfur Dioxide: The permittee shall not cause to be discharged into the atmosphere any gases that contain SO2 in excess of 87 ng/J (0.20 lb/MMBtu) heat input or 8 percent (0.08) of the potential SO2 emission rate (92 percent reduction) and 520 ng/J (1.2 lb/MMBtu) heat input. [40 CFR 60.42b(k)(1)]

Narrative Requirements:

Condition No.	Condition
T-1	Emissions from FB-003, FB-005 through FB-007, and TV-001 through TV-008 shall be vented to the Waste Heat Boiler (Emission Point CD-001) at all times except during upsets or malfunctions which can be vented to the emergency flare (Emission Point EF-001). [Other]
T-2	The permittee is subject to and shall comply with Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units and General Provisions (40 CFR 60, Subpart A and Db). [40 CFR 60]

EQPT0000000017 (continued):

Narrative Requirements:

Condition No.	Condition
T-3	The SO2 emission standards in Condition L-2 apply at all times. In conducting the performance tests required under §60.8, the permittee shall use the methods and procedures in appendix A (including fuel certification and sampling) of this part or the methods and procedures as specified in this section, except as provided in §60.8(b). Section 60.8(f) does not apply to this section. The 30-day notice required in §60.8(d) applies only to the initial performance test unless otherwise specified by MDEQ. The permittee shall conduct performance tests to determine compliance with the percent of potential SO2emission rate (% Ps) and the SO2emission rate (Es) pursuant to Condition L-2 following the procedures listed in 40 CFR 60.45b(c). For the initial performance test required under §60.8, compliance with the SO2emission limits and percent reduction requirements under Condition L-2 is based on the average emission rates and the average percent reduction for SO2 for the first 30 consecutive steam generating unit operating days. The initial performance test is the only test for which at least 30 days prior notice is required unless otherwise specified by the MDEQ. The initial performance test is to be scheduled so that the first steam generating unit operating day of the 30 successive steam generating unit operating days is completed within 30 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of the facility. The boiler load during the 30-day period does not have to be the maximum design load, but must be representative of future operating conditions and include at least one 24-hour period at full load. After the initial performance test required under §60.8, compliance with the SO2 emission limits and percent reduction requirements under Condition L-2 is based on the average emission rates and the average percent reduction for SO2 for 30 successive steam generating unit operating days. A separate performance test is completed at the end of each steam generating unit operating day after the initial performance test, and a new 30-day average emission rate and percent reduction for SO2 are calculated to show compliance with the standard. The permittee shall use all valid SO2 emissions data in calculating %Ps and Eho whether or not the minimum emissions data requirements under Condition T-4 are achieved. All valid emissions data, including valid SO2 emission data collected during periods of startup, shutdown and malfunction, shall be used in calculating %Ps and Eho. [40 CFR 60.45b]
T-4	Compliance with the NOX emission standards under Condition L-1 shall be determined through performance testing under section 60.46b(e). [40 CFR 60.46b(c)]

EQPT0000000017 (continued):

Narrative Requirements:

Condition No.	Condition
T-5	The permittee shall install, calibrate, maintain, and operate CEMS for measuring SO2 concentrations and either O2 or CO2 concentrations and shall record the output of the systems. For units complying with the percent reduction standard, the SO2 and either O2 or CO2 concentrations shall both be monitored at the inlet and outlet of the SO2 control device. If the permittee has installed and certified SO2 and O2 or CO2 CEMS according to the requirements of §75.20(c)(1) of this chapter and appendix A to part 75 of this chapter, and is continuing to meet the ongoing quality assurance requirements of §75.21 of this chapter and appendix B to part 75 of this chapter, those CEMS may be used to meet the requirements of this section, provided that: (a) When relative accuracy testing is conducted, SO2concentration data and CO2(or O2) data are collected simultaneously; and (b) In addition to meeting the applicable SO2and CO2(or O2) relative accuracy specifications in Figure 2 of appendix B to part 75 of this chapter, the relative accuracy (RA) standard in section 13.2 of Performance Specification 2 in appendix B to this part is met when the RA is calculated on a lb/MMBtu basis; and (c) The reporting requirements of §60.49b are met. SO2and CO2(or O2) data used to meet the requirements of §60.49b shall not include substitute data values derived from the missing data procedures in subpart D of part 75 of this chapter, nor shall the SO2data have been bias adjusted according to the procedures of part 75 of this chapter. As an alternative to operating CEMS, the permittee may elect to determine the average SO2 emissions and percent reduction by following the procedures in section 60.47b(b). The permittee shall obtain emission data for at least 75 percent of the operating hours in at least 22 out of 30 successive boiler operating days. If this minimum data requirement is not met with a single monitoring system, the permittee shall supplement the emission data with data collected with other monitoring systems as approved by the MDEQ or the reference methods and procedures as described in 60.47b(b). The 1-hour average SO2emission rates measured by the CEMS is expressed in ng/J or lb/MMBtu heat input and is used to calculate the average emission rates under Condition L-2. Each 1-hour average SO2 emission rate must be based on 30 or more minutes of steam generating unit operation. The hourly averages shall be calculated according to §60.13(h)(2). Hourly SO2 emission rates are not calculated if the affected facility is operated less than 30 minutes in a given clock hour and are not counted toward determination of a steam generating unit operating day. The procedures under §60.13 shall be followed for installation, evaluation, and operation of the CEMS and by the requirements listed in 60.47b(e). [40 CFR 60.47b]

