SEP 17 2013

AIR PERMIT ROUTING/APPROVAL SLIP-Permits

AI No.	181192	Company	Methanex USA LLC	Date Received	4/16/2013
Activity No.	PER20130003	Facility	Geismar Ethylene Plant	Permit Type	PSD mod.
CDS No.	0180-00210	Permit No.	PSD-LA-761 (M-1)	Expedited Permit	☒ yes ☐ no

1. Technical Review	Approved	Date rec'd	Date FW	Comments
Permit Writer DVC DVC		4/23/13	5/22/13	6/17/13
Air Quality / Modeling	ymo		7/18/13	
Toxics				
Technical ~~Advisor~~ Review	Qmj		7/18/13	
Supervisor				
Other				
2. Management Review (if PN req'd)	**Approved**	**Date rec'd**	**Date FW**	**Comments**
Supervisor				
Manager	DVC		7/18/13	
Assistant Secretary (PN)			7/18/13	
3. Response to Comments (if PN req'd)	**Approved**	**Date rec'd**	**Date FW**	**Comments**
Supervisor				
Manager				
Administrator				
Legal (BFD)				
4. Final Approval	**Approved**	**Date rec'd**	**Date FW**	**Comments**
Supervisor				
Manager	DVC		9/4/13	no comments
Administrator				
Assistant Secretary			9/12/13	

1. Technical Review

PN of App needed	☑ yes ☐ no	Date of PN of App		Newspaper			
Fee paid	☑ yes ☐ no						
NSPS applies	☑ yes ☐ no	PSD/NNSR applies	☑ yes ☐ no	NESHAP applies	☑ yes ☐ no		

2. Post-Technical Review

Company technical review	☑ yes ☐ no ☐ n/a	E-mail date	5/22/13	Remarks received	☑ yes ☐ no 6/10/13
Surveillance technical review	☑ yes ☐ no ☐ n/a	E-mail date	5/22/13	Remarks received	☐ yes ☑ no

3. Public Notice

Public Notice Required	☑ yes ☐ no				
Library					
PN newspaper 1/City	*The Advocate*/Baton Rouge	PN Date	7/25/13	EDMS Verification	☑ yes ☐ no
PN newspaper 2/City	Gonzales Weekly Citizen	PN Date	7/25/13		☑ yes ☐ no
Company notification letter sent	Date mailed	7/23/13			
EPA PN notification e-mail sent	Date e-mailed	7/19/13			
OES PN mailout	Date	7/23/13			

4. Final Review

Public comments received	☐ yes ☒ no	EPA comments rec'd	☐ yes ☒ no	Date EPA Resp. to Comments-mailed	
Company comments received	☐ yes ☒ no	PN info entered into Permit Sec VI	☑ yes ☐ no	Date EPA approved permit	
Comments					

BOBBY JINDAL
GOVERNOR

PEGGY M. HATCH
SECRETARY

State of Louisiana

DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL SERVICES

Certified Mail No.: 7012 3460 0000 8286 0502

Agency Interest (AI) No.: 181192
Activity No.: PER20130003

Mr. Glynn Fontenot
Plant Manager
Methanex USA, LLC
P. O. Box 85330
Baton Rouge, LA 70884

RE: Prevention of Significant Deterioration (PSD) Permit PSD-LA-761 (M-1), Geismar Methanol Plant, Methanex USA, LLC, Geismar, Ascension Parish, Louisiana

Dear Mr. Fontenot:

Enclosed is your permit, PSD-LA-761 (M-1). Construction of the proposed project is not allowed until such time as the corresponding Part 70 Operating Permit is issued.

Please be advised that pursuant to provisions of the Environmental Quality Act and the Administrative Procedure Act, the Department may initiate review of a permit during its term. However, before it takes any action to modify, suspend or revoke a permit, the Department shall, in accordance with applicable statutes and regulations, notify the permittee by mail of the facts or operational conduct that warrant the intended action and provide the permittee with the opportunity to demonstrate compliance with all lawful requirements for the retention of the effective permit.

Should you have any questions concerning the permit, contact Dasheng Victor Chu of the Air Permits Division at (225) 219-3457.

Sincerely,

Sam L. Phillips
Assistant Secretary
September 12, 2013
Date

SLP:DVC
c: US EPA Region VI

Agency Interest No. 181192

PSD-LA-761 (M-1)

AUTHORIZATION TO CONSTRUCT AND OPERATE A NEW FACILITY PURSUANT TO THE PREVENTION OF SIGNIFICANT DETERIORATION REGULATIONS IN LOUISIANA ENVIRONMENTAL REGULATORY CODE, LAC 33:III.509

In accordance with the provisions of the Louisiana Environmental Regulatory Code, LAC 33:III.509,

Methanex USA, LLC
P. O. Box 85330
Baton Rouge, LA 70884

is authorized to construct and operate the Geismar Methanol Plant at

4279 Louisiana Highway 73
Geismar, Louisiana 70734

subject to the emissions limitations, monitoring requirements, and other conditions set forth hereinafter.

