DEPARTMENT OF ENVIRONMENTAL QUALITY

KATHLEEN BABINEAUX BLANCO
GOVERNOR

MIKE D. McDANIEL, Ph.D.
SECRETARY

Certified Mail No.:

Agency Interest No. 3165
Activity No.: PER20060013

Mr. Richard D. Bedell
Manager, Louisiana Refining Division
Marathon Petroleum Company LLC
Post Office Box AC
Garyville, Louisiana 70051

RE: PSD-LA-719, Garyville Major Expansion Project, Louisiana Refining Division, Marathon Petroleum Company LLC, Garyville, St. John the Baptist Parish, Louisiana

Dear Mr. Bedell:

Enclosed is your Permit PSD-LA-719. Should you have any questions concerning the permit, contact Syed Quadri at 225-219-3123.

Sincerely,

Chuck Carr Brown, Ph.D.
Assistant Secretary

____
Date

SGQ
c: US EPA Region VI

ENVIRONMENTAL **SERVICES**
: PO BOX 4313, BATON ROUGE, LA 70821-4313
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PSD-LA-719, AI NO. 3165

AUTHORIZATION TO OPERATE AN EXISTING 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,

Marathon Petroleum Company LLC
Post Office Box AC
Garyville, Louisiana 70051

is authorized to operate the Louisiana Refining Division, a refinery at

Airline Highway
Garyville
St. John the Baptist Parish, Louisiana

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

This permit and authorization to construct shall expire at midnight on __________, 2008, 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 ________ day of ___________, 2006.

Chuck Carr Brown, Ph.D.
Assistant Secretary

BRIEFING SHEET

LOUISIANA REFINING DIVISION, GARYVILLE MAJOR EXPANSION
AGENCY INTEREST NO. 3165
MARATHON PETROLEUM COMPANY LLC
GARYVILLE, ST. JOHN THE BAPTIST PARISH, LOUISIANA
PSD-LA-719

PURPOSE

To obtain a PSD permit for the Louisiana Refining Division a refinery at Garyville.

RECOMMENDATION

Approval of the proposed permit.

REVIEWING AGENCY

Louisiana Department of Environmental Quality, Office of Environmental Services.

PROJECT DESCRIPTION

Marathon Petroleum Company LLC (MPC) proposes to expand an existing refinery which currently processes crude oil into unleaded, mid-grade, super unleaded, and reformulated gasoline; jet fuel/kerosene; low and high sulfur diesel and No. 6 fuel oil; isobutane, propylene; asphalt; coke and sulfur. The Garyville Major Expansion (GME) Project will increase the total capacity of the Louisiana Refining Division to 425,000 barrels per calendar day.

MPC will install new process units which include Crude/Vacuum Distillation Unit, Saturates Gas Plant, Gas Oil Hydrocracker, Naphtha Hydrotreater, Continuous Catalytic Reformer, Kerosene Hydrotreater, Delayed Coker Unit, Coker Gas Plant, Sulfur Recovery Units, Amine Regeneration Units, a Package Boiler, Raw Water Treatment Plant, Sour Fuel Gas Absorber, Cooling Towers, Wastewater Treatment and Storm Water Storage. Other existing processes or units will be modified or revamped to support the expansion which include Fluid Catalytic Cracking Unit, HF Alkylation Unit, Crud Unit, Light Straight Run Hydrotreater, Penex Unit, and other associated support unit changes including tie-ins, interconnecting piping, fugitive components, and controls to the facility.

In order to achieve this goal MPC will install combustion sources (heaters, boilers, thermal oxidizers, and flares), sulfur processing sources, cooling towers, coke handling equipment, loading operations, storage tanks, etc.