EQPT0000000017 (continued):

Narrative Requirements:

Condition No.	Condition
T-6	The permittee subject to a NOX standard under Condition L-1 shall install, calibrate, maintain, and operate CEMS for measuring NOX and O2 (or CO2) emissions discharged to the atmosphere, and shall record the output of the system. The CEMS shall be operated and data recorded during all periods of operation of the affected facility except for CEMS breakdowns and repairs. Data is recorded during calibration checks, and zero and span adjustments. The 1-hour average NOX emission rates measured by the continuous NOX monitor shall be expressed in ng/J or lb/MMBtu heat input and shall be used to calculate the average emission rates under Condition L-1. The 1-hour averages shall be calculated using the data points required under §60.13(h)(2). The procedures under §60.13 shall be followed for installation, evaluation, and operation of the continuous monitoring systems. For permittees combusting coal, oil, or natural gas, the span value for NOX is determined using one of the procedures outlined in 60.48b(e). When NOX emission data are not obtained because of CEMS breakdowns, repairs, calibration checks and zero and span adjustments, emission data will be obtained by using standby monitoring systems, Method 7 of appendix A of this part, Method 7A of appendix A of this part, or other approved reference methods to provide emission data for a minimum of 75 percent of the operating hours in each steam generating unit operating day, in at least 22 out of 30 successive steam generating unit operating days. The permittee that has a heat input capacity of 73 MW (250 MMBtu/hr) or less, and that has an annual capacity factor for residual oil having a nitrogen content of 0.30 weight percent or less, natural gas, distillate oil, gasified coal, or any mixture of these fuels, greater than 10 percent (0.10) shall comply with the above paragraphs or monitor steam generating unit operating conditions and predict NOX emission rates as specified in a plan submitted pursuant to §60.49b(c). [40 CFR 60.48b]

EQPT0000000018 (EF-001) Emergency Flare:

Limitation Requirements:

Condition No.	Parameter	Condition
L-1	Particulate Matter	Particulate Matter: The maximum permissible emission of ash and/or particulate matter from fossil fuel burning installations of less than 10 million BTU per hour heat input shall not exceed 0.6 pounds per million BTU per hour heat input. [APC-S-1 3.4(a)1]
L-2	Sulfur Dioxide	Sulfur Dioxide: The maximum discharge of sulfur dioxides from any fuel burning installation in which the fuel is burned primarily to produce heat or power by indirect heat transfer shall not exceed 4.8 pounds (measured as sulfur dioxide) per million BTU heat input. [APC-S-1 4.1(a)1]
L-3		The emergency relief flare serves as an emergency back-up system. (i) The flare shall be designed for and operated with no visible emissions as determined by the methods specified in 40 CFR 60.18(f), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. (ii) The flare shall be operated at all times, as determined by the methods specified in 40 CFR 60.18(f). (iii) The permittee shall comply with the conditions in 40 CFR 60.18(c)(3) through (6). (iv) The flare shall be operated at all times when emissions may be vented to them. [40 CFR 60.60(18)(c)]

EQPT0000000019 (CC-001) Catalytic Cracking Unit :

Limitation Requirements:

Condition No.	Parameter	Condition
L-1		The permittee shall reduce emissions of TOC (less methane and ethane) by 98 weight-percent, or to a TOC (less methane and ethane) concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen, whichever is less stringent. If a boiler or process heater is used to comply with this paragraph, then the vent stream shall be introduced into the flame zone of the boiler or process heater. [40 CFR 60.702(a)]

