LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL SERVICES

STATEMENT OF BASIS[1]

PROPOSED PART 70 OPERATING PERMIT 2560-00295-V6

KOCH METHANOL FACILITY
KOCH METHANOL ST. JAMES, LLC
ST. JAMES, ST. JAMES PARISH, LOUISIANA
Agency Interest (AI) No. 194165
Activity No. PER20220006 & PER20220007

I. APPLICANT

The applicant is: Koch Methanol St. James, LLC
5181 Wildcat St.
St. James, LA 70086

Facility: Koch Methanol Facility

SIC Code: 2869

Location: 5181 Wildcat St.,
St. James, LA 70086

II. PERMITTING AUTHORITY

The permitting authority is: Louisiana Department of Environmental Quality
Office of Environmental Services
P.O. Box 4313
Baton Rouge, Louisiana 70821-4313

III. CONTACT INFORMATION

Additional information may be obtained from:

Mr. Anthony Randall
P.O. Box 4313
Baton Rouge, Louisiana 70821-4313
Phone: (225) 219-3181

IV. FACILITY BACKGROUND AND CURRENT PERMIT STATUS

Koch Methanol St. James LLC (Koch) operates the Koch Methanol Plant (KMe Plant) and the adjacent Koch Methanol Terminal (KMe Terminal), collectively known as the KMe Facility, located in St. James, St. James Parish, Louisiana. The KMe Plant and the KMe Terminal constitute a single major stationary source under the Title V Operating Permits

[1] 40 CFR 70.7(a)(5) and LAC 33:III.531.A.4 require the permitting authority to "provide a statement that sets forth the legal and factual basis for the proposed permit conditions of any permit issued to a Part 70 source, including references to the applicable statutory or regulatory provisions."

Program. The KMe Plant was previously permitted under Title V Permit No. 2560-00295-V5, issued on February 23, 2023, and the KMe Terminal was previously permitted under Title V Permit No. 3169-V3, issued on August 11, 2022.

V. PROPOSED PERMIT/PROJECT INFORMATION

A permit application and Emission Inventory Questionnaire (EIQ) dated November 2, 2022, were received requesting a permit modification. The application was deemed administratively complete in accordance with LAC 33:III.519.A on November 3, 2022.

Pursuant to LAC 33:III.519.A.4, a notice of the completeness determination was published in The News Examiner-Enterprise, Lutcher, Louisiana, on November 24, 2022.

Additional information dated February 1, 2023, February 8, 2023, March 20, 2023, March 22, 2023, March 28, 2023, May 2, 2023, and June 19, 2023 was also received.

Process Description

Koch requested to increase the KMe Plant's design production rate to approximately 6,200 metric tons per day (MTPD) of refined methanol. Methanol is produced using the licensed Lurgi MegaMethanol® technology. The methanol production process consists of three main steps: synthesis gas (syngas) production, crude methanol synthesis, and methanol distillation.

The Lurgi MegaMethanol® process is an advanced, highly efficient technology for converting natural gas to methanol. The technology's main processing features include oxygen-blown natural gas reforming in combination with steam reforming, two-step methanol synthesis in water and gas-cooled reactors, and the capability to recycle hydrogen to adjust synthesis gas composition.

Syngas Production

Syngas production by the combined reforming method starts with desulfurization and pre-reforming of natural gas feedstock. After pre-reforming, the natural gas feedstock is split into two branches, with one branch of the gas stream routed to the steam methane reformer (SMR) unit. The SMR uses a catalyst in the presence of steam to reform methane into a raw syngas stream, composed primarily of hydrogen, carbon monoxide, and carbon dioxide. The SMR contains two independent fuel/burner systems comprised of the SMR furnace and auxiliary burner firing in the SMR exhaust duct. The SMR auxiliary burners provide additional heat to the SMR exhaust stream, similar to duct burners, to facilitate heat recovery.

The other branch of the pre-reformed natural gas stream bypasses the SMR and is mixed with the raw syngas exiting the SMR unit. The combined stream is then routed to the secondary reforming process, the Autothermal Reformer (ATR), where oxygen is introduced as the reforming agent. The syngas stream leaving the secondary reforming process contains water as a by-product of the reforming process. Heat is recovered from this stream through various process heaters, and the water is knocked out as process condensate. This condensate contains traces of dissolved gases and ammonia, which are stripped off in the Process Condensate Stripper and sent to the SMR unit for destruction. The dry syngas is then routed to the methanol synthesis unit.

Methanol Synthesis

The methanol synthesis process utilizes two synthesis steps in series: twin water-cooled reactors followed by a gas-cooled reactor. The isothermal, water-cooled reactors use a highly reactive catalyst to partially convert the syngas to methanol. The heat of reaction from this process is drawn off by water cooling and is recovered to produce steam (which can be used to generate electricity via a condensing turbine, depending on the energy balance within the facility). The partially converted process gas stream is routed to the gas-cooled methanol reactor, where it is further reacted while passing over a catalyst bed.

The crude methanol is cooled and condensed, and a purge gas stream is separated before the liquid crude methanol is routed to the methanol distillation unit. Hydrogen can be separated from the purge gas; the hydrogen-rich stream contains minor amounts of non-reactive components in the form of nitrogen and any remaining methane. This stream is used for pre-reformer and synthesis loop catalyst reduction and can also be recycled to methanol synthesis and for desulfurization. The remaining purge gas is combusted as fuel gas in the SMR and Boiler. The crude methanol is routed to the methanol distillation unit.

Methanol Distillation

The crude methanol contains impurities together with unconverted reactants and traces of dissolved gases from the methanol synthesis stage. The stream is degassed in an expansion vessel, which rids the crude methanol stream of much of the dissolved N_2, CO_2, CO, H_2, and methane. This expansion gas stream is combusted in the SMR as fuel. Volatile light ends and the remainder of the dissolved gases are removed in the pre-run column, which separates them into an overhead vapor stream. The overhead vapor stream, called distillation off gas, is combusted as fuel in the SMR. The less volatile,

higher boiling components are further separated in two methanol columns in series. The first of the methanol columns operates at high pressure, while the second operates at atmospheric pressure. The overhead stream from the high-pressure column is used to heat the bottoms of the atmospheric pressure column. The overhead streams from both columns are condensed and refluxed back to their respective columns, with some portion of each split off as the product methanol. Product grade methanol exiting the distillation process is sent to TK-04002A/B storage tanks prior to further storage and distribution at the KMe Terminal. An additional storage tank containing raw methanol (TK-04001) is used to reprocess methanol that does not meet product specifications and to process other methanol-containing streams. A chiller/scrubber system controls emissions from the raw methanol storage tank and two product grade storage tanks. Methanol from the scrubber water is recovered by pumping the scrubber water to the expansion vessel or directly to the raw methanol tank for reprocessing.

KMe Terminal

The purpose of the KMe Terminal is to store and transfer methanol product. The facility consists of four internal floating roof methanol product tanks (TK-26-202A, TK-26-202B, TK-26-202C, and TK-26-202D); methanol truck and rail loading operations; and infrastructure for transferring methanol to and from marine loading operations at the St. James Terminal, which is located adjacent to the site and owned and operated by Plains Marketing LP.

Permit Modifications

KMe Facility Consolidation

With this permit modification, Koch requested to incorporate all permitted KMe Terminal sources from Permit No. 3169-V3 (AI 213599) into the KMe Plant's Title V permit in order to consolidate the KMe Terminal and the KMe Plant into a single Title V permit for the KMe Facility. Some sources previously permitted in the KMe Terminal Title V permit shared a TEMPO ID with the permitted KMe Plant sources. Koch requested that all of the KMe Terminal sources be assigned new TEMPO IDs. Koch also requested that "Fugitive Emissions – Tanks and Terminals" from the KMe Terminal's Title V permit be combined with "Fugitive Emissions – Process Units" under one fugitive emissions source for the KMe Facility.

KMe Optimization Project

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KOCH METHANOL FACILITY
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Agency Interest (AI) No. 194165
Activity No. PER20220006 & PER20220007
Proposed Permit No. 2560-00295-V6

The KMe Optimization Project ("the Project") consists of a number of activities, including a raw material feed upgrade, improvements to plant cooling capability, and other equipment upgrades with the collective primary goal of increasing utilization of existing assets and methanol production. The Project is intended to achieve a 25% increase in the KMe Facility's design production rate from approximately 4,950 MTPD to 6,200 MTPD of refined methanol.

The raw material feed upgrade includes constructing ethane gas piping, a vaporizer, and associated equipment to inject ethane into the process natural gas feed to the SMR (EQT0001). Ethane will be brought into the facility from an existing third-party ethane gas pipeline. Piping, a metering skid, and associated piping components will be constructed, owned, and operated by the third party. KMe will connect to the third-party metering skid at a point of demarcation within the KMe Facility's property. A shell and tube exchanger using low pressure steam, owned and operated by KMe, will be used to vaporize the ethane prior to injection into the process natural gas feed line to the SMR.

To meet the additional cooling needs anticipated for the Project, KMe plans to make upgrades to exiting fin fan coolers as well as the existing cooling tower (EQT0007). This work may involve upgrades to or replacement of the fin fans for improved cooling capability at increased production rates. The cooling tower upgrades are anticipated to include addition of a new cooling tower cell and new or upgraded pumps for increased cooling tower circulation rates above current capability.

A modification to the Flare (EQT0003) design may occur as a result of the Project. The flare will either remain a non-assisted flare or may be modified to incorporate a steam-assisted design.

Other equipment upgrades, such as changes to or addition of piping fugitive components (FUG0001) for process safety valve upgrades, improved process monitoring, or new or changed piping configurations or process flows may be made as part of the Project. Zoloscan technology utilizing advanced combustion monitoring may be installed on the SMR. Additionally, process equipment such as heat exchangers or burners may be replaced, physically modified, or added to accommodate the increased production rates.

SMR, Boiler, PCS Vent CAP (EPN SMR BLR PCS CAP, GRP0002)

The SMR, Boiler, PCS Vent CAP accounts for the average hourly and the annual emissions from the Steam Methane Reformer (Emission Point Number (EPN) SMR, EQT0001); Auxiliary Boiler (EPN BLR, EQT0002); and Process Condensate Stripper Vent (EPN

PCSVENT, RLP0024). Koch requested to make the following changes to the SMR, Boiler, PCS Vent CAP:

- Increase the annual average and maximum firing rates of the SMR, which includes the combined firing of the SMR primary burners and auxiliary burners, to 1,725 MMBtu/hr and 1,794 MMBtu/hr, respectively;

- Increase the boiler's maximum firing rate from 997 MMBtu/hr to 1,100 MMBtu/hr;

- Revise the NO_X, CO, and VOC emission limits to represent the increased SMR and boiler firing rates and to account for emission control catalyst end-of-run performance at the higher firing rates, taking into account the results of a stack test performed near start-of-run (i.e., close to the date when the SCR and VOC/CO emission control catalysts were newly installed) for the SMR and boiler;

- Increase the maximum hourly and annual permitted ammonia emissions for the SMR and maximum hourly ammonia emissions for the boiler to account for additional ammonia injection which may be needed to meet the required NO_X limits at the end of the SCR catalyst run;

- Revise the methanol emission limits for the SMR and boiler based on an anticipated methanol mass flow rate considering the process stream methanol content and 99.9% destruction efficiency;

- Increase emission limits for the Process Condensate Stripper Vent to account for the increase in facility-wide methanol production; and

- Revise average hourly emission rates for the SMR, Boiler, PCS Vent CAP (EPN SMR BLR PCS CAP, GRP0002) to be based on 8,760 hours/year.