The estimated emissions increase from the GME Project, including the startup/shutdown operation, based on actual to potential and incremental (where no modification is done to the unit or equipment but the emissions are increasing due to the project) in tons per year is as follows:

BRIEFING SHEET

LOUISIANA REFINING DIVISION, GARYVILLE MAJOR EXPANSION
AGENCY INTEREST NO. 3165
MARATHON PETROLEUM COMPANY LLC
GARYVILLE, ST. JOHN THE BAPTIST PARISH, LOUISIANA
PSD-LA-719

Pollutant	2004/2005 Average Emissions (a)	Post GME Project Emissions (b)	Incremental Emissions (c)	Change
PM_{10}	64.51	285.03	0.14	220.66
SO_2	31.39	597.05	0.08	565.74
NO_X	254.41	923.41	1.10	670.10
CO	263.54	1589.80	1.46	1327.72
VOC	238.38	901.17	32.34	695.13
H_2SO_4	16.17	37.22	0.00	21.05
H_2S	22.74	28.98	0.00	6.24

Change = {(b + c) – a}

For the netting analysis a contemporaneous period will have to be established. The construction on the GME Project is expected to start in July 2007. Therefore, the beginning of the PSD contemporaneous period will be five years prior to July 2007. The GME Project is expected to startup in September 2009. Therefore, all emission changes from July 2002 through September 2009 will be accounted for in the contemporaneous period.

A breakdown of the emissions based on new and existing equipment, contemporaneous period, and the comparison to the PSD significance level in tons per year is as follows:

Pollutant	New Equipment	Existing Equipment	Contemporaneous Period	Total Increase	PSD De Minimis	Netting Analysis
PM_{10}	173.72	46.93	+ 20.42	241.07	15	Yes
SO_2	419.74	146.01	+ 146.51	712.25	40	Yes
NO_X	569.71	100.39	+ 29.18	699.28	40	Yes
CO	940.80	386.92	- 7.93	1319.79	100	Yes
VOC	556.67	138.48	+ 138.87	834.02	40	Yes
H_2SO_4	Neg.	21.05	0.00	21.05	7	Yes
H_2S	2.81	3.42	-	6.24	10	No

Under PSD regulations a Best Available Control Technology (BACT) analysis is required for the emissions units or equipment that are physically modified or are new and emit pollutants that increase above the significance levels. In this case BACT is required for all the new equipment installed under the GME Project and the affected equipment emissions increase due to the GME Project.

TYPE OF REVIEW

The original permit was reviewed in accordance with PSD regulations for PM/PM_{10}, SO_2, NO_X, CO, and VOC emissions. The selection of control technology based on the BACT analysis included consideration of control of toxic materials.

BEST AVAILABLE CONTROL TECHNOLOGY

PM_{10}, SO_2, NO_X, CO, and VOC emissions are above PSD de minimis levels and underwent PSD analysis. Controls of PM_{10}, SO_2, NO_X, CO, and VOC emissions were analyzed using a "top down" approach.

The facility is voluntarily installing Selective Catalytic Reduction (SCR) in addition to the Ultra Low NO_X Burners (ULNB) (0.0125 lb/MM BTU) to reduce NO_X from the following equipment: GME A and B Crude Heaters (Emission Points 1-08 and 2-08), GME A and B Vacuum Tower Heaters (Emission Points 3-08 and 4-08), GME Coker Charge Heater (Emission Point 15-08), and GME Hydrogen Reformer Furnace Flue Gas Vent (Emission Point 48-08). The SCRs could have been rejected on the basis of economical infeasibility ($10,000 to $73,000 per ton of NO_X reduced based on heater size).

Other heaters will have ULNB (0.03 lb/MM BTU w/o air preheat) as BACT for NO_X, and the boiler will have ULNB with Fuel Gas Recirculation (FGR) (0.04 lb/MM BTU) as BACT for NO_X.

Heaters and boilers fired with refinery fuel gas will have good engineering practice (proper burner design and operation) (0.04 lb/MM BTU) as BACT for CO, good engineering practice (efficient tuning of the burner fuel input) (0.0015 lb/MM BTU) as BACT for VOC, similarly good engineering practice (burner design and fuel) (0.0075 lb/MM BTU) as BACT for PM10, and low sulfur refinery fuel gas (25 ppmv as H_2S) as BACT for SO_2.