This permit and authorization to construct shall expire at midnight on March 12, 2015, unless physical on site construction has begun by such date, or binding agreements or contractual obligations to undertake a program of construction of the source are entered into by such date.

Signed this 12 day of September, 2013.

Sam L. Phillips
Assistant Secretary
Office of Environmental Services
Louisiana Department of Environmental Quality

BRIEFING SHEET

Geismar Methanol Plant
Agency Interest No. 181192
Methanex USA, LLC
Geismar, Ascension Parish, Louisiana
PSD-LA-761 (M-1)

PURPOSE

To relocate a second existing methanol production unit from Punta Arenas, Chile to Geismar Methanol Plant, Louisiana.

RECOMMENDATION

Approval of the proposed construction and issuance of a permit.

REVIEWING AGENCY

Louisiana Department of Environmental Quality, Office of Environmental Services, Air Permits Division

PROJECT DESCRIPTION

In this major modification, Methanex proposes to relocate a second methanol production unit from Methanex's facility in Punta Arenas, Chile to the Geismar Methanol Plant location. This second unit, named Geismar II, will also have a methanol production capacity of 3,000 tonnes per day.

The Methanex Geismar Methanol Plant will include two units (Geismar I and Geismar II) and produce 6,000 metric tons per day of refined methanol from natural gas feedstock. The process uses a single quench-type converter to carry out the methanol synthesis reaction and a two distillation column system to produce refined methanol.

The natural gas feedstock is treated to remove low levels of impurities which would otherwise poison the catalyst used to promote the chemical reactions carried out in the process. Natural gas is first heated up before passing over a cobalt and molybdenum (Co/Mo) catalyst bed where complex sulfur compounds are reacted with hydrogen to convert the sulfur to hydrogen sulfide. Hydrogen sulfide is subsequently removed by adsorption over a zinc oxide (ZnO) bed.

Treated natural gas is broken down into a mixture of basic components in a chemical reaction referred to as Steam Reforming, which converts the natural gas into a mixture of carbon oxides, hydrogen, and residual methane in presence of steam. The resulting mixture is referred to as Synthesis Gas and contains the reactants for the methanol formation.

The reforming reaction is performed in an externally fired conventional steam reformer at high temperatures. Flue gases resulting from the combustion are then treated to reduce emissions.

BRIEFING SHEET

Geismar Methanol Plant
Agency Interest No. 181192
Methanex USA, LLC
Geismar, Ascension Parish, Louisiana
PSD-LA-761 (M-1)

The methanol synthesis reactions take place over a very selective copper and zinc-based catalyst. Crude methanol (mixture of methanol, water, and impurities) is condensed out of the reactor product stream by cooling. Unconverted reactants are recycled back to the loop by a centrifugal compressor. Because the synthesis gas also contains non-reactive compounds (inserts) like residual methane and nitrogen, a small amount of gas is purged from the loop to prevent excessive build-up. Crude methanol contains some impurities which are more volatile than pure methanol such as ketones and aldehydes, as well as traces of dissolved gases from the methanol synthesis stage. These light ends are removed overhead in a Topping Column. Bottom product from this column containing methanol, water, and impurities less volatile than methanol, are fed to a Refining Column where water and all the impurities are removed to produce high quality refined methanol. Heavy impurities are removed from the bottom section of the refining column as a small fraction of heavy organic compounds known as fusel oil.

Pure methanol, the final product, is sent to an intermediate tank to check the purity specifications before final storage in dedicated tanks form where product is transferred to the loading facilities.

In this modification, the Source IDs for existing Geismar I emission points will be renamed to differentiate existing equipment from proposed Geismar II sources. The new naming convention will add the plant number and a dash before the equipment number.

Methanex is requesting the following emission points be removed from the existing permit (Geismar I Unit). These sources will not be constructed.

EQT0003	I-X-616	Utility Boiler
EQT0012	I-RC-925	Loading Operations Scrubber
EQT0013	I-TT-925	Truck Loading
EQT0018	I-T-731A	Methanol Product Tank
EQT0019	I-T-731B	Methanol Product Tank
EQT0020	I-T-731C	Methanol Product Tank
EQT0021	I-C-925	Loading Operations Scrubber
EQT0023	I-C-5601	Saturator Blowdown Degasser
EQT0025	I-RD-925	Railcar Degassing
EQT0027	I-BG-926	Barge Loading
EQT0028	I-C-926	Barge Loading Operations Scrubber

Methanex will install two new diesel emergency generators to provide backup power during emergency events, identified as sources I-GDE-1202 and I-GDE-1203 in the Geismar I unit.

Also, Methanex will revise and update the emission calculations for a few sources to reflect recent data. With the availability of updated engineering plans, a more accurate representation of

fugitive component counts and stream speciation is included in the process fugitives (I-G-1000) emission point.

Geismar I and Geismar II are considered as single project under PSD review.