Other equipment emission limit changes resulting from the Project and/or updated calculations:

- Revise the emission limits for the Plant Flare (EPN FLR, EQT0003) to account for the increase in the flare load as well as increased supplemental natural gas that would be required to meet the net heating value requirements under the applicable regulations in the event a steam-assisted flare design is needed;

- Revise the Cooling Water Tower (EPN CWT, EQT0007) emissions basis, including the circulating rate, the drift factor, the total dissolved solids (TDS) concentration, and the VOC calculation methodology, and add CO and GHG emissions;

- Combine the fugitive emissions from both of the permits into a single emission source, Fugitive Emissions – KMe Facility (EPN FUG, FUG0001);

- Revise the fugitive emissions to account for added fugitive components related to ethane gas piping, equipment associated with that work, and other piping changes associated with the Project;

- Revise emissions for the Methanol Scrubber (EPN D-04001, EMS0001). The Methanol Scrubber controls emissions from the Raw Methanol Tank (EPN TK-04001, EQT0008) and two (2) Pure Methanol Intermediate Tanks (EPN TK-04002A, EQT0013 and EPN TK-04002B, EQT0017). Emission limit increases are due to the increase in facility-wide methanol production; updates to the tanks' physical parameters to reflect as-built design; the use of updated AP-42 Section 7.1 "Organic Liquid Storage Tanks" (June 2020) emission factors, equations, and algorithms; and updated calculations for the Raw Methanol Tank (EPN TK-04001, EQT0008) to account for emissions from a methanol stream that is currently routed to the tank from an expansion vessel;

- Increase the throughput of the Ammonia Tank (EPN TK-NH3, EQT0014) to 440,000 gal/yr of aqueous ammonia. The additional ammonia is required for the SCR to handle the increase in SMR and Auxiliary Boiler firing rates. Emissions were also updated due to the updated AP-42 Section 7.1 emission factors;

- Update the emissions for Wastewater Treatment (EPN WWT, FUG0002) to reflect a 25% increase in wastewater flow associated with the production rate increase;

- Increase emission limits of Condensate Trap Vents (EPN CTVENT, RLP0025) to account for the increase in facility-wide methanol production;

- Revise the emissions limits for the Methanol Transfer and Product Tank CAP (EPN MTPCAP, GRP0001). This emission cap accounts for emissions from the four (4) internal floating roof methanol product tanks (EPNs TK-26-202A, TK-26-202B, TK-26-202C, and TK-26-202D), including tank cleanings and tank landings, as well as emissions from truck and railcar loading operations (EPN RT LOAD). A Vapor

Control Unit (VCU) is used to control VOC emissions from railcar and truck loading operations.

Due to the increase in facility-wide methanol production, the emission limits for the emissions sources and activities included in the MTPCAP will increase as a result of an increase in methanol throughput through the tanks, trucks, and railcars. Additionally, the tanks' physical parameters were updated to reflect as-built design; emissions calculations were revised to utilize the updated AP- 42 Section 7.1, "Organic Liquid Storage Tanks" (June 2020) emission factors, equations, and algorithms; the VCU's enrichment gas average flow rate was adjusted to account for both current operations and increased production; and the NOx emission factor was updated to reflect the vendor guarantee;

- Update the emissions for the General Condition XVII Activity for the Portable Thermal Oxidizer (GCXVII-15), which controls emissions during tank cleanings, to account for the cleaning of the internal floating roof tanks located at the KMe Terminal;

- Update the emissions for the General Condition XVII Activity for Railcar Cleanings (GCXVII-31) to account for an increase in methanol being loaded out via railcars;

- Update the maximum hourly emissions for the Admin Building Generator (EQT 0026) to account for condensable $PM_{10}/PM_{2.5}$ emissions;

- Update the emission calculations for all natural gas combustion sources to include speciation of inorganic and organic toxic air pollutants to supplement the prior speciated emission calculations; and

- Revise the average hourly emission rates calculation methodology for the Methanol Transfer and Product Tank Cap (EPN MTPCAP, GRP0003).

Specific Requirement (SR) Additions and Revisions

- Add a requirement to develop and implement a fenceline monitoring program for VOC and/or methanol;

- Remove the phrase "(Evaporative Loss from the Cleaning of Storage Tanks)" from the compliance demonstration method SR (formerly SR No. 28 in Permit No. 2560-

00295-V5) for the common requirement group Raw Methanol Tank, Pure Methanol Intermediate Tanks, and Methanol Scrubber (EPN TNKS/SCRBBR, CRG0004);

- Add CO to the compliance demonstration method for NO_X SR (formerly SR No. 71 in Permit No. 2560-00295-V5) for the Steam Methane Reformer (EPN SMR, EQT0001). This addition will add the following two sentences to the requirements: "The CO CEMS shall comply with the Performance Specification 4A of 40 CFR 60, Appendix B, and be evaluated in accordance with Procedure 1 of 40 CFR 60, Appendix F," and "CO emissions shall be calculated monthly based on the lb CO/MMBtu as determined by the CEMS and actual operating rates of the SMR";

- Revise the VOC, PM_{10}, and $PM_{2.5}$ compliance demonstration method SR (formerly SR No. 72 in Permit No. 2560-00295-V5) for the Steam Methane Reformer (EPN SMR, EQT0001) to specify that PM_{10}, $PM_{2.5}$, and VOC shall be calculated monthly based on the actual operating rates of the SMR during the calendar month and the emission factors derived from the performance test;

- Remove references to CO from the compliance demonstration SR (formerly SR No. 73 in Permit No. 2560-00295-V5) for the Steam Methane Reformer (EPN SMR, EQT0001) since KMe will be using a CEMS for compliance demonstration;

- Remove references to CO from the compliance demonstration SR (formerly SR No. 125 in Permit No. 2560-00295-V5) for Auxiliary Boiler (EPN BLR, EQT0002) since KMe will be using a CEMS for compliance demonstration. Also, add the following sentence "PM_{10} and $PM_{2.5}$ shall be calculated monthly based on the actual operating rates of the Auxiliary Boiler during the calendar month and the emission factor derived from the performance test;"

- Remove references to CO from the compliance demonstration SR (formerly SR No. 126 in Permit No. 2560-00295-V5) for Auxiliary Boiler (EPN BLR, EQT0002) since KMe will be using a CEMS for compliance demonstration;

- Add a SR for compliance demonstration for CO to the Auxiliary Boiler (EPN BLR, EQT0002). This requirement states: "Compliance demonstration for CO: The permittee shall monitor and record CO emissions using a Continuous Emissions Monitoring System (CEMS) calibrated, operated, and maintained according to the manufacturer's specifications. The CO CEMS shall comply with the Performance Specification 4A of 40 CFR 60, Appendix B, and be evaluated in accordance with Procedure 1 of 40 CFR 60, Appendix F. CO emissions shall be calculated

monthly based on the lb CO/MMBTU as determined by the CEMS and actual operating rates of the boiler to determine compliance with lb/hr and TPY emission limits. Measurements missed due to periods of monitor breakdown, out-of-control operations (producing inaccurate data), repair, maintenance, or calibration shall be estimated using engineering judgement;"

- Revise the SR for 40 CFR 60.665(b)(3) for Flare (EPN FLR, EQT0003) (formerly SR No. 134 in Permit No. 2560-00295-V5) to correct the reference citation in the SR from 40 CFR 60.705(c) to 40 CFR 60.705(b)(3);

- Revise the compliance demonstration requirement for Plant Emergency Generator (EPN EGEN, EQT0004) (formerly SR No. 169 in Permit No. 2560-00295-V5) by specifying that the requirement is for actual non-emergency operating hours. Also, add the following sentence: "Emissions during emergency use must be reported pursuant to LAC 33:III.919, but shall not be counted against permit limits for purposes of determining compliance";

- Revise the compliance demonstration requirements for Firewater Pump Engine No. 1, Firewater Pump Engine No. 2, Firewater Pump Engine No. 3, and Admin Building Emergency Generator (EPN FWP-01, FWP-02, FWP-03, and EGEN2; EQT0005, EQT0006, EQT0022, and EQT0026) (formerly SR Nos. 171, 173, 185, and 204 in Permit No. 2560-00295-V5) by specifying that the requirement is for actual non-emergency operating hours; and

- Revise the compliance demonstration requirements for the Methanol Transfer and Product Tank Cap (EPN MTPCAP; GRP0003) to add the following sentence: "The combustion emissions from the vapor combustion unit will be calculated as follows: VOC (from pilot and enrichment gas), PM_{10}, and $PM_{2.5}$ will be calculated using AP-42 Section 1.4-2, July 1998; CO will be calculated using AP-42 Section 1.4-1, July 1998; and NO_X will be calculated using the vendor-provided guarantee of 0.25 lb/MMBTU. Heating values shall be based on process knowledge for the full combustion stream."

Miscellaneous Revisions

- Remove the initial notification requirement [40 CFR 63.6645(f)] from Firewater Pump No. 1 (EPN FWP-01, EQT0005) and Firewater Pump No. 2 (EPN FWP-02, EQT0006), as the initial notification requirements have already been fulfilled;

- Remove the specific requirements for compliance demonstration from the two Generac SD 2000 sources (EPN E.GEN 01, EQT0033 and EPN E.GEN 02, EQT0034), as these requirements are redundant to the compliance demonstration requirement listed under CRG0007; and

- Incorporate the following specific requirement revisions for the Flare (EQT0003):
  - Add the applicable recordkeeping requirements under 40 CFR 60.18 and 40 CFR 63.11;
  - Add the 40 CFR 60 Subpart RRR alternative monitoring requirement for flares (i.e., requirements to monitor the vent streams per 40 CFR 60.703(b)(2) of 40 CFR 60 Subpart RRR instead of complying with the monitoring requirements under 40 CFR 60 Subpart NNN); and
  - Remove the specific requirement for 40 CFR 60.705(b), as the flare recordkeeping requirement is already included in the specific requirement for 40 CFR 60.705(b)(3).

- Incorporate five existing sulfuric acid tanks that were previously included as GCVXII activities into the permit as point sources and limit their annual emissions under a proposed CAP of 0.037 tpy with no proposed changes in each tank's potential to emit.

VI. ATTAINMENT STATUS OF PARISH

Pollutant	Attainment Status	Designation
$PM_{2.5}$	Attainment	N/A
PM_{10}	Attainment	N/A
SO_2	Attainment	N/A
NO_2	Attainment	N/A
CO	Attainment	N/A
Ozone[2]	Attainment	N/A
Lead	Attainment	N/A

VII. PERMITTED AIR EMISSIONS

Sources of air emissions are listed on the "Inventories" page of the proposed permit.

Permitted emissions of criteria pollutants from the facility, in tons per year (TPY), are as follows:

[2] VOC and NO_X are regulated as surrogates.