The Sulfur Recovery Unit will have Parallel, Multistage Claus trains and a tail gas treater (efficiency 99.9% or greater), TGTU Thermal Oxidizer (greater than 99.5% conversion efficiency checked by continuous emission monitors (CEM)), and a SO_2 limit of 93.41 ppm on a dry basis corrected to 0% excess air at the Thermal Oxidizer exhaust outlet. Proper operating work practices for sour water tank storage, recycling sulfur pit vent gas to the SRU, and excess SRU capacity is considered BACT for SO_2. A limit of 15 ppmv is considered as BACT for H_2S prior to loading from the sulfur pit. This will be achieved by degassing the liquid sulfur and routing the emissions from the sulfur pit back to the Acid Gas stream entering the SRU. The effluent gases from the Tail Gas Treating Units are treated in the Thermal Oxidizer. This unit emits products of combustion such as NO_X, CO, PM_{10}, SO_2 and VOC. The proposed fuel sources for this combustion activity are a blend of refinery fuel gas and pipeline natural gas. Combustion will be minimized by using optimized air-fuel ratio. Additionally, NO_X emissions will be controlled to a limit of 0.20 lb/MM BTU and is considered as BACT.

New storage tanks will be installed to store gasoline, crude oil, sweet kerosene, ultra –low sulfur diesel, No. 6 fuel oil, etc. The new storage tanks are subject to NESHAP and NSPS requirements (floating roofs) which are considered as BACT. Two tanks which store No. 6 Oil and Gas Oil will not have any controls as the vapor pressure is less than 0.005 psia and the installation of any control is rejected as economically infeasible.

The Cooling Towers emits PM_{10} emissions and can be controlled by minimizing or eliminating the release of drift aerosol. High efficiency drift eliminators having a drift rate of 0.005 percent is considered as BACT for PM_{10} emissions. Monthly monitoring of the Heat Exchanger/Cooling Tower is considered as BACT for VOC emissions.

The requirements of the Leak Detection and Repair (LDAR) and the First Revised Consent Decree are considered BACT for the Fugitive Emissions from the facility. The LDAR includes the requirements of NESHAP, NSPS, and Louisiana Refinery MACT.

The Coke Handling operations will be controlled by maintaining high coke moisture content (spraying water) of approximately 8-12%, as well as enclosing the conveyor, the coke pit and the crusher area. These constraints are considered as BACT to control PM_{10} emissions.

The GME Project will increase conversion or throughput and therefore cokeburn in the Fluidized Catalytic Cracking Unit (FCCU) Regenerator. The refinery utilizes catalyst additives to control NO_X emissions from the FCCU Regenerator Vent. The facility will control NO_X concentration at 40 ppmv at zero percent oxygen which is considered as BACT for the existing FCCU Regenerator Vent. Control of NO_X concentration to 20 ppmv at zero percent oxygen is rejected as economically infeasible as the Cost Effectiveness is $36,496/ton reduction. CO/VOC emissions will be controlled by achieving a full burn combustion which is considered as BACT for CO and VOC. PM_{10} emissions will be controlled by the Wet Gas Scrubber to achieve 0.3 lb PM/1000 lb coke burn rate which is considered as BACT. A concentration of 25 ppmv at zero percent oxygen is considered as BACT for SO_2 emissions from the FCCU Regenerator Vent which is also considered as a surrogate for H_2SO_4.

See TABLES I thru VII for details.

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PSD-LA-719

AIR QUALITY IMPACT ANALYSIS

PSD regulations require an analysis of existing air quality for those pollutants emitted in significant amounts from a proposed facility.

National Ambient Air Quality Standards (NAAQS) and PSD Increment models demonstrated compliance with federal standards for PM_{10} (24-Hour and Annual), SO_2 (3-Hour, 24-Hour, and Annual), NO_2 (Annual), and CO (1-Hour and 8-Hour). The existing ambient monitors were determined to be adequate in lieu of preconstruction monitoring for PM_{10}, SO_2 and ozone. Scheffe screening analysis predicted compliance with ozone ambient air standards.