Narrative Requirements:

Condition No.	Condition
T-1	The permittee is subject to and shall comply with Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes and General Provisions (40 CFR 60, Subparts A and RRR). The permittee shall comply with this condition for each vent stream no later than 60 days after achieving maximum production rate, or 180 days after the intial start-up. [40 CFR 60.Subpart RRR]
T-2	If a boiler or process heater is used to comply with Condition T-2 the permittee shall install, calibrate, maintain and operate according to the manufacturer's specifications and a flow indicator that provides a record of vent stream flow diverted from being routed to the boiler or process heater at least once every 15 minutes for each affected facility, (i) The flow indicator shall be installed at the entrance to any bypass line that could divert the vent stream from being routed to the boiler or process heater, resulting in its emission to the atmosphere. (ii) Where the bypass line valve is secured in the closed position with a car-seal or a lock-and-key type configuration, a flow indicator is not required. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and the vent stream is not diverted through the bypass line. [40 CFR 60.703(c)]
T-3	When a boiler or process heater with a design heat input capacity of 44 MW (150 million Btu/hour) or greater is used to comply with Condition T-2, the requirement for an initial performance test is waived, in accordance with §60.8(b). [40 CFR 60.704(b)(5)]

EQPT0000000020 (FW-001) Diesel Firewater Pump Engine:

Narrative Requirements:

Condition No.	Condition
T-1	The permittee is subject to and shall comply with Standards of Performance for Stationary Compression Ignition Internal Combustion Engines and General Provisions(40 CFR 60, Subparts A and IIII). [40 CFR 60]
T-2	The permittee is subject to and shall comply with National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines and General Provisions (40 CFR 63, Subparts A and ZZZZ). [40 CFR 63_Subpart ZZZZ]

EQPT0000000023 (TB-001) Temporary Boiler < 100 MMBTU/hr, natural gas fired:

Limitation Requirements:

Condition No.	Parameter	Condition
L-1		If construction, modification, or reconstruction of the temporarary boiler commenced after June 9, 1989 and the boiler has a maximum design heat input capacity of 100 MMBtu/hr or less, but greater than or equal to 10 MMBtu/hr, the permittee is subject to and shall comply with New Source Performance Standard for Small Industrial-Commerical-Institutional Steam Generating Units and the General Provisions (40 CFR 60, Subparts Dc and A). [40 CFR 60.40c(a)]
L-2		The permittee shall burn natural gas only. [APC-S-2 II.B(10)]
L-3		The permittee shall not operate the temporary boiler and the Waste Heat Boiler (CD-001) simultaneously. [APC-S-2 II.B(10)]

Record-Keeping Requirements:

Condition No.	Condition
R-1	The permittee shall record and maintain the following records for each day the temporary, or rental, boiler is operated: (a) The number of hours the temporary boiler operated each day; (b) The reason the temporary boiler was operated; and (c) The total hours the temporary boiler operated for each consecutive 12-month period. These records shall be maintained in log form shall be made available upon request by DEQ personnel. [APC-S-2 Ii.B(10)]

EQPT0000000023 (continued):

Submittal/Action Requirements:

Condition No.	Condition
S-1	The permittee shall provide written notification to DEQ five days in advance of bringing a temporary, or rental, boiler on site. The notification shall include but is not limited to the following information: (a) maximum rated heat input capacity of the boiler; (b) the anticipated date of startup; (c) the date of construction, reconstruction, or modification of the boiler; and (d) a determination of applicability to NSPS Subpart Dc. The permittee shall provide written notification to DEQ within five days after the boiler has been taken out of service and/or removed from the site. [APC-S-2 II.B(11)]

GRPT0000000001 (FC-000) Fugitive Components:

Narrative Requirements:

Condition No.	Condition
T-1	The permittee is subject and shall comply with Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for which Construcion, Reconstruction, or Modification Commenced after November 7, 2006 and General Provisions (40 CFR 60, Subparts A and VVa). The permittee shall demonstraton compliance with the requirements of Conditions T-2 through T-9 for all equipment within 180 days of initial startup. Compliance will be determined by review of records and reports, review of performance test results, and inspection using the methods and procedures identified in Condition T-12. [40 CFR 60.482-1a]
T-2	Each pump in light liquid service shall be monitored monthly to detect leaks by the methods specified in Condition T-12. A pump that begins operation in light liquid service after the initial startup date for the process unit must be monitored for the first time within 30 days after the end of its startup period, except for a pump that replaces a leaking pump. Each pump shall be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal. [40 CFR 60.482-2a(a)]
T-3	The instrument reading that defines a leak is 2,000 parts per million (ppm). If there are indications of liquids dripping from the pump seal, the permitee shall follow the procedures outlined below. This requirement does not apply to a pump that was monitored after a previous weekly inspection and the instrument reading was less than 2,000 ppm. (i) Monitor the pump within 5 days. A leak is detected if the instrument reading measured during monitoring indicates a leak. The leak shall be repaired using the procedures in Condition T-4. (ii) Designate the visual indications of liquids dropping as a leak, and repair the leak using either the procedures in Condition T-4 or by eliminating the visual indications of liquids dripping. [40 CFR 60.482-2a(b)]
T-4	When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 days after it is detected, except as provided in Condition T-8. A first attempt at repair shall be made no later than 5 calendar days after each leak is detected. First attempts at repair include, but are not limited to , the practices described below: (i) Tightening the packing glad nuts; (ii) Ensuring that the seal flush is operating at design pressure and temperature. [40 CFR 60.482-2a(c)]

GRPT0000000001 (continued):

Narrative Requirements:

Condition No.	Condition
T-5	Each sampling connection system shall be equipped with a closed-purge, closed-loop, or closed-vent system. Each closed-purge, closed-loop, or closed-vent system shall comply with the following requirements: (i) Gases displaced during filling of the sample container are not required to be collected or captured; (ii) Containers that are part of a closed-purge system must be covered or closed when not being filled or emptied; (iii) Gases remaining in the tubing or piping between the closed-purge system valve(s) and sample container valve(s) after the valves are closed and the sample container is disconnected are not required to be collected or captured. (iv) Each closed-purge, closed-loop, or closed-vent system shall be designed and operated to meet the following requirements: (a) Return the purged process fluid directly to the process line. (b) Collect and recycle the purged process fluid to a process. (c) Capture and transport all the purged process fluid to a control device. (d) Collect, store, and transport the purged process fluid to any of the following systems or facilities. (I) A waste management unit as defined in 40 CFR 63.111, if the waste management unit is subject to and operated in compliance with the provisions of 40 CFR Part 63, Subpart G, applicable to Group 1 wastewater streams; (II) A treatment, storage, or disposal facility subject to regulations under 40 CFR 262, 264, 265, or 266; (III) A facility permitted, licensed, or registered by a state to manage municipal or industrial solid wate, if the process fluids are not hazardous waste as defined in 40 CFR Part 261; (IV) A waste management unit subject to and operated in compliance with the treatment requirements of 40 CFR 61.348(a), provided all waste management units that collect, store, or transport the purged process flued to the treatment unit are subject to and operated in compliance with the management requirements of 40 CFR 61.343 through 61.347; or (V) A deviced used to burn off-specification used oil for energy recovery in accordance with 40 CFR Part 279, Subpart G, provided the purged process fluid is not hazardous waste as defined in 40 CFR 260. [40 CFR 60.482-5a]

GRPT0000000001 (continued):

Narrative Requirements:

Condition No.	Condition
T-6	Each valve shall be monitored monthly to detect leaks by the requirements in Condition T-12 and shall comply with the following: (i) If an instrument reading of 500 ppm or greater is measured, a leak is detected. (ii) Any valve for which a leak is not detected for 2 successive months may be monitored the first month of every quarter, beginning with the next quarter, until a leak is detected. As an alternative to monitoring all the valves in the first month of a quarter, the permittee may elect to subdivide the process unit into two or three subgroups of valves and monitor each subgroup in a different month during the quarter, provided each subgroup is monitored every 3 months. The permittee must keep records of the valves assigned to each subgroup. If a leak is detected, the valve shall be monitored monthly until a leak is not detected for 2 successive months. (iii) When a leak is detected, the valve shall be repaired as soon as practible, but no later than 15 calendar days after the leak is detected, except as provided in Condition T-8. A first attempt at repair shall be made no later than 5 calendar days after each leak is detected. (iv) First attemps at repair include, but are not limited to, the following best practices were practible: (a) Tightening of bonnet bolts, (b) Replacement of bonnet bolts, (c) Tightening of packing gland nuts; (d) Injection of lubricant into lubricated packing. [40 CFR 60.482-7a]
T-7	If evidence of a potential leak is found by visual, audible, olfactory, or any other detection method at pumps, valves, and connectors in heavy liquid service and pressure relief devices in light liquid or heavy liquid service, the permitting shall monitor the equipment within 5 days by the method specified in Condition T-12, and the permittee shall eliminate the visual, audible, olfactory, or other indicatoin of a potential leak within 5 calendar days of detection. If an instrument reading of 10,000 ppm or greater is measured, a leak is detected. When a leak is detected, it shall be repaired as soon as practible, but not later than 15 calendar days after it is detected, except as provided in Condition T-8. The first attempt at repair shall be made no later than 5 calendar days after each leak is detected. First attempts at repair include, but are not limited to the best practices described Conditions T-4 and T-6. [40 CFR 60.482-8a]