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Pollutant	Before Emissions: Permit No. 2560-00295-V5	Permit No. 3169-V3	Total	After	Change
PM_{10}	49.92	0.41	50.33	76.30	+25.97
$PM_{2.5}$	48.46	0.41	48.87	75.32	+26.45
SO_2	4.65	0.04	4.69	6.16	+1.47
NO_X	87.29	9.57	96.86	152.84	+55.98
CO	92.57	3.96	96.53	181.46	+84.93
VOC	63.55	24.81	88.36	166.34	+77.98
CO_2e^*	-	-	-	1,401,096	+1,401,096

* Greenhouse gas emissions (CO_2e) were not required to be permitted previously. A facility CO_2e emissions total is provided for information only and does not constitute an emissions limit. Koch shall comply with a two-tier, facility-wide 12-month rolling average GHG intensity limit as BACT as described in the Preliminary Determination Summary and Specific Condition 8 of PSD Permit PSD-LA-851 and SR 424 of this Title V permit.

PM_{10} and VOC compounds classified as LAC 33:III.Chapter 51-regulated toxic air pollutants (TAP) are speciated below. This list encompasses all Hazardous Air Pollutants (HAP) regulated pursuant to Section 112 of the Clean Air Act. Note, however, all TAPs are not HAPs (e.g., ammonia, hydrogen sulfide). Permitted emissions, in tons per year (TPY), are as follows:

LAC 33:III.Chapter 51 Toxic Air Pollutants (TAPs):					
Pollutant	Before Emissions: Permit No. 2560-00295-V5	Permit No. 3169-V3	Total	After	Change
1,4-Dichlorobenzene	0.01	-	0.01	0.01	-
2,2,4-Trimethylpentane	0.01	-	0.01	0.01	-
Acetaldehyde	0.01	-	0.01	0.01	-
Ammonia	101.22	-	101.22	120.49	+19.27
Arsenic (and compounds)	-	-	-	0.001	+0.001
Barium (and compounds)	-	-	-	0.045	+0.045

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LAC 33:III.Chapter 51 Toxic Air Pollutants (TAPs):					
	Before Emissions:				
Pollutant	Permit No. 2560-00295-V5	Permit No. 3169-V3	Total	After	Change
Benzene	0.03	0.02	0.05	0.06	+0.01
Cadmium (and compounds)	-	-	-	0.014	+0.014
Chromium VI (and compounds)	-	-	-	0.015	+0.015
Cobalt compounds	-	-	-	0.01	+0.01
Copper (and compounds)	-	-	-	0.008	+0.008
Ethyl benzene	<0.01	-	<0.01	0.01	-
Formaldehyde	0.19	0.01	0.20	0.49	+0.29
Hydrogen Sulfide	9.13	-	9.13	9.13	-
Manganese (and compounds)	-	-	-	0.01	+0.01
Mercury (and compounds)	-	-	-	0.003	+0.003
Methanol	44.14	23.36	67.50	140.72	+73.22
Naphthalene	0.01	-	0.01	0.01	-
n-Hexane	4.45	0.25	4.70	11.32	+6.62
Nickel (and compounds)	-	-	-	0.021	+0.021
Sulfuric Acid*	-	-	-	0.04	+0.04
Toluene	0.02	-	0.02	0.04	+0.02
Zinc (and compounds)	-	-	-	0.30	+0.30
Total	159.23	23.64	182.87	282.767	+99.897

*Previously authorized under General Condition XVII Activity.

Koch Methanol Facility is a major source of criteria pollutants, a major source of HAPs, and a major source of TAPs.

Permitted limits for individual emissions units and groups of emissions units, if applicable, are set forth in the tables of the proposed permit entitled “Emission Rates for Criteria

Pollutants" and "Emission Rates for TAP/HAP & Other Pollutants." These tables are part of the permit.

Emissions calculations can be found in Appendix A of the permit application. The calculations address the manufacturer's specifications, fuel composition (e.g., sulfur content), emissions factors, and other assumptions on which the emissions limitations are based and have been reviewed by the permit writer for accuracy.

General Condition XVII Activities

Very small emissions to the air resulting from routine operations that are predictable, expected, periodic, and quantifiable and that are submitted by the applicant and approved by the Air Permits Division are considered authorized discharges. These releases are not included in the permit totals because they are small and will have an insignificant impact on air quality. However, such emissions are considered when determining the facility's potential to emit for evaluation of applicable requirements. Approved General Condition XVII activities are noted in Section VIII of the proposed permit.

Insignificant Activities

The emissions units or activities listed in Section IX of the proposed permit have been classified as insignificant pursuant to LAC 33:III.501.B.5. By such listing, the LDEQ exempts these sources or types of sources from the requirement to obtain a permit under LAC 33:III.Chapter 5. However, such emissions are considered when determining the facility's potential to emit for evaluation of applicable requirements.

VIII. REGULATORY APPLICABILITY

Regulatory applicability is discussed in three sections of the proposed permit: Section X (Table 1), Section XI (Table 2), and Specific Requirements. Each is discussed in more detail below.

Section X (Table 1): Applicable Louisiana and Federal Air Quality Requirements

Section X (Table 1) summarizes all applicable federal and state regulations. In the matrix, a "1" represents a regulation applies to the emissions unit. A "1" is also used if the emissions unit is exempt from the emissions standards or control requirements of the regulation, but monitoring, recordkeeping, and/or reporting requirements apply.

A "2" is used to note that the regulation has requirements that would apply to the emissions unit, but the unit is exempt from these requirements due to meeting a specific criterion, such as it has not been constructed, modified, or reconstructed since the regulation has been effective. If the specific criterion changes, the emissions unit will have to comply at a future date. Each "2" entry is explained in Section XI (Table 2).

A "3" signifies that the regulation applies to this general type of source (e.g., furnace, distillation column, boiler, fugitive emissions, etc.), but does not apply to the particular emissions unit. Each "3" entry is explained in Section XI (Table 2).

If blank, the regulation clearly does not apply to this type of emissions unit.

Section XI (Table 2): Explanation for Exemption Status or Non-Applicability of a Source

Section XI (Table 2) of the proposed permit provides explanation for either the exemption status or non-applicability of given federal or state regulation cited by 2 or 3 in the matrix presented in Section X (Table 1).

Specific Requirements

Applicable regulations, as well as any additional monitoring, recordkeeping, and reporting requirements necessary to demonstrate compliance with both the federal and state terms and conditions of the proposed permit, are provided in the "Specific Requirements" section. Any operating limitations (e.g., on hours of operation or throughput) are also set forth in this section. Associated with each Specific Requirement is a citation of the federal or state regulation upon which the authority to include that Specific Requirement is based.

1. Federal Regulations

40 CFR 60 – New Source Performance Standards (NSPS)

The following subparts are applicable at the Koch Methanol Facility: A, Db, VVa. NNN, RRR, IIII, and JJJJ. Applicable emission standards, monitoring, test methods and procedures, recordkeeping, and reporting requirements are summarized in the "Specific Requirements" section of the proposed permit.

40 CFR 61 – National Emission Standards for Hazardous Air Pollutants (NESHAP)

No NESHAP provisions are applicable to the Koch Methanol Facility.

40 CFR 63 – Maximum Achievable Control Technology (MACT)

The following subparts are applicable at the Koch Methanol Facility: A, F, G, H, ZZZZ, & DDDDD. Applicable emission standards, monitoring, test methods and procedures, recordkeeping, and reporting requirements are summarized in the "Specific Requirements" section of the proposed permit.

Clean Air Act §112(g) or §112(j) – Case-By-Case MACT Determinations

A case-by-case MACT determination pursuant to §112(g) or §112(j) of the Clean Air Act was not required.

40 CFR 64 – Compliance Assurance Monitoring (CAM)

Per 40 CFR 64.2(a), CAM applies to each pollutant-specific emissions unit (PSEU) that 1) is subject to an emission limitation or standard, 2) uses a control devices to achieve compliance, and 3) has potential pre-control device emissions that are equal to or greater than 100 percent of the amount, in TPY, required for a source to be classified as a major source.

Koch Methanol Facility does not incorporate any CAM provisions.

Acid Rain Program

The Acid Rain Program, 40 CFR Part 72 – 78, applies to the fossil fuel-fired combustion devices listed in Tables 1-3 of 40 CFR 73.10 and other utility units, unless a unit is determined not to be an affected unit pursuant to 40 CFR 72.6(b). LDEQ has incorporated the Acid Rain Program by reference at LAC 33:III.505. Koch Methanol Facility is not subject to the Acid Rain Program.

2. SIP-Approved State Regulations

Applicable state regulations are also noted in Section X (Table 1) of the proposed permit. Some state regulations have been approved by the U.S. Environmental Protection Agency (EPA) as part of Louisiana's State Implementation Plan (SIP). These regulations are referred to as "SIP-approved" and are enforceable by both LDEQ and EPA. All LAC 33:III.501.C.6 citations are federally enforceable unless otherwise noted.

3. State-Only Regulations

Individual chapters or sections of LAC 33:III noted by an asterisk in Section X (Table 1) are designated "state-only" pursuant to 40 CFR 70.6(b)(2). Terms and conditions of the proposed permit citing these chapters or sections are not SIP-approved and are not subject to the requirements of 40 CFR Part 70. These terms and conditions are enforceable by LDEQ, but not EPA. All conditions not designated as "state-only" are presumed to be federally enforceable.

State MACT (LAC 33:III.Chapter 51)

Koch Methanol Facility is a major source of LAC 33:III.Chapter 51 regulated TAP. The owner or operator of any major source that emits or is permitted to emit a Class I or Class II TAP at a rate equal to or greater than the Minimum Emission Rate (MER) listed for that pollutant in LAC 33:III.5112 shall control emissions of that TAP to a degree that constitutes Maximum Achievable Control Technology (MACT), except that compliance

with an applicable federal standard promulgated by the U.S. EPA in 40 CFR Part 63 shall constitute compliance with MACT for emissions of toxic air pollutants. Applicable Part 63 standards are addressed in Section VIII.1 of this Statement of Basis. MACT is not required for Class III TAPs; however, the impact of all TAP emissions must be below their respective Ambient Air Standards (AAS).

MACT determinations were made pursuant to Chapter 51 for the following emissions units: UNF0001, EQT0001, EQT0002, EQT0003, EQT0007, EQT0008, EQT0013, EQT0014, EQT0017, EQT0018, EQT0028, EQT0029, EQT0030, EQT0031, EQT0032, EMS0001, FUG0001, and FUG0002. State MACT requirements are cited as LAC 33:III.5109.A in the proposed permit.

IX. NEW SOURCE REVIEW (NSR)

1. Prevention of Significant Deterioration (PSD)

Koch Methanol's proposed KMe Optimization Project will be performed at the KMe Facility, which is located in St. James Parish, which is currently designated by EPA as attainment or unclassifiable for all pollutants having National Ambient Air Quality Standards (NAAQS) (40 CFR 81.319). Therefore, Non-Attainment New Source Review (NNSR) regulations are not applicable to the project.

A "major stationary source" under the PSD regulations is defined as any source that emits or has the potential to emit over 250 tons per year (TPY) of at least one criteria pollutant or 100 TPY if the source belongs to one of the 28 specifically listed industrial source categories [40 CFR 52.21(b)(1)]. The major source threshold for the Koch Methanol Facility is 100 TPY.