ADDITIONAL IMPACTS

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

PROCESSING TIME

Application Dated:	May 1, 2006
Application Updated:	September 23, 2006
Effective Completeness:	September 23, 2006

PUBLIC NOTICE

A notice requesting public comment on the permit was published in The Advocate, Baton Rouge, Louisiana and The L'Observateur, St. John the Baptist Parish, Louisiana, on ****** **, 2006. Written and oral comments received during the comment period from the general public and organizations will be considered before issuing the permit. Copies of the public notice were mailed out to individuals on the mailing list maintained by Office of Environmental Services on ****** **, 2006. The proposed permit was sent to EPA via e-mail on ********* **, 2006.

PRELIMINARY DETERMINATION SUMMARY

LOUISIANA REFINING DIVISION, GARYVILLE MAJOR EXPANSION
AGENCY INTEREST NO. 3165
MARATHON PETROLEUM COMPANY LLC
GARYVILLE, ST. JOHN THE BAPTIST PARISH, LOUISIANA
PSD-LA-719, SEPTEMBER 23, 2006

I. APPLICANT

Marathon Petroleum Company LLC
Post Office Box AC
Garyville, Louisiana 70051

II. LOCATION

The Louisiana Refining Division (Marathon Refinery) is located at on 4663 West Airline Highway, Garyville, Louisiana 70051; approximate UTM coordinates are 731 kilometers East and 3327 kilometers North, Zone 15.

III. PROJECT DESCRIPTION

Marathon Petroleum Company LLC (MPC) proposes to expand an existing refinery which currently processes crude oil into unleaded, mid-grade, super unleaded, and reformulated gasoline; jet fuel/kerosene; low and high sulfur diesel and No. 6 fuel oil; isobutane, propylene; asphalt; coke and sulfur. The Garyville Major Expansion (GME) Project will increase the total capacity of the Louisiana Refining Division to 425,000 barrels per calendar day.

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Pollutant	2004/2005 Average Emissions(a)	Post GME Project Emissions (b)	Incremental Emissions (c)	Change
H_2S	22.74	28.98	0.00	6.24

Change = {(b + c) – a}

IV. SOURCE IMPACT ANALYSIS

A proposed net increase in the emission rate of a regulated pollutant above de minimis levels for proposed major sources requires review under PSD regulations, 40 CFR 52.21. PSD permit reviews of proposed new or modified major stationary sources require the following analyses:

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

B. 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 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

Under current PSD regulations, an analysis of "top down" BACT is required for the control of each regulated pollutant emitted from a new major 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.

PM_{10}, SO_2, NO_X, CO, and VOC emissions are above PSD de minimis levels and must undergo PSD analysis. Controls of PM_{10}, SO_2, NO_X, CO, and VOC emissions were analyzed using a "top down" approach.

BACT Analysis for Heaters and Boilers

Control techniques for NO_X include Water (injection style burners), Combustion Control (standard burners with air to fuel ratio), Low NO_X Burners (LNB), Flue Gas Recirculation (FGR), ULNB (ultra), Selective Catalytic Reduction (SCR), Non-Selective Catalytic Reduction (NSCR), Selective Non-Catalytic Reduction (SNCR), $SCONO_X$™ (Post combustion control), or any combination of the above techniques.

Water-Injection Style Burners: In this technology the water is atomized and injected into the flame zone. The presence of the water tends to reduce the temperature and quench NO_X formation. This control requires a water source to provide high volumes of de-ionized water to the burners, distribution plumbing, and water/steam flow controllers. The high water requirement associated with water-injection style burners is viewed as a severe disadvantage. This technology is considered technically infeasible.

Combustion Control: Combustion control by means of air to fuel ratio is a technically feasible technology.