Estimated potential emissions from the proposed facility, in tons per year, are as follows:

		Criteria/GHG Pollutants (tpy)				
	PM_{10}	$PM_{2.5}$	SO_2	NOx	CO	CO_2e
New and Project-affected Geismar I Emissions Increases	64.73	64.59	5.04	67.92	48.97	992,804
Geismar II Sources	64.69	64.55	5.04	66.70	48.09	992,628
Total Project Emission Increases	129.42	129.14	10.08	134.62	97.06	1,985,432
PSD Threshold	15	10	40	40	100	100,000
Threshold Exceeded?	Yes	Yes	No	Yes	No	Yes

TYPE OF REVIEW

Particulate matter (PM_{10} and $PM_{2.5}$), NOx, and CO_2e emissions from the proposed facility will be above PSD significance levels. Therefore, the requested permit was reviewed in accordance with PSD regulations for PM_{10}, $PM_{2.5}$, NOx, and CO_2e emissions.

BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

The emissions of PM_{10}, $PM_{2.5}$, NOx, and CO_2e from the proposed facility are above PSD significance levels and must undergo BACT analyses. BACT analysis is presented in the Preliminary Determination Summary section. The selection of control technology for each affected emission unit has been chosen based on the BACT analysis using a "top down" approach. The BACT determination is summarized in the table below for the emission sources installed as part of the project.

BRIEFING SHEET

Geismar Methanol Plant
Agency Interest No. 181192
Methanex USA, LLC
Geismar, Ascension Parish, Louisiana
PSD-LA-761 (M-1)

Summary of BACT Determination

Source Description	Pollutant	Most Feasible BACT Selected
I-C-601, II-C-601 Decarbonators	CO_2e	Energy efficiency measures
I-H-101, II-H-101, Steam Methane Reformers	NO_X	Selective Catalytic Reduction (SCR)
	$PM_{10}/PM_{2.5}$	Proper burner design and operations
	CO_2e	Installation of heat recovery steam generators
I-X-703, I-X-703SUSD, II-X-703, II-X-703SUSD, Flares	NO_X	Compliance with 40 CFR 63.11
	$PM_{10}/PM_{2.5}$	
	CO_2e	
I-GDE-1201, I-GDE-1202, I-GDE-1203, II-GDE-1201 Emergency Generators; I-P-727 A/B/C/D Fire Water Pumps	NO_X	Compliance with regulatory programs (40 CFR 60 Subpart IIII and 40 CFR 63 Subpart ZZZZ)
	$PM_{10}/PM_{2.5}$	
	CO_2e	
I-CT-621, II-CT-621, Cooling Towers	$PM_{10}/PM_{2.5}$	Drift eliminators
I-G-1000, II-G-1000, Process Fugitives	CO_2e	Compliance with HON Subpart H
I-G-1001, II-G-1001 WW Fugitives	CO_2e	Compliance with HON Subpart G
I-X-922, WWTP	CO_2e	Energy efficiency measures

AIR QUALITY IMPACT ANALYSIS

Prevention of Significant Deterioration regulations require an analysis of air quality for those pollutants emitted in significant amounts from a proposed facility. PM_{10}, $PM_{2.5}$, NO_2, and/or CO_2e are the pollutants of interest for this facility.

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

Ascension Parish is designated as a "marginal" ozone nonattainment area; therefore, air analysis for ozone is not required.

There are currently no National Ambient Air Quality Standards (NAAQS) or PSD increments established for the Greenhouse Gases (GHGs). Since GHGs are not listed in 40 CFR 52.21(i)(5)(i), air quality analysis for GHGs is exempt per 40 CFR 52.21(i)(5)(iii).

BRIEFING SHEET

Geismar Methanol Plant
Agency Interest No. 181192
Methanex USA, LLC
Geismar, Ascension Parish, Louisiana
PSD-LA-761 (M-1)

ADDITIONAL IMPACTS

Soils, vegetation, and visibility will not be adversely impacted by the proposed facility, nor will any Class I area be affected. The project will not result in any significant secondary growth effects.

PROCESSING TIME

Application Dated:	April 16, 2013
Application Received:	April 16, 2013
Effective Completeness Date:	May 15, 2013

PUBLIC NOTICE

A notice requesting public comment on the permit was published in *The Advocate*, Baton Rouge, on July 25, 2013; and in the Gonzales Weekly Citizen, Gonzales, on July 25, 2013. A copy of the public notice was mailed to concerned citizens listed in the Office of Environmental Services Public Notice Mailing List on July 23, 2013. The draft permit was also submitted to US EPA Region VI on July 19, 2013. No comments were received.

PRELIMINARY DETERMINATION SUMMARY

Geismar Methanol Plant
Agency Interest No. 181192
Methanex USA, LLC
Geismar, Ascension Parish, Louisiana
PSD-LA-761 (M-1)
May 15, 2013

I. APPLICANT

Methanex USA, LLC
P. O. Box 85330
Baton Rouge, LA 70884

II. LOCATION

Methanex USA, LLC's Geismar Methanol Plant is located at 4279 Louisiana Highway 73 Geismar, Louisiana. Approximate UTM coordinates are 690.55 kilometers East, 3343.68 kilometers North, Zone 15.