For existing units, the increase in emissions from the project can be calculated as the post-project potential to emit (PTE) or the projected actual emissions (PAE) minus the baseline actual emissions (BAE). For a new emissions unit, the BAE for purposes of determining the emissions increase that will result from the initial construction and operation of such unit shall equal zero.

Although not required because the KMe Facility is not an existing major stationary source and because the changes proposed do not themselves constitute construction of a new major stationary source, Koch requested that PSD requirements be applied as if the facility has not yet been built and to all pollutants for which the post-project facility-wide potential to emit will exceed PSD Significant Emission Rates.

Emissions of PM_{10}, $PM_{2.5}$, NO_X, CO, VOC, and greenhouse gases are greater than their corresponding significant emission rates; therefore, PSD review is required for these pollutants.

Permitted emissions for the Koch Methanol Facility (for regulated NSR pollutants) are set forth in the table below. Amounts are listed in TPY.

STATEMENT OF BASIS

KOCH METHANOL FACILITY
KOCH METHANOL ST. JAMES, LLC
ST. JAMES, ST. JAMES PARISH, LOUISIANA
Agency Interest (AI) No. 194165
Activity No. PER20220006 & PER20220007
Proposed Permit No. 2560-00295-V6

Pollutant	Project Emission Accounting	Contemporaneous Changes	Net Emissions Increase	PSD de minimis	Review conducted?
PM_{10}	76.30	-	76.30	15	Yes
$PM_{2.5}$	75.32	-	75.32	10	Yes
SO_2	6.16	-	6.16	40	No
NO_X	152.84	-	152.84	40	Yes
CO	181.46	-	181.46	100	Yes
VOC	166.34	-	166.34	40	Yes
CO_2e	1,401,096	-	1,401,096	75,000	Yes
H_2S	9.13	-	9.13	10	No

[1]NO_X and VOC are precursors for ozone emissions.

BACT

Under current PSD regulations, an analysis of "top down" BACT is required for the control of each regulated pollutant emitted from a new or modified major stationary source in excess of the specified significant emission rates. The top down approach to the BACT process involves determining the most stringent control technique available for a similar or identical source. If it can be shown that this level of control is infeasible based on technical, environmental, energy, and/or cost considerations, then it is rejected and the next most stringent level of control is determined and similarly evaluated. This process continues until a control level is arrived at which cannot be eliminated for any technical, environmental, or economic reason. A technically feasible control strategy is one that has been demonstrated to function efficiently on identical or similar processes. Additionally, BACT shall not result in emissions of any pollutant which would exceed any applicable standard under 40 CFR Parts 60 and 61.

$PM_{10}/PM_{2.5}$ BACT Analysis
$PM_{10}/PM_{2.5}$ BACT for EQT0001, SMR – Steam Methane Reformer is determined to be the use of good combustion practices to limit $PM_{10}/PM_{2.5}$ emissions to 0.00745 lb/MMBtu (3-hour average). Compliance with the limit will be determined with performance testing on a 5-year frequency using EPA Methods 5 or 201A and 202, or alternate method as approved by LDEQ.

$PM_{10}/PM_{2.5}$ BACT for EQT0002, BLR – Auxiliary Boiler is determined to be the use of good combustion practices to limit $PM_{10}/PM_{2.5}$ emissions to 0.00745 lb/MMBtu (3-hour average). Compliance with the limit will be determined with performance testing on a 5-year frequency using EPA Methods 5 or 201a and 202, or alternate method as approved by LDEQ.

$PM_{10}/PM_{2.5}$ BACT for EQT0004, EGEN – Plant Emergency Generator; EQT0005, FWP-01 – Firewater Pump Engine No. 1; EQT0006, FWP-02 – Firewater Pump Engine No. 2; EQT0022, FWP-03 – Firewater Pump Engine No. 3; EQT0033, E. GEN 01 – Generac

SD 2000; and EQT0034, E. GEN 02 – Generac SD 2000 is determined to be compliance with 40 CFR 60 Subpart IIII.

$PM_{10}/PM_{2.5}$ BACT for EQT0026, EGEN2 – Admin Building Emergency Generator is determined to be compliance with 40 CFR 60 Subpart JJJJ.

$PM_{10}/PM_{2.5}$ BACT for EQT0007, CWT – Cooling Water Tower is the use of drift eliminators with a drift rate of 0.0005%.

CO BACT Analysis

CO BACT for EQT0001, SMR – Steam Methane Reformer is determined to be the use of oxidation catalyst and good combustion practices to limit CO emissions to 0.0037 lb/MMBtu on a 12-month rolling average, for periods inclusive of normal operation as well as start-up, shutdown, and malfunction. Compliance with the limit will be determined utilizing a CO Continuous Emission Monitoring Systems (CEMS).

CO BACT for EQT0002, BLR – Auxiliary Boiler is determined to be the use of good combustion practices. The top-ranked control technology, oxidation catalyst, was determined to not be cost-effective. Nevertheless, the boiler is equipped with oxidation catalyst, which exceeds what is required to meet BACT. BACT and the use of oxidation catalyst will limit CO emissions to 0.0046 lb/MMBtu on a 12-month rolling average, for periods inclusive of normal operation as well as start-up, shutdown, and malfunction. Compliance with this limit will be determined utilizing a CO CEMS.

CO BACT for FUG0001, FUG – Fugitive Emissions – KMe Facility is determined to be a combination of equipment design and LDAR. Koch will implement a CO LDAR program for those components in CO service that are not subject to VVa and that contain >5% CO. The CO LDAR program will include relevant elements from Subpart VVa such as calendar-based leak monitoring, 5/15 day repair requirements, delay of repair (DOR), etc., and will be adjusted to appropriately accommodate requirements for CO. The CO LDAR plan must be submitted to LDEQ within 60 days of permit issuance. The CO LDAR program shall be implemented within 180 days following LDEQ's approval of the plan.

CO BACT for EQT0004, EGEN – Plant Emergency Generator; EQT0005, FWP-01 – Firewater Pump Engine No. 1; EQT0006, FWP-02 – Firewater Pump Engine No. 2; EQT0022, FWP-03 – Firewater Pump Engine No. 3; EQT0033 E. GEN 01 – Generac SD 2000; and EQT0034, E. GEN 02 – Generac SD 2000 is determined to be compliance with 40 CFR 60 Subpart IIII.

CO BACT for EQT0026, EGEN2 – Admin Building Emergency Generator is determined to be compliance with 40 CFR 60 Subpart JJJJ.

CO BACT for EQT0007, CWT – Cooling Water Tower is determined to be a direct contact design with exchanger monitoring and repair in accordance with the HON (40

CFR 63, Subpart F).

CO BACT for RLP0024, PSCVENT – Process Condensate Stripper Vent and RLP0025, CTVENT – Condensate Trap Vents is determined to be no further controls.

NO_X BACT Analysis
NO_X BACT for EQT0001, SMR – Steam Methane Reformer is determined to be the use of the SCR with an emission limit of 0.01 lb/MMBtu on a 12-month rolling average, for periods inclusive of normal operation as well as start-up, shutdown, and malfunction. This limit is within the range of emission limits in the RBLC from recent BACT determinations, is justified based on the unique characteristics of auxiliary burner design, and balances the emissions of NO_X, ammonia, and $PM_{2.5}$ due to SCR control. Compliance with this BACT emission limit will be determined by utilizing a NO_X continuous emissions monitoring system (CEMS).

NO_X BACT for EQT0002, BLR – Auxiliary Boiler is determined to be the use of the SCR with an emission limit of 0.01 lb/MMBtu on a 12-month rolling average, for periods inclusive of normal operation as well as start-up, shutdown, and malfunction. This limit is within the range of emission limits in the RBLC from recent BACT determinations, is justified based on the unique characteristics of auxiliary burner design, and balances the emissions of NOx, ammonia, and $PM_{2.5}$ due to SCR control. Compliance with this BACT emission limit will be determined by utilizing a NO_X CEMS.

NO_X BACT for EQT0004, EGEN – Plant Emergency Generator; EQT0005, FWP-01 – Firewater Pump Engine No. 1; EQT0006, FWP-02 – Firewater Pump Engine No. 2; EQT0022, FWP-03 – Firewater Pump Engine No. 3; EQT0033 E. GEN 01 – Generac SD 2000; and EQT0034, E. GEN 02 – Generac SD 2000 is determined to be compliance with 40 CFR 60 Subpart IIII.

NO_X BACT for EQT0026, EGEN2 – Admin Building Emergency Generator is determined to be compliance with 40 CFR 60 Subpart JJJJ.

VOC BACT Analysis
VOC BACT for EQT0001, SMR – Steam Methane Reformer is determined to be the use of good combustion practices. The top-ranked control technology, oxidation catalyst, was determined to not be cost-effective. Nevertheless, the SMR is equipped with oxidation catalyst, which exceeds what is required to meet BACT. BACT and the use of oxidation catalyst will limit VOC emissions to 0.00374 lb/MMBtu on a 3-hour average. This is consistent with the emission limit range from recent BACT determinations in the RBLC for steam methane reformers and is justified based on the additional VOC generated by the auxiliary burners. Compliance with this limit will be determined with a performance test every 5 years using Method 25a, or alternate method with prior approval from LDEQ.

VOC BACT for EQT0002, BLR – Auxiliary Boiler is determined to be the use of good combustion practices. The top-ranked control technology, oxidation catalyst, was

determined not to be cost-effective. Nevertheless, the boiler is equipped with oxidation catalyst, which exceeds what is required to meet BACT. BACT and the use of oxidation catalyst will limit VOC emissions to 0.0016 lb/MMBtu on a 3-hour average. This limit is consistent with the emission limit range from recent BACT determinations in the RBLC for auxiliary boilers and substantially lower than the most common emission limit. Compliance with this limit will be determined with a performance test every 5 years using Method 25a, or alternate method with prior approval from LDEQ.

VOC BACT for process vents is to vent to EQT0003, FLR – Flare. The flare will be designed and operated in accordance with 40 CFR 60.18 and 40 CFR 63.11, General Control Device and Work Practice Requirements to achieve 98% control of VOC emissions routed to it. Both 40 CFR 60.18 and 40 CFR 63.11 include operating specifications (exit velocity, heat content, etc.) and monitoring requirements, as well as a requirements that the flare be operated with a flame present at all times.

VOC BACT for EQT0028, RT LOAD – Methanol Railcar and Tank Truck Loading Operations is determined to be routing displaced vapors to a vapor control unit capable of achieving 98% reduction of VOC emissions. VOC emissions will also be limited to 18.54 lb/hr. This mass emission limit is based on achieving 99% control of the uncontrolled methanol loading emissions, which has been previously demonstrated and exceeds what is required to meet BACT. Compliance with the VOC limit will be determined with a performance test every 5 years using Method 25a, or other approved method as approved by LDEQ.

VOC BACT for FUG0002, WWT - Wastewater Treatment plant is determined to be compliance with applicable NESHAP requirements (i.e., 40 CFR 63 Subpart G).