Flue Gas Recirculation (FGR): FGR technology is best suitable for large commercial boilers but not for heaters. FGR technology is not technically feasible.

Low NO_X Burners: LNB minimizes thermal NO_X formation by providing a fuel rich atmosphere and by lowering peak flame temperature. LNB is regarded as a reliable and widely used emission control technology, offering 50 to 75 percent reductions below conventional burners. LNB technology is a technically feasible technology.

Ultra Low NO_X Burners: ULNB technology is the next generation technology and operates on the same principle as the LNB technology with an internal flue gas recirculation which alters the air to fuel ratio in the combustion zone. ULNB technology results in lower combustion temperature than the LNB thus reducing the emissions. ULNB technology is a technically feasible technology.

Selective Catalytic Reduction (SCR): SCR is a post combustion technology that uses ammonia as a reagent in the presence of a catalyst to reduce emissions. The catalyst performance is optimized when oxygen level in the exhaust gas stream is above 2 to 3 percent by volume. Advanced catalyst design and commercial applications have allowed the SCR to be used over an extended temperature range. SCR systems can achieve emissions reductions of up to 90% and reliable emissions levels of about 0.0125 lb/MM BTU. Careful control of ammonia handling and operating parameters must be maintained to limit ammonia slip to maintain desired emission limits. SCR technology is a technically feasible technology.

Non-Selective Catalytic Reduction (NSCR): NSCR is similar to the SCR technology but is applicable only to rich burn fuel firing equipment. The heaters and boilers are equipped with lean burn burner technology. Therefore, NSCR technology is not technically feasible.

Selective Non-Catalytic Reduction (SNCR): SNCR is similar to the SCR and can achieve emission reductions to about 9 ppmv. This technology is not technically feasible.

$SCONO_X$™: The $SCONO_X$ system utilizes a catalyst to reduce emissions. The catalyst is periodically regenerated using an inert gas; therefore, a section of catalyst is always available for adsorption. The $SCONO_X$ system operates at temperatures ranging from 300^0F to 700^0F. The only commercially successful applications of $SCONO_X$ have been on very small gas turbines. $SCONO_X$ has not been successfully demonstrated on process furnaces, reboilers, significant size gas turbines or heaters. $SCONO_X$™ is an emerging technology that offers the potential of providing a NO_X emissions limit of 2 to 3 ppmvd. This technology is technically infeasible.

Based on the above discussion the following technologies or any combination are the most technically feasible for NO_X emission control: ULNB, ULNB with FGR, and ULNB with SCR.

ULNB utilizes minimal energy therefore environmental impacts are minimal.
SCR requires substantial environmental and energy impacts including ammonia handling, spent catalyst disposal as hazardous waste, and an ammonia slip of approximately 10 ppmv in the exhaust gases.

MPC proposes ULNB for heaters and ULNB with FGR for the boiler as BACT based on technical feasibility and low economic impact.

MPC is also proposing on a voluntarily basis to install Selective Catalytic Reduction (SCR) in addition to the Ultra Low NO_X Burners (ULNB) (0.0125 lb/MM BTU) to reduce NO_X emissions on the following equipment: GME A and B Crude Heaters (Emission Points 1-08 and 2-08), GME A and B Vacuum Tower Heaters (Emission Points 3-08 and 4-08), GME Coker Charge Heater (Emission Point 15-08), and GME Hydrogen Reformer Furnace Flue Gas Vent (Emission Point 48-08).

Control techniques for CO and VOC include Use of Natural Gas as Fuel, Ultra Low NO_X Burner (ULNB), Catalytic Oxidation for CO/VOC or any combination of the above techniques.