GRPT0000000001 (continued):

Narrative Requirements:

Condition No.	Condition
T-8	Delay of repair of equipment for which leaks have been detected will be allowed if repair within 15 days is technically infeasible without a process unit shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown. Monitoring to verify repair must occur within 15 days after startup of the process unit. Delay of repair of equipment will be allowed for equipment which is isolated from the process and which does not remain in VOC service. Delay of repair for valves and connectors will be allowed if: (i) The permittee demonstrates that emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from delay of repair, and (ii) When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device. Delay of repair for pumps will be allowed if: (i) Repair requires the use of a dual mechanical seal system that includes a barrier fluid system, and (ii) Repair is completed as soon as practicable, but not later than 6 months after the leak was detected. Delay of repair beyond a process unit shutdown will be allowed for a valve, if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown. When delay of repair is allowed for a leaking pump, valve, or connector that remains in service, the pump, valve, or connector may be considered to be repaired and no longer subject to delay of repair requirements if two consecutive monthly monitoring instrument readings are below the leak definition. [40 CFR 60.482-9a]
T-9	Closed vent systems and control devices used to comply with the following: (i) Enclosed combustion devices shall be designed and operated to reduce the VOC emissions vented to them with an efficiency of 95 percent or greater, or to an exit concentration of 20 ppmv, on a dry basis, corrected to 3 percent oxygen, whichever is less stringent or to provide a minimum residence time of 0.75 seconds at a minimum temperature of 816 °C. (ii) The permittee shall monitor these control devices to ensure that they are operated and maintained in conformance with their designs. (iii) Closed vent systems and control devices used to comply with provisions of this subpart shall be operated at all times when emissions may be vented to them. [40 CFR 60.482-10a]

GRPT0000000001 (continued):

Narrative Requirements:

Condition No.	Condition
T-10	The permittee may elect to comply with an allowable percentage of valves leaking of equal to or less than 2.0 percent. The following requirements shall be met if the permittee wishes to comply with an allowable percentage of valves leaking: (i) The permittee must notify MDEQ if the permittee has elected to comply with the allowable percentage of valves leaking before implementing this alternative standard. (ii) A performance test shall be conducted initially upon designation, annually, and at other times requested by the Administrator. (iii) If a valve leak is detected, it shall be repaired in accordance with Condition T-6. Performance tests shall be conducted in the following manner: (i) All valves in gas/vapor and light liquid service within the affected facility shall be monitored within 1 week by the methods specified in Condition T-12. (ii) If an instrument reading of 500 ppm or greater is measured, a leak is detected. (iii) The leak percentage shall be determined by dividing the number of valves for which leaks are detected by the number of valves in gas/vapor and light liquid service within the affected facility. Permittees who elect to comply with this alternative standard shall not have an affected facility with a leak percentage greater than 2.0 percent, determined as specified in 40 CFR 60.485a(h). [40 CFR 60.483-1a]
T-11	The permittee may elect to comply with one of the alternative work practices specified below. The permittee must notify MDEQ before implementing one of the alternative work practices. (i) The permittee shall comply initially with the requirements for valves in gas/vapor service and valves in light liquid service, as described in Condition T-6. (ii) After 2 consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than 2.0, the permittee may begin to skip 1 of the quarterly leak detection periods for the valves in gas/vapor and light liquid service. (iii) After 5 consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than 2.0, the permittee may begin to skip 3 of the quarterly leak detection periods for the valves in gas/vapor and light liquid service. (iv) If the percent of valves leaking is greater than 2.0, the permittee shall comply with the requirements as described in Condition T-6 but can again elect to use this section. (v) The percent of valves leaking shall be determined as specified in 40 CFR 60.485a(h). (vi) The permitee must keep a record of the percent of valves found leaking during each leak detection period. [40 CFR 60.483-2a]
T-12	In conducting the performance tests required in §60.8, the permittee shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section. The permitte shall determine compliance with the standards in Conditions T-2 through T-9 as specified in 40 CFR 60.485a. [40 CFR 60.485a]