VOC BACT for FUG0001, FUG – Fugitive Emissions – KMe Facility is determined to be a combination of equipment design and LDAR pursuant to 40 CFR 60, Subpart VVa and 40 CFR 63, Subpart H.

VOC BACT for EQT0004, EGEN – Plant Emergency Generator; EQT0005, FWP-01 – Firewater Pump Engine No. 1; EQT0006, FWP-02 – Firewater Pump Engine No. 2; EQT0022, FWP-03 – Firewater Pump Engine No. 3; EQT0033 E. GEN 01 – Generac SD 2000; and EQT0034, E. GEN 02 – Generac SD 2000 is determined to compliance with 40 CFR 60 Subpart IIII.

VOC BACT for EQT0026, EGEN2 – Admin Building Emergency Generator is determined to be compliance with 40 CFR 60 Subpart JJJJ.

VOC BACT for EQT0007, CWT – Cooling Water Tower is determined to be Direct Contact Design with Exchanger Monitoring and Repair in accordance with HON (40 CFR 63, Subpart F).

VOC BACT for EQT0008, TK-04001 – Raw Methanol Tank; EQT0013, TK-04002A – Pure Methanol Intermediate Tank; and, EQT0017, TK-04002B – Pure Methanol

Intermediate Tank is determined to be routing displaced vapors from the fixed roof tanks to a vapor collection system and a chiller and scrubber system with 98% efficiency. The BACT will limit VOC emissions to 10.07 TPY, 12 month rolling average, based on achieving 98% control of the Methanol Storage Tank emissions. This control efficiency and emission limit is consistent with recent BACT determinations in the RBLC. Compliance with the VOC limit will be demonstrated by calculating emissions monthly using the calculation methodology utilized in the application, using actual throughput and average daily temperature of the methanol stored each calendar month, and demonstrating the control efficiency of the scrubber by complying with the requirements in 40 CFR 63.120(d)(1)-(7), as applicable.

VOC BACT for EQT0018, F-03007 –Slop Vessel is determined to be routing displaced vapors from the fixed roof tank to a vapor collection system and flare with 98% VOC control efficiency. The flare will be designed and operated in accordance with 40 CFR 60.18 and 40 CFR 63.11, General Control Device and Work Practice Requirements to achieve 98% control of VOC emissions routed to it. This control efficiency and emission limit are consistent with recent BACT determinations in the RBLC. Both 40 CFR 60.18 and 40 CFR 63.11 include operating specifications (exit velocity, heat content, etc.) and monitoring requirements, as well as a requirement that the flare be operated with a flame present at all times.

VOC BACT for EQT0027, GASTANK – Gasoline Storage Tank is determined to be the use of a fixed roof with submerged fill, based on a review of the RBLC.

VOC BACT for EQT0029, TK-26-202A – Methanol Product Tank 2301; EQT0030, TK-26-202B – Methanol Product Tank 2302; EQT0031, TK-26-202C – Methanol Product Tank 2303; EQT0032, TK-26-202D – Methanol Product Tank 2304 is determined to be the use of an internal floating roof.

<u>CO_2e BACT Analysis</u>
CO_2e BACT for EQT0001, SMR – Steam Methane Reformer and EQT0002, BLR – Auxiliary Boiler is determined to be the use of energy efficiency measures and combusting only clean fuels.

A two-tier, facility-wide, 12-month rolling average GHG intensity limit reflective of energy efficient operation and low carbon gaseous fuel firing in the boiler and SMR will serve as the BACT emission limitation. A 0.56 MT CO2e/MT MeOH limit is based on facility-wide potential to emit (1,400,440 ST/yr converted to metric tons) divided by the maximum post project targeted production capacity (annualized 6200 MT MeOH/day). This limit will apply when operating in the upper half of the facility's operating range. A 0.68 MT CO2e/MT MeOH limit is based on the facility-wide GHG PTE divided by the midpoint MeOH production rate (annualized 5100 MT MeOH/day based on a projected operating range of 4000 to 6200 MT/day). This second limit will apply when operating below the midpoint of the operating range.

Compliance with the two-tier, facility-wide, 12-month rolling average GHG intensity

limit will be determined per prescribed methods and recordkeeping noted in 40 CFR Part 98. By the end of each month following each 12-month rolling average period, Koch will determine the applicable daily tier values and the 12-month rolling average of the applicable daily tier values and compare to the actual site-wide GHG intensity during the corresponding 12-month timeframe. Koch will calculate the site-wide GHG intensity as the total CO2e emissions divided by the total MeOH production during the relevant 12-month timeframe. In the event that any global warming potentials listed in Table A-1 to Subpart A of 40 CFR 98 are revised, the CO2e/MT MeOH daily tier values shall be revised accordingly without the need to revise this permit.

CO2e BACT for FUG0001; FUG – Fugitive Emissions – KMe Facility is determined to be a combination of equipment design and LDAR pursuant to 40 CFR 60, Subpart VVa and 40 CFR 63, Subpart H. Koch will implement a Methane LDAR program for those components in methane service that are not subject to VVa and that contain >10% methane. The Methane LDAR program will include relevant elements from Subpart VVa such as calendar-based leak monitoring, 5/15 day repair requirements, delay of repair (DOR), etc., and will be adjusted to appropriately accommodate requirements for methane. The Methane LDAR plan is required to be submitted to LDEQ within 60 days of permit issuance. The Methane LDAR program will be implemented within 180 days following LDEQ approval of the Methane LDAR plan.

CO2e BACT for EQT0007, CWT – Cooling Water Tower is determined to be direct contact design with exchanger monitoring and repair in accordance with HON (40 CFR 63, Subpart F).

CO2e BACT for EQT0004, EGEN – Plant Emergency Generator; EQT0005, FWP-01 – Firewater Pump Engine No. 1; EQT0006, FWP-02 – Firewater Pump Engine No. 2; EQT0022, FWP-03 – Firewater Pump Engine No. 3; EQT0033 E. GEN 01 – Generac SD 2000; and EQT0034, E. GEN 02 – Generac SD 2000 is determined to be compliance with 40 CFR 60 Subpart IIII.

CO2e BACT for EQT0026, EGEN2 – Admin Building Emergency Generator is determined to be compliance with 40 CFR 60 Subpart JJJJ.

A more thorough discussion of the BACT selection process can be found in PSD-LA-851. BACT and any other associated monitoring, recordkeeping, and reporting requirements necessary to determine compliance with the PSD permit are cited as "LAC 33:III.509" in the proposed Title V permit.

Air Quality Impact Analyses

Prevention of Significant Deterioration regulations require an analysis of existing air quality for those pollutants emitted in significant amounts from a proposed modified major stationary source. PM_{10}, $PM_{2.5}$, NO_X, and CO are pollutants of concern in this case.

Modeling was conducted using AERMOD pursuant to the protocol approved by the Office of Environmental Assessment, Air Quality Assessment Division on September 19, 2022.

Dispersion Model(s) Used: AERMOD

Pollutant	Time Period	Calculated Maximum Ground Level Concentration (µg/m^3)	Significant Impact Level (µg/m^3)	National Ambient Air Quality Standard {NAAQS}
$PM_{2.5}$*	24 hour	1.01*	1.2	35 µg/m^3
	Annual	0.11*	0.2	12 µg/m^3
PM_{10}	24 hour	1.32	5	150 µg/m^3
	Annual	0.16	1	50 µg/m^3
NO_2	1 hour	182.4**	7.5	188 µg/m^3
	Annual	0.40	1	100 µg/m^3
CO	1 hour	1453.56	2000	40,000 µg/m^3
	8 hour	441.48	500	10,000 µg/m^3

*Includes secondary formation of $PM_{2.5}$

**This reflects the results of refined NAAQS modeling since results of the SIL analysis were above the SIL. Tier 3 (OLM) was used for 1-hour modeling.

Modeling of PM_{10}, $PM_{2.5}$, annual NO_2, and CO emissions from the KMe Facility indicates that the maximum offsite ground level concentrations of these pollutants will be below their respective PSD ambient significance levels and preconstruction monitoring levels. Therefore, pre-construction monitoring, refined NAAQS modeling, and increment consumption analyses were not required.

However, predicted concentrations of NO_2 exceed its 1-hour ambient significance level; consequently, refined NAAQS modeling and increment consumption analyses were required.

Refined Modeling

Pollutant	Averaging Period	Modeled Concentration (µg/m^3)	Background Concentration (µg/m^3)	Modeled + Background (µg/m^3)	NAAQS (µg/m^3)
NO_2	1-hour	126.0	56.4	182.4	188

As shown above, refined modeling indicates compliance with the 1-hour NO_2 NAAQS. There is no PSD Increment associated with 1-hour NO_2; therefore, PSD increment analysis is not required for hourly NO_2 emissions.

See Table III – Air Quality Analysis Summary of the proposed PSD permit for more detailed modeling results.

2. Nonattainment New Source Review (NNSR)

Koch Methanol Facility is located in an attainment area; therefore, NNSR does not apply.

3. Notification of Federal Land Manager

The Federal Land Manager (FLM) is responsible for evaluating a facility's projected impact on the Air Quality Related Values (AQRV) (e.g., visibility, sulfur and nitrogen deposition, any special considerations concerning sensitive resources, etc.[3]) and recommending that LDEQ either approve or disapprove the facility's permit application based on anticipated impacts. The FLM also may suggest changes or conditions on a permit. However, LDEQ makes the final decision on permit issuance. The FLM also advises reviewing agencies and permit applicants about other FLM concerns, identifies AQRV and assessment parameters for permit applicants, and makes ambient monitoring recommendations.

If LDEQ receives a PSD or NNSR permit application for a facility that "may affect" a Class I area, the FLM charged with direct responsibility for managing these lands is notified.

The meaning of the term "may affect" is interpreted by EPA policy to include all major sources or major modifications which propose to locate within 100 kilometers (km) of a Class I area. However, if a major source proposing to locate at a distance greater than 100 km is of such size that LDEQ or the FLM is concerned about potential impacts on a Class I area, LDEQ can ask the applicant to perform an analysis of the source's potential emissions impacts on the Class I area. This is because certain meteorological conditions, or the quantity or type of air emissions from large sources located further than 100 km, may cause adverse impacts. In order to determine whether a source located further than 100 km may affect a Class I area, LDEQ uses the Q/d approach. The KMe Facility is located 185 km from the nearest Class I area, the Breton National Wildlife Refuge.

Q/d refers to the ratio of the sum of the KMe Facility annual emissions (in tons) of PM_{10}, SO_2, NO_X, and H_2SO_4 to the distance (in kilometers) of the facility from the nearest boundary of the Class I area.

$$Q/d = \frac{PM_{10\,(NEI)} + SO_{2\,(NEI)} + NO_{X\,(NEI)} + H_2SO_{4\,(NEI)}}{\text{Class I km}}$$

Where:

$PM_{10\,(NEI)}$	=	net emissions increase of PM_{10}
$SO_{2\,(NEI)}$	=	net emissions increase of SO_2
$NO_{X\,(NEI)}$	=	net emissions increase of NO_X
$H_2SO_{4\,(NEI)}$	=	net emissions increase of H_2SO_4
Class I km	=	distance to nearest Class I area (in kilometers)

If Q/d ≥ 10, LDEQ will formally notify the FLM in accordance with LAC 33:III.509.P.1.