> Use of Natural/Refinery Fuel Gas as Fuel: Natural/Refinery Fuel Gas fired equipment is generally related to the lowest CO and VOC emissions due to natural /refinery fuel gas high combustion efficiency. Use of natural/refinery fuel gas is technically feasible.
>
> ULNB, as discussed earlier, can achieve good combustion efficiency with proper design and operation, therefore emits low CO and VOC emissions and is a technically feasible technology.
>
> Catalytic Oxidation: Catalytic oxidation of CO and VOC gases requires a catalyst bed located in the heater or boiler exhaust. Catalytic Oxidation can be installed along with the SCR catalyst and can achieve a reduction efficiency of up to 90 percent for CO and 50 percent for VOC. Catalytic Oxidation technology is technically feasible.

Based on the above discussion, the following technologies or any combination are the most technically feasible for CO and VOC: Natural/Refinery Fuel Gas as Fuel, ULNB, and Catalytic Oxidation.

> Natural Gas as fuel is not economically feasible in comparison to the refinery fuel gas which is a byproduct of the refinery and which is produced, processed and consumed on site.
> Catalyst Oxidation results in a substantial environmental impact due to the disposal of catalyst as hazardous waste. Substantial energy impacts, due to high pressure drop, through the system will also occur. The cost effectiveness would be approximately $11,500 to $55,000 per ton reduction.

MPC proposes ULNB with proper design and good engineering practices with refinery fuel gas as fuel for the heaters and boiler as BACT based on technical feasibility and low *economic impact. ULNB technology also complies with the NESHAP, 40 CFR 63, Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters. The limit of CO emissions is 400 ppmv on a dry basis corrected to 3% oxygen on a 30-day rolling average for units having a heat input of 100 MM BTU/hr or greater and a 3-run average during CO performance tests for units less than 100 MM BTU/hr. A VOC limit of 0.0015 lb/MM BTU is proposed for heaters and boilers as BACT.*

Control techniques for PM_{10} include Use of Natural/Refinery Fuel Gas as Fuel, Ultra Low NO_X Burner (ULNB), Post-combustion PM Control or any combination of the above techniques.

> Use of Natural Gas as Fuel: Natural Gas fired equipment is generally related to the lowest PM_{10} emissions. Use of natural gas is technically feasible.
>
> ULNB, as discussed earlier can achieve good combustion efficiency with proper design and operation, therefore emits low CO and VOC emissions and is a technically feasible technology.

Based on the above discussion the following technologies or any combination are the most technically feasible for PM_{10}: Natural/Refinery Fuel Gas as Fuel, ULNB and Catalytic Oxidation.

> Natural Gas as fuel is not economically feasible in comparison to refinery fuel gas which is a byproduct of the refinery and which is produced, processed and consumed on site.

MPC proposes ULNB with proper design and good engineering practices with refinery fuel gas as fuel for the heaters and boiler as BACT based on the technical feasibility and low economic impact for PM_{10} emissions with an emissions rate of 0.0075 lb/MM BTU.

Control techniques for SO_2 include Use of Natural Gas, Low Sulfur Refinery Fuel, $SCOSO_X^{TM}$, and Flue Gas Desulfurization (FGD) or any combination of the above techniques.

> Use of Natural Gas as Fuel: Natural Gas fired equipment is generally related to the lowest SO_2 emissions. Use of natural gas is technically feasible.
>
> The sulfur content of the refinery fuel gas is approximately 25 ppmv which is considered Low Sulfur Refinery Fuel and will result in minimal SO_2 emissions. This

use of refinery fuel gas is technically feasible.

$SCOSO_X$™: The $SCOSO_X$ system utilizes a single catalyst to reduce emissions. The catalyst is periodically regenerated using an inert gas; therefore, a section of catalyst is always available for adsorption and oxidation. $SCOSO_X$ has not been successfully demonstrated on process furnaces, reboilers, or heaters. $SCONO_X$™ is an emerging technology and other factors that contribute towards the infeasibility of this control include the mechanical complexity, the low operating range of the catalyst, and the high pressure drop in the system. This technology is technically infeasible.

MPC proposes Low Sulfur Refinery Fuel be used for the heaters and boiler as BACT based on technical feasibility and a sulfur content of 25 ppmv as H_2S for SO_2 emissions.