GRPT0000000001 (continued):

Narrative Requirements:

Condition No.	Condition
T-13	The permittee is subject to and shall comply with National Emission Standard for Equipment Leaks (Fugive Emission Sources) and General Provisions (40 CFR 61, Subparts A and V). This subpart applies to sources that are intended to operate in volatile hazardous air pollutant (VHAP) service. While the provisions of this subpart are effective, a source to which this subpart applies that is also subject to the provisions of 40 CFR 60 only will be required to comply with the provisions of this subpart. [40 CFR 61.240]
T-14	Compliance with this subpart will be determined by review of records, review of performance test results, and inspection using the methods and procedures specified in Condition T-23. Each piece of equipment to which this subpart applies shall be marked in such a manner that it can be distinguished readily from other pieces of equipment. [40 CFR 61.242-1]
T-15	Each pump shall be monitored monthly to detect leaks by the methods specified in Condition T-23. Each pump shall be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal. (i)If an instrument reading of 10,000 ppm or greater is measured, a leak is detected. (ii) If there are indications of liquids dripping from the pump seal, a leak is detected. When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in Condition T-19. A first attempt at repair shall be made no later than 5 calendar days after each leak is detected. [40 CFR 61.61.242-2]
T-16	Each sampling connection system shall be equipped with a closed-purge, closed-loop, or closed vent system. Gases displaced during filling of the sample container are not required to be collected or captured. Each closed-purge, closed-loop, or closed vent system shall comply with the following requirements: (i) Return the purged process fluid directly to the process line; or (ii) Collect and recycle the purged process fluid; or (iii) Be designed and operated to capture and transport all the purged process fluid to a control device that complies with the requirements of condition T-19; or (iv) Collect, store, and transport the purged process fluid to any of the following systems or facilities: (a) A waste management unit as defined in 40 CFR 63.111 if the waste management unit is subject to and operated in compliance with the provisions of 40 CFR part 63, subpart G, applicable to Group 1 wastewater streams; or (b) A treatment, storage, or disposal facility subject to regulation under 40 CFR part 262, 264, 265, or 266; or (c) A facility permitted, licensed, or registered by a State to manage municipal or industrial solid waste, if the process fluids are not hazardous waste as defined in 40 CFR part 261. [40 CFR 61.242-5]

GRPT0000000001 (continued):

Narrative Requirements:

Condition No.	Condition
T-17	Each valve shall be monitored monthly to detect leaks by the method specified in 40 CFR 61.245 and shall comply with the following: (i) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected. (ii)(a) Any valve for which a leak is not detected for 2 successive months may be monitored the first month of every quarter, beginning with the next quarter, until a leak is detected. (b) If a leak is detected, the valve shall be monitored monthly until a leak is not detected for 2 successive months. (iii)(a) When a leak is detected, it shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except as provided in Condition T-18. (b) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected. (iv) First attempts at repair include, but are not limited to, the following best practices where practicable: (a) Tightening of bonnet bolts; (b) Replacement of bonnet bolts; (c) Tightening of packing gland nuts; and (d) Injection of lubricant into lubricated packing. [40 CFR 61.242-7]
T-18	Delay of repair of equipment for which leaks have been detected will be allowed if repair within 15 days is technically infeasible without a process unit shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown. Delay of repair of equipment for which leaks have been detected will be allowed for equipment that is isolated from the process and that does not remain in VHAP service. Delay of repair for valves will be allowed if: (i) The permittee demonstrates that emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from delay of repair, and (ii) When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with Condition T-19. Delay of repair for pumps will be allowed if: (i) Repair requires the use of a dual mechanical seal system that includes a barrier fluid system, and (ii) Repair is completed as soon as practicable, but not later than 6 months after the leak was detected. Delay of repair beyond a process unit shutdown will be allowed for a valve if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown. [40 CFR 61.242-10]

GRPT0000000001 (continued):

Narrative Requirements:

Condition No.	Condition
T-19	Closed-vent systems and control devices used to comply with provisions of this subpart shall comply with the following: (i) Enclosed combustion devices shall be designed and operated to reduce the VHAP emissions vented to them with an efficiency of 95 percent or greater, or to an exit concentration of 20 parts per million by volume, on a dry basis, corrected to 3 percent oxygen, whichever is less stringent, or to provide a minimum residence time of 0.50 seconds at a minimum temperature of 760 °C. (ii) Control devices that are used to comply with the provisions of this supbart shall monitor these control devices to ensure that they are operated and maintained in conformance with their design. (iii) Each closed vent system shall be inspected according to the procedures and schedule specified in the following: (a) If the vapor collection system or closed vent system is constructed of hard-piping, the permittee shall comply with the following requirements: (I) Conduct an initial inspection according to the procedures in 40 CFR 61.245; and (II) Conduct annual visual inspections for visible, audible, or olfactory indications of leaks. (b) If the vapor collection system or closed vent system is constructed of ductwork, the permittee shall: (I) Conduct an initial inspection according to the procedures in 40 CFR 61.245; and (II) Conduct annual inspections according to the procedures in 40 CFR 61.245. (iv) Leaks, as indicated by an instrument reading greater than 500 parts per million by volume above background or by visual inspections, shall be repaired as soon as practicable. A first attempt at repair shall be made no later than 5 calendar days after the leak is detected. Repair shall be completed no later than 15 calendar days after the leak is detected. (v) Delay of repair of a closed vent system for which leaks have been detected is allowed if the repair is technically infeasible without a process unit shutdown, or if the permittee determines that emissions resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair. Repair of such equipment shall be complete by the end of the next process unit shutdown. (vi) Closed vent systems and control devices used to comply with provisions of this subpart shall be operated at all times when emissions may be vented to them. [40 CFR 61.242-11]

GRPT0000000001 (continued):

Narrative Requirements:

Condition No.	Condition
T-20	The permittee may elect to have all valves within a process unit to comply with an allowable percentage of valves leaking of equal to or less than 2.0 percent. The following requirements shall be met if permittee decides to comply with an allowable percentage of valves leaking: (i) The permittee must notify MDEQ that the permittee has elected to have all valves within a process unit to comply with the allowable percentage of valves leaking before implementing this alternative standard. (ii) A performance test shall be conducted initially upon designation, annually, and at other times requested by MDEQ. (iii) If a valve leak is detected, it shall be repaired in accordance with Condtion T-17. Performance tests shall be conducted in the following manner: (i) All valves in VHAP service within the process unit shall be monitored within 1 week by the methods specified in 40 CFR 61.245. (ii) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected. (iii) The leak percentage shall be determined by dividing the number of valves in VHAP service for which leaks are detected by the number of valves in VHAP service within the process unit. Permittees who elect to have all valves comply with this alternative standard shall not have a process unit with a leak percentage greater than 2.0 percent. If the permittee decides no longer to comply with this condition, the permitte must notify MDEQ in writing that the work practice standard described in Condition T-17 will be followed. [40 CFR 61.243-1]
T-21	The permittee may elect for all valves within a process unit to comply with one of the alternative work practices specified in below. The permittee must notify MDEQ before implementing one of the alternative work practices. (i) The permittee shall comply initially with the requirements for valves, as described in Condition T-17. (ii) After 2 consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than 2.0, the permittee may begin to skip one of the quarterly leak detection periods for the valves in VHAP service. (iii) After five consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than 2.0, the permittee may begin to skip three of the quarterly leak detection periods for the valves in VHAP service. (iv) If the percentage of valves leaking is greater than 2.0, the permittee shall comply with the requirements as described in Condition T-17 but may again elect to use this option. [40 CFR 61.243-2]

GRPT0000000002 (TV-000) NSPS Subpart Kb Tanks:

Limitation Requirements:

Condition No.	Parameter	Condition
L-1		Each storage vessel shall be equipped with a closed vent system and control device meeting the following requirements: (i) The closed vent system shall be designed to collect all VOC vapors and gases discharge from the storage vessel and operated with no detectable emisisons as indicated by an instrument reading of less than 500 ppm above background and visual inspections, as determined in part 60, supbart VV, 60.485(b). (ii) The control device shall be designed and operated to reduce inlet VOC emissions by 95 percent or greater. If a flare is used as the control device, it shall meet the specifications described in the general control device requirements in section 60.18 of the General Provisions. [40 CFR 60.112b(a)(3)]

Narrative Requirements:

Condition No.	Condition
T-1	The permittee is subject to and shall comply with the Standards of Performance for Volatile Organic Liquid Storage Vessels (including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction or Modification Commenced after July 23, 1984 and General Provisions(40 CFR Part 60, Subparts A and Kb). This subpart applies to each storage veseels with a capacity greater than or equal to 75 cubic meters (19,812 gallons) that is used to store volatile organic liquids (VOL). [40 CFR 60.110b(a)]