[3] See http://www2.nature.nps.gov/air/Permits/ARIS/AQRV.cfm.

In this instance,

$$Q/d = \frac{76.30 \text{ tpy} + 6.16 \text{ tpy} + 152.84 \text{ tpy} + 0.037 \text{ tpy}}{185 \text{ km}} = 1.27$$

Therefore, LDEQ has formally determined that notifying the FLM is not required and that the KMe Facility will not adversely impact visibility in Breton National Wildlife Refuge, the nearest Class 1 area.

X. ADDITIONAL MONITORING AND TESTING REQUIREMENTS

In addition to the monitoring and testing requirements set forth by applicable state and federal regulations (see Section VIII of this Statement of Basis), a number of "LAC 33:III.507.H.1.a" and/or "LAC 33:III.501.C.6" conditions may appear in the "Specific Requirements" section of the proposed permit. These conditions have been added where no applicable regulation exists or where an applicable regulation does not contain sufficient monitoring, recordkeeping, and/or reporting provisions to ensure compliance. LAC 33:III.507.H.1.a provisions, which may include recordkeeping requirements, are intended to fulfill Part 70 periodic monitoring obligations under 40 CFR 70.6(a)(3)(i)(B).

XI. OPERATIONAL FLEXIBILITY

Emissions Caps

An emissions cap is a permitting mechanism to limit allowable emissions of two or more emissions units below their collective potential to emit (PTE). The proposed permit does not establish an emissions cap but does contain two previously established emission caps: GRP0002, SMR BLR PCS Vent CAP – SMR, BLR, PCS, Vent CAP and GRP0003, MTPCAP – Methanol Transfer and Product Tank Cap.

Alternative Operating Scenarios

LAC 33:III.507.G.5 allows the owner or operator to operate under any operating scenario incorporated in the permit. Any reasonably anticipated alternative operating scenarios may be identified by the owner or operator through a permit application and included in the permit. The proposed permit does not include an alternative operating scenario.

Streamlined Requirements

When applicable requirements overlap or conflict, the permitting authority may choose to include in the permit the requirement that is determined to be most stringent or protective as detailed in EPA's "White Paper Number 2 for Improved Implementation of the Part 70 Operating Permits Program" (March 5, 1996). The overall objective is to determine the set of permit terms and conditions that will assure compliance with all applicable requirements for an emissions unit or group of emissions units so as to eliminate

redundant or conflicting requirements. The proposed permit contains the following streamlined provisions.

ID	Description		Compliance with the Provisions of	Constitutes Compliance With
EQT 0008	TK-04001	Raw Methanol Tank	40 CFR 63 Subpart G	LAC 33:III.2103
EQT 0013	TK-04002A	Pure Methanol Intermediate	40 CFR 63 Subpart G	LAC 33:III.2103
EQT 0017	TK-04002B	Pure Methanol Intermediate	40 CFR 63 Subpart G	LAC 33:III.2103
EQT 0029	TK-26-202A	Methanol Product Tank 2301	40 CFR 63 Subpart G	LAC 33:III.2103
EQT 0030	TK-26-202B	Methanol Product Tank 2302	40 CFR 63 Subpart G	LAC 33:III.2103
EQT 0031	TK-26-202C	Methanol Product Tank 2303	40 CFR 63 Subpart G	LAC 33:III.2103
EQT 0032	TK-26-202D	Methanol Product Tank 2304	40 CFR 63 Subpart G	LAC 33:III.2103
EQT 0028	RT LOAD	Methanol Railcar and Tank Truck Loading Operations	40 CFR 63 Subpart G	LAC 33:III.2107

Louisiana Consolidated Fugitive Emission Program (LCFEP)

Koch Methanol Facility complies with a streamlined equipment leak monitoring program.

Compliance with the streamlined program shall constitute compliance with each of the fugitive emission monitoring programs being streamlined. Fugitive emissions are subject to the requirements of 40 CFR 63 Subpart H and 40 CFR 60 Subpart VVa. Among these regulations, 40 CFR 63 Subpart H establishes the most stringent leak detection and repair standards. Therefore, fugitive emissions shall be monitored as required by this program.

Unit or Plant Site	Programs Being Streamlined	Stream Applicability	Overall Most Stringent Program
Koch Methanol Facility	40 CFR 63 Subpart H – National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks	≥ 5% total organic HAPs	40 CFR 63 Subpart H
	40 CFR 60 Subparts VVa – 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	≥ 10% VOC by weight	

XII. PERMIT SHIELD

A permit shield, as described in 40 CFR 70.6(f) and LAC 33:III.507.I, provides an "enforcement shield" which protects the facility from enforcement action for violations of applicable federal requirements. It is intended to protect the facility from liability for violations if the permit does not accurately reflect an applicable federal or federally enforceable requirement.

Permit shields have been established for the streamlined requirements described in Section XII above. When an owner or operator complies with the streamlined requirement (i.e., 40 CFR 63 Subparts G), the facility will be considered to be in compliance with all of the applicable requirements subsumed under the streamlined requirement.

XIII. IMPACTS ON AMBIENT AIR

Modeling of PM_{10}, $PM_{2.5}$, NO_X, and CO is addressed in Section IX.1 of this Statement of Basis.

Modeling demonstrates that emissions from the Koch Methanol Facility will not violate National Ambient Air Quality Standards (NAAQS) for criteria pollutants and Louisiana Ambient Air Standards (AAS) for toxic air pollutants. Therefore, KMe Facility will not cause air quality impacts which could adversely affect human health or the environment.

Pollutant	Time Period	Calculated Maximum Ground Level Conc.	NAAQS or AAS
$PM_{2.5}$	24 hour	1.01 $\mu g/m^3$*	35 $\mu g/m^3$
	Annual	0.11 $\mu g/m^3$*	12 $\mu g/m^3$
PM_{10}	24 hour	1.32 $\mu g/m^3$	150 $\mu g/m^3$
	Annual	0.16 $\mu g/m^3$	50 $\mu g/m^3$
NO_2	1 hour	182.4 $\mu g/m^3$**	188 $\mu g/m^3$
	Annual	0.40 $\mu g/m^3$	100 $\mu g/m^3$
CO	1 hour	1453.56 $\mu g/m^3$	40,000 $\mu g/m^3$
	8 hour	441.48 $\mu g/m^3$	10,000 $\mu g/m^3$
Ammonia*	8 hour	44.04 $\mu g/m^3$	640 $\mu g/m^3$
Methanol*	8 hour	72.02 $\mu g/m^3$	6240 $\mu g/m^3$

*Ambient air standard set forth in LAC 33:III.5112.
**This reflects the results of refined NAAQS modeling since results of the SIL analysis were above the SIL.

XIV. COMPLIANCE HISTORY AND CONSENT DECREES

The Koch Methanol Facility's compliance history can be found in Section 14 of the permit application. It must be disclosed per LAC 33:III.517.E and 517.D.12, if

applicable.

On February 7, 2023, U.S. EPA issued the Koch Methanol Facility a "Notice of Potential Violation and Opportunity to Confirm" alleging that the Facility had violated the RMP General Duty Clause. Koch Methanol is currently seeking to resolve that Notice. No other federal or state actions have been issued since the existing permits for the Koch Methanol Plant and Terminal were issued.

XV. REQUIREMENTS THAT HAVE BEEN SATISFIED

The following state and/or federal obligations have been satisfied and are therefore not included as Specific Requirements.

Source ID	Citation	Description
EQT0005	40 CFR 63.6645(f)	Initial notification requirement was fulfilled.
EQT0006	40 CFR 63.6645(f)	Initial notification requirement was fulfilled.

XVI. OTHER REQUIREMENTS

Executive Order No. BJ 2008-7 directs all state agencies to administer their regulatory practices, programs, contracts, grants, and all other functions vested in them in a manner consistent with Louisiana's Comprehensive Master Plan for a Sustainable Coast and public interest to the maximum extent possible. If a proposed facility or modification is located in the Coastal Zone, LDEQ requires the applicant to document whether or not a Coastal Use Permit is required, and if so, whether it has been obtained. Coastal Use Permits are issued by the Coastal Management Division of the Louisiana Department of Natural Resources (LDNR).

The facility is located in the Coastal Zone; however, a Coastal Use Permit is not required because the proposed Project will not require onsite physical construction activities that could impact coastal resources.

XVII. ENVIRONMENTAL JUSTICE AND TITLE VI /CIVIL RIGHTS ISSUES

Environmental justice (EJ) is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial operations. Meaningful involvement means:

- people have an opportunity to participate in decisions about activities that may affect their environment and/or health;
- the public's contribution can influence the permitting authority's decision;
- community concerns will be considered in the decision making process; and

- decision makers will seek out and facilitate the involvement of those potentially affected.[4]

EJScreen

EJScreen is an EJ mapping and screening tool developed by EPA that provides users with a nationally consistent dataset and approach for combining environmental and demographic indicators in the form of EJ indexes. An EJ index is a combination of environmental and demographic information; it combines demographic factors with a single environmental factor.[5]

EPA uses EJScreen to "screen for areas that may be candidates for additional consideration, analysis or outreach as EPA develops programs, policies and activities that may affect communities."[6] EPA cautions that EJScreen should *not* be used:

- as a means to identify or label an area as an "EJ community";
- to quantify specific risk values for a selected area;
- to measure cumulative impacts of multiple environmental factors; or
- as the sole basis for agency decision-making or making a determination regarding the existence or absence of EJ concerns.[7]

EPA goes on to state that screening-level results:

- do not, by themselves, determine the existence or absence of environmental justice concerns in a given location;
- do not provide a risk assessment; and
- have other significant limitations.[8]

According to EPA, the EJ index is a product of the environmental indicator, the demographic index for the block group, and the population of the block group.[9] The EJ index does not reflect the percentage of the population that is at less risk based on exposure to a given environmental factor.

EJScreen is a "living" website that is updated as newer information becomes available. Notice that the underlying data has been updated is not typically provided by EPA. Therefore, LDEQ notes that this analysis was performed on July 3, 2023, and the data reported herein was the current information utilized by EJScreen as of that date.

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4 https://www.epa.gov/environmentaljustice/learn-about-environmental-justice
5 https://www.epa.gov/EJScreen/environmental-justice-indexes-EJScreen
6 https://www.epa.gov/EJScreen/how-does-epa-use-EJScreen
7 *Id.*
8 https://www.epa.gov/EJScreen/purposes-and-uses-EJScreen
9 https://www.epa.gov/EJScreen/environmental-justice-indexes-EJScreen

LDEQ prepared an EJScreen Report (Version 2.2) for the area encompassed by a 3-mile ring with its centroid at the approximate center of the Koch Methanol Facility.[10]

Demographic Information

The EJScreen report includes a demographic index based on the average of the people of color population and the low income population. The demographic index for the evaluated area is 74 percent, which is higher than the state average demographic index of 41 percent. More specifically, the people of color population is greater than the state average (88 percent versus 43 percent), and the low income population is also greater than the state average (61 percent versus 40 percent).