III. PROJECT DESCRIPTION

In this major modification, Methanex proposes to relocate a second methanol production unit from Methanex's facility in Punta Arenas, Chile to the Geismar Methanol Plant location. This second unit, named Geismar II, will also have a methanol production capacity of 3,000 tonnes per day.

The Methanex Geismar Methanol Plant will include two units (Geismar I and Geismar II) and produce 6,000 metric tons per day of refined methanol from natural gas feedstock. The process uses a single quench-type converter to carry out the methanol synthesis reaction and a two distillation column system to produce refined methanol.

The natural gas feedstock is treated to remove low levels of impurities which would otherwise poison the catalyst used to promote the chemical reactions carried out in the process. Natural gas is first heated up before passing over a cobalt and molybdenum (Co/Mo) catalyst bed where complex sulfur compounds are reacted with hydrogen to convert the sulfur to hydrogen sulfide. Hydrogen sulfide is subsequently removed by adsorption over a zinc oxide (ZnO) bed.

Treated natural gas is broken down into a mixture of basic components in a chemical reaction referred to as Steam Reforming, which converts the natural gas into a mixture of carbon oxides, hydrogen, and residual methane in presence of steam. The resulting mixture is referred to as Synthesis Gas and contains the reactants for the methanol formation.

The reforming reaction is performed in an externally fired conventional steam reformer at high temperatures. Flue gases resulting from the combustion are then treated to reduce emissions.

The methanol synthesis reactions take place over a very selective copper and zinc-based catalyst. Crude methanol (mixture of methanol, water, and impurities) is condensed out of the reactor product stream by cooling. Unconverted reactants are recycled back to the loop by a centrifugal compressor. Because the synthesis gas also contains non-reactive compounds (inserts) like residual methane and nitrogen, a small amount of gas is purged from the loop to prevent excessive build-up.

Crude methanol contains some impurities which are more volatile than pure methanol such as ketones and aldehydes, as well as traces of dissolved gases from the methanol synthesis stage. These light ends are removed overhead in a Topping Column. Bottom product from this column containing methanol, water, and impurities less volatile than methanol, are fed to a Refining Column where water and all the impurities are removed to produce high quality refined methanol. Heavy impurities are removed from the bottom section of the refining column as a small fraction of heavy organic compounds known as fusel oil.

Pure methanol, the final product, is sent to an intermediate tank to check the purity specifications before final storage in dedicated tanks form where product is transferred to the loading facilities.

Estimated potential emissions from the proposed facility, in tons per year, are as follows:

	Criteria/GHG Pollutants (tpy)					
	PM_{10}	$PM_{2.5}$	SO_2	NOx	CO	CO_2e
New and Project-affected Geismar I Emissions Increases	64.73	64.59	5.04	67.92	48.97	992,804
Geismar II Sources	64.69	64.55	5.04	66.70	48.09	992,628
Total Project Emission Increases	129.42	129.14	10.08	134.62	97.06	1,985,432
PSD Threshold	15	10	40	40	100	100,000
Threshold Exceeded?	Yes	Yes	No	Yes	No	Yes

IV. SOURCE IMPACT ANALYSIS

A proposed net increase in the emission rate of a regulated pollutant above de minimis levels for new major or modified major stationary sources requires review under Prevention of Significant Deterioration regulations, LAC 33:III.509. PSD review entails the following analyses:

A. A determination of the Best Available Control Technology (BACT);

B. An analysis of the existing air quality and a determination of whether or not preconstruction or postconstruction monitoring will be required;

C. An analysis of the source's impact on total air quality to ensure compliance with the National Ambient Air Quality Standards (NAAQS);

D. An analysis of the PSD increment consumption;

E. An analysis of the source related growth impacts;

F. An analysis of source related growth impacts on soils, vegetation, and visibility;

G. A Class I Area impact analysis; and

H. An analysis of the impact of toxic compound emissions.

A. BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

The PSD air permit regulations (40 CFR 52.21 (j)) and Louisiana State Regulations (LAC 33:III.509.J) require new major sources of air pollution to apply Best Available Control Technology (BACT) for each regulated pollutant for which the potential to emit (PTE) is significant. BACT is to be applied to new and modified emission units and is to be determined on a case-by-case basis, with consideration given to technical feasibility and economic impacts. This section presents a BACT analysis for the new emission units that will be installed as part of the Methanex Geismar Methanol Plant Project.

Each affected source of the pollutants that exceed their PSD significance threshold (after contemporaneous netting) as a result of the Methanex Project requires a BACT analysis to determine the required level of BACT. For the Methanex Project, Particulate Matter less than 10 micron (PM_{10}), Particulate Matter less than 2.5 micron ($PM_{2.5}$), Nitrogen Oxide (NOx) and Greenhouse Gas (GHG) emissions exceed their respective PSD thresholds; therefore, a BACT analysis is required for each BACT emission applicable unit that will emit PM_{10}, $PM_{2.5}$, NOx, and GHG.