GRPT0000000002 (continued):

Narrative Requirements:

Condition No.	Condition
T-2	Each source that is equipped with a closed vent system and control device is exempt from section 60.8 of the General Provisions and shall meet the following requirements: (i) Submit for approval an operating plan containing the information listed below: (a) Documentation demonstration that the control device will achieve the required control efficiency during maximum loading conditions. This documentation is to include a description of the gas stream which enters the control device, including flow and VOC content under varying liquid level conditions (dynamic and static) and manufacturer's design specifications for the control device. If the control device or the closed vent capture system receives vapors, gases, or liquids other than fuels from sources that are not designated sources under this subpart, the efficiency demonstration is to include consideration of all vapors, gases, and liquids received by the closed vent capture system and control device. If an enclosed combustion device with a minimum residence time of 0.75 seconds and a minimum temperature of 816 degrees C is used to meet the 95 percent requirement, documentation that those conditions will exist is sufficent to meet the requirements of this paragraph. (b) A description of the parameter or parameters to be monitored to ensure that the control device will be oprated in conformance with its design and an explanation of the criteria used for selection of that parameter (or parameters). (ii) Operate the closed vent system and control device and monitor the parameters of the closed vent system and control device in accordance wih the operating plan submitted to MDEQ unless the plan was modified by MDEQ during the review process. In this case, the modified plan applies. [40 CFR 60.113b(c)]

GRPT0000000003 (AA-000) NSPS Subpart NNN Equipment:

Narrative Requirements:

Condition No.	Condition
T-1	The permittee is subject to and shall comply with Standards of Performance for Volatile Organic Compound (VOC) Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations and General Provisions(40 CFR 60, Subparts A and NNN). [40 CFR 60]
T-2	The permittee shall comply with this subpart no later than 60 days after achieving the maximum production rate, or 180 days after the initial start-up, whichever date comes first. The permittee shall reduce emissions of TOC (less methane and ethane) by 98 weight-percent, or to a TOC (less methane and ethane) concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen, whichever is less stringent. If a boiler or process heater is used, then the vent stream shall be introduced into the flame zone of the boiler or process heater. [40 CFR 60.662(a)]
T-3	If the permittee uses a boiler or process heater to comply with Condition T-2, the permittee shall install, calibrate, maintain and operate according to the manufacturer's specifications and a flow indicator that provides a record of vent stream flow to the boiler or process heater at least once every hour for each affected facility. The flow indicator shall be installed in the vent stream from each distillation unit within an affected facility at a point closest to the inlet of each boiler or process heater and before being joined with any other vent stream. [40 CFR 60.663(c)]
T-4	When a boiler or process heater with a design heat input capacity of 44 MW (150 million Btu/hour) or greater is used to comply with Condition T-2, the requirement for an initial performance test is waived, in accordance with §60.8(b). However, MDEQ reserves the option to require testing at such other times. [40 CFR 60.664(c)]

GENERAL INFORMATION

KiOR Inc
600 Industrial Park Access Road
Columbus, MS
Lowndes County

Alternate/Historic Identifiers

ID	Alternate/Historic Name	User Group	Start Date	End Date
54589	KiOR, Inc.	Official Site Name	11/3/2010	
MSR105864	KiOR, Inc.	GP-Construction	12/6/2010	
168000073	KiOR Inc	Air-Construction	1/19/2011	
2808700073	KiOR, Inc.	Air-AIRS AFS	11/3/2010	
MSP092279	KiOR Inc	Water - Pretreatment	4/3/2012	3/31/2017

Basin: Tombigbee River Basin

Location Description:

GENERAL INFORMATION

Relevant Documents:

General Provisions, 40 CFR 60, Subpart A
Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60, Subpart Db
Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes, 40 CFR 60, Subpart RRR
Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, 40 CFR 60, Subpart IIII
Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for which Construction, Reconstruction, or Modification Commenced after November 7, 2006, 40 CFR 60, Subpart VVa
Standards of Performance for Volatile Organic Liquid Storage Vessels (including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction or Modification commenced after July 23, 1984, 40 CFR 60, Subpart Kb
Standards of Performance for Volatile Organic Compound (VOC) Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations, 40 CFR 60, Subpart NNN
General Provisions, 40 CFR 61, Subpart A
National Emission Standard for Equipment Leaks (Fugitive Emission Sources), 40 CFR 61, Subpart V