According to EJScreen, 177 people live within 2 miles of the Koch Methanol Facility, a 12.56 square mile area (14.1 persons per square mile), and 739 people live within 3 miles of the Koch Methanol Facility, a 28.27 square mile area (26.1 persons per square mile).[11] By way of comparison, according to the 2020 U.S. Census, Louisiana's average population density is 107.8 persons per square mile.[12]

Selected Variables	Area of Review	State Average
Demographic Index	74%	41%
People of Color	88%	43%
Low Income	61%	40%
Unemployment Rate	4%	7%
Limited English Speaking Households	0%	2%
Less Than High School Education	20%	15%
Under Age 5	5%	6%
Over age 64	19%	17%
Low Life Expectancy	23%	22%

Environmental Indexes

For the area encompassed by a 3-mile ring with its centroid at the approximate center of the Koch Methanol Facility, EJScreen reports the following EJ index values.

Environmental Justice Index	State Percentile
EJ Index for Particulate Matter 2.5	81

[10] Latitude/longitude 29.981926/-90.861329

[11] For the area within 1 mile of the Koch Methanol Facility, EJScreen reports the "area is too small or sparsely populated … to generate an EJScreen chart or report."

[12] https://www.census.gov/data/tables/time-series/dec/density-data-text.html

Environmental Justice Index	State Percentile
EJ Index for Ozone	96
EJ Index for Diesel Particulate Matter	85
EJ Index for Air Toxics Cancer Risk	97
EJ Index for Air Toxics Respiratory Hazard Index	47
EJ Index for Toxic Releases to Air	98
EJ Index for Traffic Proximity	43
EJ Index for Lead Paint	83
EJ Index for Superfund Proximity	65
EJ Index for RMP Facility Proximity	84
EJ Index for Hazardous Waste Proximity	71
EJ Index for Underground Storage Tanks	50
EJ Index for Wastewater Discharge	90

EPA has indicated that a closer review may be warranted for any environmental indicator with an EJ index greater than or equal to 80.[13] In the instant case, these indicators include:

- Particulate Matter 2.5;
- Ozone;
- Diesel Particulate Matter;
- Air Toxics Cancer Risk;
- Toxic Releases to Air;
- Lead Paint;
- RMP Facility Proximity; and
- Wastewater Discharge.

Particulate Matter 2.5

The Particulate Matter 2.5 indicator – $PM_{2.5}$ in $\mu g/m^3$ (annual average) – is less than the state average (8.5 $\mu g/m^3$ versus 8.62 $\mu g/m^3$) and well below the national ambient air quality standard (NAAQS) of 12 $\mu g/m^3$. According to EPA, air quality that is compliant with the NAAQS is protective of public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly, with an adequate margin of safety.

Koch modeled potential $PM_{2.5}$ emissions from the Koch Methanol Facility (i.e., total allowable emissions under Permit No. 2560-00295-V6, not just the increases attributed to the KMe Optimization Project). The maximum modeled annual average concentration of

[13] See "Learn about Identifying Communities with Environmental Justice (EJ) Concerns" at https://www.epa.gov/environmentaljustice/learn-about-environmental-justice.

$PM_{2.5}$ – 0.11 µg/m^3 – was below its significant impact level (SIL) of 0.2 µg/m^3.[14] Notably, EPA explains that "changes in air quality within this range are not meaningful, and, thus, do not contribute to a violation of the NAAQS."[15]

Air Toxics Cancer Risk

Based on EPA's 2019 Air Toxics Screening Assessment, or AirToxScreen, the Air Toxics Cancer Risk value for the area (52 per million people) is higher than the state average of 40 per million people. Nonetheless, this value is less than EPA's "acceptable risk" threshold of 1 in 10,000 (i.e., 100 in 1 million)[16] and likely overestimates actual cancer risk for two primary reasons.

One, EPA utilized each HAP's unit risk estimate (URE) to calculate exposure risks from that pollutant. The URE represents the *upper-bound* excess lifetime cancer risk estimated to result from continuous exposure to a HAP at a concentration of 1 µg/m^3. EPA acknowledges that the true risk may be lower.[17]

Two, as shown in the table below, the average point source cancer risk for every census tract in St. James Parish is heavily influenced by emissions of ethylene oxide and, to a lesser extent, chloroprene.[18] The Koch Methanol Facility is located in census tract 22093040500. Here, these two pollutants are responsible for 89.7 percent of the total point source cancer risk.

Census Tract	**Total Cancer Risk** (per million)	**Point Source Cancer Risk** (per million)			
		Total	**Ethylene Oxide**	**Chloroprene**	**All Others**
22093040100	47.7	21.6	17.7	2.3	1.6
22093040200	46.5	20.4	16.9	2.0	1.5
22093040300	44.2	18.5	15.7	1.5	1.3

[14] The maximum modeled 24-hour average concentration of $PM_{2.5}$ – 1.01 µg/m^3 – was also below its SIL of 1.2 µg/m^3.

[15] "Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program," dated April 17, 2018 (p. 11) (https://www.epa.gov/nsr/significant-impact-levels-ozone-and-fine-particles)

[16] See, for example, EPA's "2014 National Air Toxics Assessment: Fact Sheet": "[w]hen NATA shows a potential cancer risk of greater than 100 in 1 million at a census tract, it means there may be an elevated cancer risk in that tract" (https://www.epa.gov/sites/default/files/2018-11/documents/nata_2014_fact_sheet.pdf).

[17] See Technical Support Document for EPA's Air Toxic Screening Assessment, 2017 AirToxScreen TSD, March 2022 (p. A-8) (https://www.epa.gov/system/files/documents/2022-03/airtoxscreen_2017tsd.pdf).

[18] For a map of the census tracts in St. James Parish, see https://www2.census.gov/geo/maps/dc10map/tract/st22_la/c22093_st_james/DC10CT_C22093_001.pdf.

22093040400	42.3	16.6	13.7	0.7	2.2
22093040500	**38.6**	**13.4**	**11.5**	**0.5**	**1.4**
22093040600	42.4	16.7	14.0	1.5	1.1
22093040700	35.8	12.1	10.0	1.0	1.1

As shown in the table below, actual emissions of ethylene oxide as reported to LDEQ's Emissions Reporting and Inventory Center (ERIC) have decreased substantially since the 2019 assessment. Thus, the current point source cancer risk for St. James, Louisiana, as well as that for all other areas in St. James Parish, should be appreciably lower than as estimated by the 2019 AirToxScreen.

Pollutant	Emissions (tons per year) [19]		Percent Change
	2019	2022	
Ethylene Oxide [20]	18.99	13.76	– 27.6 %
Chloroprene [21]	19.81	19.22	– 3.0 %

Notably, the Koch Methanol Facility is not permitted to emit ethylene oxide or chloroprene.

Toxic Releases to Air

The area's Toxic Releases to Air value is based on Risk-Screening Environmental Indicators (RSEI)-modeled toxicity-weighted concentrations of Toxic Release Inventory (TRI) chemicals in the air.

For calendar year 2021, the RSEI score for fugitive air releases, stack air releases, and off-site incineration in St. James Parish was 166,194.[22] However, the primary pollutants emitted by the Koch Methanol Facility – ammonia, hydrogen sulfide, methanol, and n-hexane, which represent 99.6 percent of permitted toxic air pollutants from the facility – have a combined RSEI score of only 317.[23] As such, the Koch Methanol Facility is not a significant contributor to the Toxic Releases to Air value.

In addition, in response to community concerns regarding potential impacts from industrial emissions of toxic air pollutants, Koch has proposed to implement a fenceline monitoring program for VOC and/or methanol. This fenceline monitoring program is incorporated as an enforceable permit condition.

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[19] See "Annual Certified Emissions Data 2015-present (Updated 6/6/2023)" at https://deq.louisiana.gov/page/eric-public-reports.

[20] There are no significant sources of ethylene oxide in St. James Parish. Reported emissions are those from sources located in the surrounding parishes of Ascension, Iberville, St. Charles, and St. John the Baptist.

[21] Denka Performance Elastomer LLC

[22] RSEI scores can be obtained at https://www.epa.gov/rsei/rsei-results-map.

[23] Bis (2-chloroethyl) ether and 1,2-dichloroethane account for 83.4 percent of the RSEI score for the parish.

Ozone

As shown in the table below, the maximum impact of the NO_X and VOC increases associated with Permit Nos. 2560-00295-V6 and PSD-LA-851 on ambient ozone concentrations is predicted to be only 0.33 parts per billion and will therefore have no practical impact on the environmental indicator for ozone (i.e., the average of the top ten maximum daily 8-hour ozone air concentrations in an annual period). Nor will the increase cause or contribute to violations of the 8-hour ozone NAAQS.

Monitor	Current Design Value [24] (parts per billion)	Predicted Ozone Increase (parts per billion)	Projected Design Value (parts per billion)	NAAQS (parts per billion)
Convent	59	0.33 [25]	59.33	70

Diesel Particulate Matter, Lead Paint, and RMP Facility Proximity

The modifications addressed by Permit Nos. 2560-00295-V6 and PSD-LA-851 will have no impact, either positive or negative, on ambient diesel particulate matter levels,[26] the percent of housing units built pre-1960 (an indicator of potential lead paint exposure), or the number of facilities located within five (5) kilometers of the Koch Methanol Facility that are subject to EPA's "Chemical Accident Prevention Provisions" under 40 CFR 68.

Wastewater Discharge

The EJScreen value for Wastewater Discharge (toxicity-weighted concentration/m distance) for the area (0.0072) is well below the reported state and national averages.

State Average	National Average

[24] The design value is for calendar years 2020-2022. The design value is used to determine if air quality at a given location is compliant with the relevant NAAQS. See https://www.epa.gov/air-trends/air-quality-design-values for more information.

[25] Value derived using EPA's "Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program," dated April 30, 2019. In order to be conservative, the lowest illustrative NO_X and VOC MERP values for the southern United States (i.e., the amount of each pollutant required to generate 1.0 ppb of ozone) were utilized – 190 tons per year of NO_X and 2307 tons per year of VOC (see p. 43) (https://www.epa.gov/sites/default/files/2019-05/documents/merps2019.pdf).

$$0.33 = (55.98/190) + (77.98/2307)$$

[26] A significant increase in truck traffic is not anticipated. According to the EAS, the "additional production volume is expected to primarily serve non-local customers and thus be shipped by rail and marine vessel" (EDMS Doc ID 13864134, p. 38 of 111).

49	22

Discharges of sanitary wastewater from the Koch Methanol Facility are regulated by Louisiana Pollutant Discharge Elimination System (LPDES) General Permit LAG535491, issued July 20, 2020.[27] Other discharges from the facility are regulated under LPDES Permit No. LA0127367, dated November 12, 2020.[28] Koch's application to renew LA0127367 addresses changes associated with the proposed KMe Optimization Project.[29]

Additional Considerations

In addition to considering EJScreen data, LDEQ evaluated whether individual permitting decisions have, over time, corresponded to increased emissions of criteria pollutants, TAPs, and/or Toxics Release Inventory (TRI)-listed chemicals from the facilities located in St. James Parish. LDEQ compared 2000, 2010, and 2015 ERIC and TRI data to corresponding 2022 values.[30]

Metric	Percent Change (relative to 2000)	Percent Change (relative to 2010)	Percent Change (relative to 2015)
Criteria	–63.0	–57.8	–29.7
TAPs	–65.1	–60.6	–69.0
TRI [31]	–49.3	–47.6	–27.9

The results show substantial and continuing declines in actual emissions of pollutants over the timeframes evaluated.