To complete a detailed BACT analysis, the U.S. EPA "Top Down" BACT methodology is used to analyze available options, and then an appropriate control technology is selected. To utilize the "Top Down" approach, commercially available control options for each applicable pollutant are identified. Technically infeasible alternatives are then dismissed, and the remaining control options are analyzed and ranked according to control effectiveness. To select a BACT option, the following items are evaluated: cost

effectiveness, environmental effects, energy impacts, and site-specific factors. The control technology selected provides the most stringent level of control without causing adverse economic, energy, or environmental impacts. Generally, the cost effectiveness parameter is stated as either total or incremental annualized dollar cost per ton of pollutant abated.

A general review of the U.S. EPA RACT/BACT/LAER Clearinghouse (RBLC) database has been performed for sources at chemical plants to identify emission control strategies relevant to the proposed project. An extensive review of the RBLC defined the range of potentially applicable emission control applications. However, the control technologies evaluated in the "top-down" analysis were not limited to the controls listed in the RBLC. For some sources, a strict "top down" analysis is not necessary to identify appropriate BACT. In these instances, accepted emission control technology alternatives are identified. Of these, feasible alternatives may then be evaluated in comparison with accepted BACT practices as described in the RBLC or in published BACT guidelines. In no case is the recommended BACT less stringent than the controls required under New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations. The federal requirements are considered a "floor" for BACT considerations.

Top-Down BACT Approach

BACT is defined in the Clean Air Act as *"an emissions limit based on the maximum degree of emissions reduction for each pollutant...which the permitting authority determines, on a case by case basis, taking into account energy, environmental, and economic impacts and other costs, is achievable for such facility through the application of production processes and available methods, systems, and techniques..."*. Two key aspects of the definition are worthy of notice:

- BACT includes and, in fact, focuses on "production processes" along with add-on controls.
- BACT was intended to be a case-by-case evaluation, implying individual case evaluations and decisions, not rigid, pre-set guidelines.

The top-down BACT approach starts with the most stringent (or top) technology that has been applied to similar emissions units. A source of control technology information is the RBLC database. The RBLC is an EPA-sponsored database that lists previously EPA-approved BACT determinations. The top control technology is either accepted as BACT or rejected based on technical or economic infeasibility. If the top control technology is rejected as BACT, the next most stringent control technology is either accepted as BACT

or rejected. The top-down approach is continued until a control technology, which is found to be both technically and economically feasible, is accepted as BACT.

BACT Applicability

Each of the proposed units to be installed as part of the project that generates any PM_{10}, $PM_{2.5}$, NOx, and CO_2e emissions will require BACT review. Existing emission units at which a net emission increase occurs as a result of a physical change or a change in the method of operation in the unit (per 40 CFR 52.21 (j) (3)) require a BACT analysis.

BACT for each type of affected emission units has been recently determined in PSD permit No. PSD-LA-761 issued on November 7, 2012 and is considered valid. The BACT determination for all affected emission units is summarized in the table below.

Summary of BACT Determination

Source Description	Pollutant	Most Feasible BACT Selected
I-C-601, II-C-601 Decarbonators	CO_2e	Energy efficiency measures
I-H-101, II-H-101, Steam Methane Reformers	NO_X	Selective Catalytic Reduction (SCR)
	$PM_{10}/PM_{2.5}$	Proper burner design and operations
	CO_2e	Installation of heat recovery steam generators
I-X-703, I-X-703SUSD, II-X-703, II-X-703SUSD, Flares	NO_X	Compliance with 40 CFR 63.11
	$PM_{10}/PM_{2.5}$	
	CO_2e	
I-GDE-1201, I-GDE-1202, I-GDE-1203, II-GDE-1201 Emergency Generators; I-P-727 A/B/C/D Fire Water Pumps	NO_X	Compliance with regulatory programs (40 CFR 60 Subpart IIII and 40 CFR 63 Subpart ZZZZ)
	$PM_{10}/PM_{2.5}$	
	CO_2e	
I-CT-621, II-CT-621, Cooling Towers	$PM_{10}/PM_{2.5}$	Drift eliminators
I-G-1000, II-G-1000, Process Fugitives	CO_2e	Compliance with HON Subpart H
I-G-1001, II-G-1001 WW Fugitives	CO_2e	Compliance with HON Subpart G
I-X-922, WWTP	CO_2e	Energy efficiency measures

B. ANALYSIS OF EXISTING AIR QUALITY

Prevention of Significant Deterioration regulations require an analysis of air quality for those pollutants emitted in significant amounts from a proposed facility. PM_{10}, $PM_{2.5}$, NOx, and CO_2e are the pollutants of interest for this facility.