BACT Analysis for Sulfur Recovery Units (SRU)

Emissions sources within the SRU consist of Fugitive Components, Sulfur Pits, Sulfur Tanks, and Thermal Oxidizers.

In the SRU the control techniques for NO_X, PM_{10}, CO and VOC for the Tail Gas Thermal Oxidizer which treats the effluent gases from the Tail Gas Treater Unit (TGTU) is by selecting the proper fuel source to minimize emissions. The use of a combination of refinery fuel gas and natural gas are technically feasible.

MPC proposes an optimized air fuel ratio using a blend of refinery fuel gas and pipeline natural gas for PM_{10}, SO_2, CO and VOC and is considered as BACT. NO_X emissions will be controlled at 0.20 lb/MM BTU and is considered as BACT.

Control techniques for SO_2 include Parallel, Multistage Claus Trains and a TGTU, High efficiency TGTU Thermal Oxidizer, Storage Tank Capacity for lean/rich Amine and Sour Water to avoid downtime, Supplemental Amine Unit Capacity, and Reduced Sulfur Crude.

Parallel, Multistage Claus Trains: Multistage Trains are required to maintain continued operation of the refinery and avoid excess emissions due to downtime.

Tail Gas Treater Unit: Excess capacity is required to handle the effluent from both of the Claus Trains. Excess capacity is technically feasible.

Thermal Oxidizer: The efficiency of the TGTU Thermal Oxidizer directly affects the emission rate of H_2S; therefore a proper oxidation temperature must be maintained to achieve maximum efficiency. To achieve high efficiency is technically feasible.

Storage Tank Capacity: Storage Tank Capacity is required to maintain a minimum downtime of other plant units with controls (floating roof) on tanks. To install tanks with floating roof is technically feasible. Similarly, Supplemental Amine Unit excess capacity is also feasible.

MPC will utilize oxygen enrichment and sulfur shedding procedures with automated controls within the SRU and supplemental tank storage for sour water and amine solutions and will incorporate these requirements in the Startup, Shutdown and Malfunction Plan (SSMP) required under NESHAP, 40 CFR 63. MPC proposes an overall sulfur conversion efficiency of 99.9% or higher, thermal oxidizer conversion efficiency of 99.5% or greater of H_2S to SO_2, and a SO_2 limit of 93.41 ppmv on a dry basis corrected to zero percent air at the exhaust outlet as BACT for the SRU.

Control techniques for H_2S include Degassing of Liquid Sulfur and Recycle of Sulfur Pit Vent to SRU.

Degassing of Liquid Sulfur: Entrained H_2S gas can be separated, typically by vacuum, from the liquid sulfur product exiting the Claus Trains. This technology is technically feasible

Recycle of Sulfur Pit Vent: The residual H_2S will be released from the elemental sulfur that accumulates in the Sulfur Pit vessel. This released H_2S can be captured and routed back to the Acid Gas stream entering the SRU. This technology is technically feasible.

MPC proposes to degas the liquid sulfur product upstream of the sulfur pit tank to 15 ppmv(annual average) of H_2S or less and recycle the residual gases from the sulfur pit vent to the SRU as BACT.

<u>BACT Analysis for Storage Tanks</u>

Control techniques for VOC include Fixed Roof Tanks with Closed Vent System, Internal Floating Roof Tanks, and External Floating Roof Tanks.

All the above referenced technologies are technically feasible.

MPC proposes NESHAP and NSPS requirements (floating roofs) as BACT for new storage tanks except for Tank 34-08 which is a No. 6 Oil Fixed Roof tank, Tank 35-08 which is a Gas Oil Fixed Roof tank, and for existing fixed roof tanks. The cost effectiveness to install a *floating roof will be approximately $83,333, $104,700, and $16,100 per ton reduction of VOC at 95% control efficiency, respectively. Therefore, floating roof as BACT is rejected for existing fixed roof tanks.*

BACT Analysis for Cooling Towers

Control techniques for PM_{10} and VOC include High Efficiency Drift Eliminators, Indirect Contact Tower Exchangers, and Dry Cooling Towers.