Conclusion

Based on LDEQ's analysis of the information provided by the EJScreen assessment and the terms and conditions of the permits, LDEQ concludes that issuance of the permits will not result in an adverse disproportionate impact under Title VI of the Civil Rights Act. Further, LDEQ is providing opportunity for all interested parties to be meaningfully involved in the permitting process.

XVIII. PUBLIC NOTICE/PUBLIC PARTICIPATION

Written comments, written requests for a public hearing, or written requests for

[27] EDMS Doc ID 12259394
[28] EDMS Doc ID 12448374
[29] EDMS Doc ID 13849306
[30] LDEQ compared historical TRI data to corresponding data for calendar year 2021, as this is the most recent available.
[31] Total On-site Disposal or Other Releases per https://enviro.epa.gov/triexplorer/tri_release.chemical

notification of the final decision regarding this permit action may be submitted to:

PPG Staff
LDEQ, Public Participation Group
P.O. Box 4313
Baton Rouge, Louisiana 70821-4313

Written comments and/or written requests must be received prior to the deadline specified in the public notice. If LDEQ finds a significant degree of public interest, a public hearing will be held. All comments will be considered prior to a final permit decision.

LDEQ will send notification of the final permit decision to the applicant and to each person who has submitted written comments or a written request for notification of the final decision.

The permit application, proposed permit, and this Statement of Basis can be accessed electronically via LDEQ's Electronic Document Management System (EDMS) on LDEQ's public website, www.deq.louisiana.gov.

Inquiries or requests for additional information regarding this permit action should be directed to the contact identified on page 1 of this Statement of Basis.

Persons wishing to be included on the public notice mailing list or for other public participation-related questions should contact LDEQ's Public Participation Group at P.O. Box 4313, Baton Rouge, LA 70821-4313; by e-mail at deq.publicnotices@la.gov; or contact LDEQ's Customer Service Center at (225) 219-LDEQ (219-5337). Alternatively, individuals may elect to receive public notices via e-mail by subscribing to LDEQ's Public Notification List Service at http://louisiana.gov/Services/Email_Notifications_DEQ_PN/.

Permit public notices can be viewed at LDEQ's "Public Notices" webpage, http://deq.louisiana.gov/public-notices. Electronic access to each proposed permit and Statement of Basis current on notice is also available on this page. General information related to public participation in permitting activities can be viewed at http://deq.louisiana.gov/page/the-public-participation-group.

STATEMENT OF BASIS

KOCH METHANOL FACILITY
KOCH METHANOL ST. JAMES, LLC
ST. JAMES, ST. JAMES PARISH, LOUISIANA
Agency Interest (AI) No. 194165
Activity No. PER20220006 & PER20220007
Proposed Permit No. 2560-00295-V6

APPENDIX A - ACRONYMS

AAS	Ambient Air Standard (LAC 33:III.Chapter 51)
AP-42	EPA document number of the Compilation of Air Pollutant Emission Factors
BACT	Best Available Control Technology
BTU	British Thermal Units
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CAM	Compliance Assurance Monitoring, 40 CFR 64
CEMS	Continuous Emission Monitoring System
CMS	Continuous Monitoring System
CO	Carbon monoxide
COMS	Continuous Opacity Monitoring System
CFR	Code of Federal Regulations
EI	Emissions Inventory (LAC 33:III.919)
EPA	(United States) Environmental Protection Agency
EIQ	Emission Inventory Questionnaire
ERC	Emission Reduction Credit
FR	Federal Register or Fixed Roof
H_2S	Hydrogen sulfide
H_2SO_4	Sulfuric acid
HAP	Hazardous Air Pollutants
Hg	Mercury
HON	Hazardous Organic NESHAP
IBR	Incorporation by Reference
LAER	Lowest Achievable Emission Rate
LDEQ	Louisiana Department of Environmental Quality
M	Thousand
MM	Million
MACT	Maximum Achievable Control Technology
MEK	Methyl ethyl ketone
MIK	Methyl isobutyl ketone
MSDS	Material Safety Data Sheet
MTBE	Methyl tert-butyl ether
NAAQS	National Ambient Air Quality Standards
NAICS	North American Industrial Classification System (replacement to SICC)
NESHAP	National Emission Standards for Hazardous Air Pollutants
NMOC	Non-Methane Organic Compounds

STATEMENT OF BASIS

KOCH METHANOL FACILITY
KOCH METHANOL ST. JAMES, LLC
ST. JAMES, ST. JAMES PARISH, LOUISIANA
Agency Interest (AI) No. 194165
Activity No. PER20220006 & PER20220007
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APPENDIX A - ACRONYMS

NOx	Nitrogen Oxides
NNSR	Nonattainment New Source Review
NSPS	New Source Performance Standards
NSR	New Source Review
OEA	LDEQ Office of Environmental Assessment
OEC	LDEQ Office of Environmental Compliance
OES	LDEQ Office of Environmental Services
PM	Particulate Matter
PM10	Particulate Matter less than 10 microns in nominal diameter
PM2.5	Particulate Matter less than 2.5 microns in nominal diameter
ppm	parts per million
ppmv	parts per million by volume
ppmw	parts per million by weight
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
RACT	Reasonably Available Control Technology
RBLC	RACT-BACT-LAER Clearinghouse
RMP	Risk Management Plan (40 CFR 68)
SICC	Standard Industrial Classification Code
SIP	State Implementation Plan
SO2	Sulfur Dioxide
SOCMI	Synthetic Organic Chemical Manufacturing Industry
TAP	Toxic Air Pollutants (LAC 33:III.Chapter 51)
TOC	Total Organic Compounds
TPY	Tons Per Year
TRS	Total Reduced Sulfur
TSP	Total Suspended Particulate
µg/m3	Micrograms per Cubic Meter
UTM	Universal Transverse Mercator
VOC	Volatile Organic Compound
VOL	Volatile Organic Liquid
VRU	Vapor Recovery Unit

STATEMENT OF BASIS

KOCH METHANOL FACILITY
KOCH METHANOL ST. JAMES, LLC
ST. JAMES, ST. JAMES PARISH, LOUISIANA
Agency Interest (AI) No. 194165
Activity No. PER20220006 & PER20220007
Proposed Permit No. 2560-00295-V6

APPENDIX B – GLOSSARY

Best Available Control Technologies (BACT) – an emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under this Part (Part III) which would be emitted from any proposed major stationary source or major modification which the administrative authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

CAM - Compliance Assurance Monitoring – A federal air regulation under 40 CFR Part 64.

Carbon Monoxide (CO) – (Carbon monoxide) a colorless, odorless gas produced by incomplete combustion of any carbonaceous (gasoline, natural gas, coal, oil, etc.) material.

Cooling Tower – A cooling system used in industry to cool hot water (by partial evaporation) before reusing it as a coolant.

Continuous Emission Monitoring System (CEMS) – The total combined equipment and systems required to continuously determine air contaminants and diluent gas concentrations and/or mass emission rate of a source effluent.

Cyclone – A control device that uses centrifugal force to separate particulate matter from the carrier gas stream.

Federally Enforceable Specific Condition – A federally enforceable specific condition written to limit the potential to Emit (PTE) of a source that is permanent, quantifiable, and practically enforceable. In order to meet these requirements, the draft permit containing the federally enforceable specific condition must be placed on public notice and include the following conditions:

- A clear statement of the operational limitation or condition which limits the source's potential to emit;
- Recordkeeping requirements related to the operational limitation or condition;
- A requirement that these records be made available for inspection by LDEQ personnel;
- A requirement to report for the previous calendar year.

Grandfathered Status – those facilities that were under actual construction or operation as of June 19, 1969, the signature date of the original Clean Air Act. These facilities are not required to obtain a permit. Facilities that are subject to Part 70 (Title V) requirements lose grandfathered status and must apply for a permit.

STATEMENT OF BASIS

KOCH METHANOL FACILITY
KOCH METHANOL ST. JAMES, LLC
ST. JAMES, ST. JAMES PARISH, LOUISIANA
Agency Interest (AI) No. 194165
Activity No. PER20220006 & PER20220007
Proposed Permit No. 2560-00295-V6

APPENDIX B – GLOSSARY

Lowest Achievable Emission Rate (LAER) – for any source, the more stringent rate of emissions based on the following:

a. the most stringent emissions limitation that is contained in the implementation plan of any state for such class or category of major stationary source, unless the owner or operator of the proposed stationary source demonstrates that such limitations are not achievable; or
b. the most stringent emissions limitation that is achieved in practice by such class or category of stationary source. This limitation, when applied to a modification, means the lowest achievable emissions rate for the new or modified emissions units within the stationary source. In no event shall the application of this term permit a proposed new or modified major stationary source to emit any pollutant in excess of the amount allowable under an applicable new source standard of performance.

NESHAP – National Emission Standards for Hazardous Air Pollutants – Air emission standards for specific types of facilities, as outlined in 40 CFR Parts 61 through 63.

Maximum Achievable Control Technology (MACT) – the maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

NSPS – New Source Performance Standards – Air emission standards for specific types of facilities, as outlined in 40 CFR Part 60.

New Source Review (NSR) – a preconstruction review and permitting program applicable to new or modified major stationary sources of criteria air pollutants regulated under the Clean Air Act (CAA). NSR is required by Parts C ("Prevention of Significant Deterioration of Air Quality") and D ("Nonattainment New Source Review").

Nonattainment New Source Review (NNSR) – a New Source Review permitting program for major sources in geographic areas that do not meet the National Ambient Air Quality Standards (NAAQS) set forth at 40 CFR Part 50. NNSR is designed to ensure that emissions associated with new or modified sources will be regulated with the goal of improving ambient air quality.

Organic Compound – any compound of carbon and another element. Examples: methane (CH_4), ethane (C_2H_6), carbon disulfide (CS_2).

Part 70 Operating Permit – also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507.

STATEMENT OF BASIS

KOCH METHANOL FACILITY
KOCH METHANOL ST. JAMES, LLC
ST. JAMES, ST. JAMES PARISH, LOUISIANA
Agency Interest (AI) No. 194165
Activity No. PER20220006 & PER20220007
Proposed Permit No. 2560-00295-V6

APPENDIX B – GLOSSARY

PM_{10} – particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) – the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) – a New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

Selective Catalytic Reduction (SCR) – A non-combustion control technology that destroys NO_X by injecting a reducing agent (e.g., ammonia) into the flue gas that, in the presence of a catalyst (e.g., vanadium, titanium, or zeolite), converts NO_X into molecular nitrogen and water.

Sulfur Dioxide (SO_2) – An oxide of sulphur.

TAP – LDEQ acronym for toxic air pollutants regulated under LAC 33 Part III, Chapter 51, Tables 1 through 3.

"Top Down" Approach – An approach which requires use of the most stringent control technology found to be technically feasible and appropriate based on environmental, energy, economic, and cost impacts.

Title V permit – see Part 70 Operating Permit.

Volatile Organic Compound (VOC) – any organic compound which participates in atmospheric photochemical reactions; that is, any organic compound other than those which the Administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.