AERMOD modeling of PM_{10}, $PM_{2.5}$, and NO_2 emissions from the proposed project indicates that the maximum offsite ground level concentrations of these pollutants will be

below their respective PSD significance impact levels and preconstruction monitoring levels. Therefore, pre-construction monitoring, refined NAAQS modeling, and increment consumption analyses for these pollutants were not required.

Ascension Parish is designated as an ozone nonattainment area; therefore, air analysis for ozone is not required.

There are currently no National Ambient Air Quality Standards (NAAQS) or PSD increments established for the Greenhouse Gases (GHGs). Since GHGs are not listed in 40 CFR 52.21(i)(5)(i), air quality analysis for GHGs is exempt per 40 CFR 52.21(i)(5)(iii).

C. NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS) ANALYSIS

Because AERMOD modeling analyses indicated concentrations of each pollutant (PM_{10}, $PM_{2.5}$, and NO_2) would be below its PSD significance impact level, refined NAAQS modeling was not required.

D. PSD INCREMENT ANALYSIS

Because AERMOD modeling analyses indicated concentrations of each pollutant (PM_{10}, or $PM_{2.5}$) would be below its PSD significance impact level, PSD increment modeling was not required.

E. SOURCE RELATED GROWTH IMPACTS

Operation of this facility is not expected to have any significant effect on residential growth or industrial/commercial development in the area of the facility. No significant net change in employment, population, or housing will be associated with the project. As a result, there will not be any significant increases in pollutant emissions indirectly associated with Methanex USA, LLC's proposal. Secondary growth effects will include temporary construction related jobs and approximately 160 permanent jobs.

F. SOILS, VEGETATION, AND VISIBILITY IMPACTS

There will be no significant impact on area soils, vegetation, or visibility.

G. CLASS I AREA IMPACTS

Breton Notional Wildlife Area, the nearest Class I area, is over 100 miles from the site, precluding any significant impact.

H. TOXIC EMISSIONS IMPACT

The selection of control technology based on the BACT analysis included consideration of control of toxic emissions.

V. CONCLUSION

The Air Permits Division has made a preliminary determination to approve the construction of the Geismar Methanol Plant of the Methanex USA, LLC near Geismar in Ascension Parish, Louisiana, subject to the attached specific and general conditions. In the event of a discrepancy in the provisions found in the application and those in this Preliminary Determination Summary, the Preliminary Determination Summary shall prevail.

SPECIFIC CONDITIONS

Geismar Methanol Plant
Agency Interest No. 181192
Methanex USA, LLC
Geismar, Ascension Parish, Louisiana
PSD-LA-761 (M-1)

1. Comply with the Louisiana General Conditions as set forth in LAC 33:III.537. [LAC 33:III.537]

2. The permittee is authorized to operate in conformity with the specifications submitted to the Louisiana Department of Environmental Quality (LDEQ) as analyzed in LDEQ's document entitled "Preliminary Determination Summary", dated May 15, 2013, and subject to the following emissions limitations and other specified conditions. Specifications submitted are contained in the application and Emission Inventory Questionnaire dated April 16, 2013. (Hourly and annual emission rates are listed in Table III.)

MAXIMUM ALLOWABLE EMISSION RATES

ID No.	Description	Units	PM_{10}	$PM_{2.5}$	NO_X	VOC	CO_2e
I- H-101 and II-H-101	Steam Methane Reformer	lb/MMBtu			0.006		

3. CO_2e emissions from the entire facility are limited to 0.83 ton per ton methanol produced (annual average). To demonstrate compliance with this limit, the permittee shall record the methanol production monthly. CO_2e emissions shall be recorded in accordance with the Mandatory Reporting of Greenhouse Gases Rule (40 CFR 98). All records shall be maintained onsite for at lease five years and be available for inspection by LDEQ.

4. The Steam Methane Reformers (I-H-101 and II-H-101) shall be equipped with a Selective Catalytic Reduction (SCR) system for NO_X emission control.

5. To ensure compliance with the NO_X emission limit, a continuous emission monitoring system (CEMS) shall be installed and maintained on the Steam Methane Reformers (I-H-101 and II-H-101) to monitor NO_X emissions. Ensure that the CEMS meets all of the requirements of 40 CFR Part 60.13 and performance specification 2 of 40 CFR 60, Appendix B, or the requirements of 40 CFR Part 75 for units regulated under the Acid Rain Program.

6. The Cooling Towers (I-CT-621 and II-CT-621) shall be equipped with high efficiency drift eliminators (0.0005% drift rate).

7. The Cooling Towers (I-CT-621 and II-CT-621) shall be monitored and repaired for volatile organic compounds (VOC) leak in accordance with the method and procedure specified in 40 CFR 63.104, except that the monitoring shall be conducted at least once per month.

TABLE I: BACT COST SUMMARY

Geismar Methanol Plant
Agency Interest No. 181192
Methanex USA, LLC
Geismar, Ascension Parish, Louisiana
PSD-LA-761 (M-1)

Control Alternatives		Availability/ Feasibility	Negative Impacts (a)	Control Efficiency	Emissions Reduction (TPY)	Capital Cost ($)	Annualized Cost ($)	Cost Effectiveness ($/ton)	Notes
I-H-101 and II-H-101 Steam Methane Reformer s									
NO_X	Selective catalytic reduction (SCR)	Yes/Yes	1; 2; 3	90%+	N/A	N/A	N/A	N/A	Accepted
$PM_{10}/PM_{2.5}$	Proper burner design and operations	Yes/Yes	N/A	N/A	N/A	N/A	N/A	N/A	Accepted
CO_2e	Carbon Capture and Storage (CCS)	Yes/No	1	90%	883,8335	429,469.996	44,030,129	49.85	For H-101 and X-616; Rejected
	Installation of heat recovery steam generators	Yes/Yes	N/A	N/A	N/A	N/A	N/A	N/A	Accepted
I-X-703 and II-X-703 Flares									
NO_X	Compliance with 40 CFR 63.11	Yes/Yes	N/A	N/A	N/A	N/A	N/A	N/A	Accepted
$PM_{10}/PM_{2.5}$	Compliance with 40 CFR 63.11	Yes/Yes	N/A	N/A	N/A	N/A	N/A	N/A	Accepted
CO_2e	Compliance with 40 CFR 63.11	Yes/Yes	N/A	N/A	N/A	N/A	N/A	N/A	Accepted
I-GDE-1202, I-GDE-1202, I-GDE-1203, and II-GDE-1201 Emergency Generators									
NO_X	Compliance with regulatory programs	Yes/Yes	N/A	N/A	N/A	N/A	N/A	N/A	Accepted
$PM_{10}/PM_{2.5}$	Compliance with regulatory programs	Yes/Yes	N/A	N/A	N/A	N/A	N/A	N/A	Accepted
CO_2e	Compliance with regulatory programs	Yes/Yes	N/A	N/A	N/A	N/A	N/A	N/A	Accepted
I-CT-621 and II-CT-621 Cooling Towers									
$PM_{10}/PM_{2.5}$	Drift eliminators	Yes/Yes	None	N/A	N/A	N/A	N/A	N/A	Accepted

TABLE I: BACT COST SUMMARY

Geismar Methanol Plant
Agency Interest No. 181192
Methanex USA, LLC
Geismar, Ascension Parish, Louisiana
PSD-LA-761 (M-1)

Control Alternatives		Availability/ Feasibility	Negative Impacts (a)	Control Efficiency	Emissions Reduction (TPY)	Capital Cost ($)	Annualized Cost ($)	Cost Effectiveness ($/ton)	Notes
I-C-601 and II-C-601 Decarbonator s									
CO_2e	Energy efficiency measures	Yes/Yes	N/A	N/A	N/A	N/A	N/A	N/A	Accepted
I-G-1000 and II-G-1000 Process Fugitives									
CO_2e	Compliance with SOCMI/HON LDAR program	Yes/Yes	N/A	N/A	N/A	N/A	N/A	N/A	Accepted
I-G-1001 and II-G-1001 Wastewater Fugitives									
CO_2e	Compliance with SOCMI/HON (Subpart G)	Yes/Yes	N/A	N/A	N/A	N/A	N/A	N/A	Accepted
I-X-922 WWTP									
CO_2e	Energy efficiency measures	Yes/Yes	N/A	N/A	N/A	N/A	N/A	N/A	Accepted
I-P-727 A,B,C,D Fire Water Pump #1 - #4									
NO_X	Compliance with regulatory programs	Yes/Yes	N/A	N/A	N/A	N/A	N/A	N/A	Accepted
$PM_{10}/PM_{2.5}$	Compliance with regulatory programs	Yes/Yes	N/A	N/A	N/A	N/A	N/A	N/A	Accepted
CO_2e	Compliance with regulatory programs	Yes/Yes	N/A	N/A	N/A	N/A	N/A	N/A	Accepted
Notes:	*a) Negative impacts: 1) economic, 2) environmental, 3) energy, 4) safety*								

TABLE II: AIR QUALITY ANALYSIS SUMMARY

Geismar Methanol Plant
Agency Interest No. 181192
Methanex USA, LLC
Geismar, Ascension Parish, Louisiana
PSD-LA-761 (M-1)

Pollutant	Averaging Period	Preliminary Screening Concentration ($\mu g/m^3$)	Level of Significant Impact ($\mu g/m^3$)	Significant Monitoring Concentration ($\mu g/m^3$)	Background ($\mu g/m^3$)	Maximum Modeled Concentration ($\mu g/m^3$)	Modeled + Background Concentration ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	Modeled PSD Increment Consumption ($\mu g/m^3$)	Allowable Class II PSD Increment ($\mu g/m^3$)
PM_{10}	24-hour	1.25	5	10	NR	NR	NR	150	NR	30
	Annual	0.14	1	-	NR	NR	NR	50	NR	17
$PM_{2.5}$	24-hour	1.16	1.2	4	NR	NR	NR	35	NR	9
	Annual	0.13	0.3	-	NR	NR	NR	15	NR	4
NO_2	1-hour	4.02	7.5	-	NR	NR	NR	188	NR	25
	Annual	0.26	1	14	NR	NR	NR	100	NR	-

NR = Not required.

TABLE III: MAXIMUM ALLOWABLE EMISSION RATES

Geismar Methanol Plant
Agency Interest No. 181192
Methanex USA, LLC
Geismar, Ascension Parish, Louisiana
PSD-LA-761 (M-1)

EQT	Description	Maximum Permitted Emission Rates											
		PM_{10}		$PM_{2.5}$		NO_X		CO		VOC		CO_2e	
		Max lbs/hr	tons/yr	Max lbs/hr	tons/yr	Max lbs/hr	tons/yr	Max lbs/hr	tons/yr	Max lbs/hr	tons/yr	Max lbs/hr	tons/yr
	Geismar I												
EQT0001	I-C-601 Decarbonator							0.36	1.57			13.49	59.10
EQT0002	I-H-101 Steam Reformer	17.03	62.15	17.03	62.15	13.71	50.05	8.23	30.03	4.80	17.52	268,367	979,531
EQT0004	I-X-703 Flare	0.01	0.02	0.01	0.02	0.07	0.23	0.06	0.20	0.004	0.01	85.27	280
EQT0005	I-X-703SUSD Flare SU/SD Emissions	18.62	1.68	18.62	1.68	169.94	15.29	174.25	15.68	13.48	1.21	140,295	12,627
EQT0006	I-GDE-1201 Emergency Generator	0.72	0.03	0.70	0.03	28.22	1.13	15.43	0.62	0.75	0.03	2,457.22	123
EQT0007	I-P-727A Fire Water Pump No. 1	0.09	<0.01	0.09	<0.01	2.15	0.11	1.86	0.09	0.06	<0.01	372.20	19
EQT0008	I-P-727B Fire Water Pump No. 2	0.09	<0.01	0.09	<0.01	2.15	0.11	1.86	0.09	0.06	<0.01	372.20	19
EQT0009	I-P-727C Fire Water Pump No. 3	0.09	<0.01	0.09	<0.01	2.15	0.11	1.86	0.09	0.06	<0.01	372.20	19
EQT0010	I-P-727D Fire Water Pump No. 4	0.09	<0.01	0.09	<0.01	2.15	0.11	1.86	0.09	0.06	<0.01	372.20	19
EQT0011	I-CT-621 Cooling Tower	0.20	0.82	0.17	0.68					2.37	3.46		
EQT0017	I-C-924 Storage Tank Scrubber									7.46	10.89		
EQT0022	I-X-922 Wastewater Treatment System							<0.001	<0.01	0.16	0.58	0.61	2
EQT0030	I-GDE-1202 Emergency Generator	0.14	0.01	0.14	0.01	3.53	0.18	3.09	0.15	0.09	<0.01	572.61	38
EQT0031	I-GDE-1203 Emergency Generator	0.29	0.01	0.28	0.01	11.29	0.56	6.17	0.31	0.30	0.02	1145	61
FUG0001	I-G-1000 Process Fugitives										1.07		8
FUG0002	I-G-1001 Wastewater Collection System Fugitives										0.25		
	Geismar II												

TABLE III: MAXIMUM ALLOWABLE EMISSION RATES

Geismar Methanol Plant
Agency Interest No. 181192
Methanex USA, LLC
Geismar, Ascension Parish, Louisiana
PSD-LA-761 (M-1)

EQT	Description	Maximum Permitted Emission Rates											
		PM_{10}		$PM_{2.5}$		NO_X		CO		VOC		CO_2e	
		Max lbs/hr	tons/yr	Max lbs/hr	tons/yr	Max lbs/hr	tons/yr	Max lbs/hr	tons/yr	Max lbs/hr	tons/yr	Max lbs/hr	tons/yr
EQT0032	II-C-601 Decarbonator							0.36	1.57			13.49	59
EQT0033	II-H-101 Steam Reformer	17.03	62.15	17.03	62.15	13.71	50.05	8.23	30.03	4.80	17.52	268367	979531
EQT0034	II-X-703 Flare	0.01	0.02	0.01	0.02	0.07	0.23	0.06	0.20	0.004	0.01	85.27	280
EQT0035	II-X-703SUSD Flare SU/SD Emissions	18.62	1.68	18.62	1.68	169.94	15.29	174.25	15.68	13.48	1.21	140296	12627
EQT0036	II-GDE-1201 Emergency Generator	0.72	0.03	0.70	0.03	28.22	1.13	15.43	0.62	0.75	0.03	2457	123
EQT0037	II-CT-621 Cooling Tower	0.20	0.82	0.17	0.68					2.37	3.46		
EQT0040	II-C-924 Storage Tank Scrubber									4.98	7.27		
FUG0003	II-G-1000 Process Fugitives										1.18		8
FUG0004	II-G-1001 Wastewater Collection System Fugitives										0.25		