> High Efficiency Drift Eliminators: Drift eliminators in cooling towers rely on inertial separation caused by directional changes in the air stream while passing through the eliminators. Aerosol generation is reduced with the help of the eliminators to an average 0.005 percent of circulating water flow as compared to 0.02 percent for uncontrolled towers. Drift Eliminator technology is technically feasible.
>
> Indirect Contact Tower Exchanger: An indirect-contact tower uses a sealed bank of exchanger tubes to cool process water. The circulating water-side of the exchanger that is cooled by forced draft will generate drift aerosols and PM_{10} emissions. Therefore, Indirect Contact Tower Exchanger technology is infeasible.
>
> Dry Cooling Tower: A dry cooling tower can only be used in the cooling months because the ambient dry bulb temperature must be below the required cooling water supply temperature. Therefore, the Dry Cooling Tower technology is not feasible.

MPC proposes high efficiency drift eliminators with a drift rate of 0.005 percent of the circulating water rate as BACT for PM_{10} emissions and a monthly monitoring program (LDAR) as BACT for VOC emissions.

BACT Analysis for Coke Handling

Control techniques for PM_{10} include Electrostatic Precipitators (ESP), Cyclones, and Fabric Filters.

> ESP, Cyclones, and Fabric Filters: Petroleum coke is a by-product of the oil refinery process and is formed in a coke drum and the coke is cut from the drum by using high pressure water jet. No silos will be employed at the facility and the coke is wet due to water jet use; therefore the ESP, Cyclones and Fabric Filters technology is technically infeasible.

MPC proposes the use of water sprays as well as enclosures during the coke handling process and will maintain moisture content of 8-12 percent.

BACT Analysis for Wastewater Treatment Plant (WWTP)

The wastewater collection system includes a wastewater treating train. The wastewater treating train includes an Equalization Tank, an API Separator, an Induced Gas Flotation Unit, a Closed Circuit Cooling Tower, an Advent Integral System (activated sludge biological reactor with anoxic zone and aerobic zone, and an Integral Clarifier). A Thermal Drying Unit is currently used to treat the solids that have been segregated from the wastewater by the API separators.

MPC proposes a proper design of the WWTP along with the applicable regulatory requirements of NSPS, 40 CFR 60, Subpart QQQ – Standards of Performance for VOC Emissions From Petroleum Wastewater Systems; and NESHAP, 40 CFR 63, Subpart FF – National Emission Standard for Benzene Waste Operations as BACT.

BACT Analysis for Marine Loading

Control techniques for VOC include Steam or Air Assisted and Non Assisted Combustion Devices.

MPC proposes a marine vapor combustor with 98 percent or greater efficiency as BACT for VOC emissions for all the products having a true vapor pressure greater than 0.5 psia (regulation requires controls for a true vapor pressure of 1.5 psia and greater) and will also comply with the federal requirements of NSPS, 40 CFR 60, Subpart A - General Provisions.

BACT Analysis for GME Flare

The flare is a control device.

MPC proposes a 98 percent or greater efficiency as BACT for the flare along with the federal requirements of NSPS, 40 CFR 60, Subpart A - General Provisions and NESHAP, 40 CFR 63, Subpart A - General Provisions.

BACT Analysis for FCCU Regenerator Vent

Control techniques for NO_X include Feedstock Hydrotreatment, Catalyst Additives, $LoTO_X$™ Technology, SCR, and CO Boiler Controls.

Feedstock Hydrotreatment: Hydrotreatment lowers FCCU NO_X emissions by reducing the nitrogen content of the feed. The expected NO_X emissions reduction is 50-80 percent. The technology is feasible.
Catalyst Additives: There are two types of catalyst additives that reduce NO_X emissions: 1) by the direct reaction of NO and CO or 2) by acting on the nitrogen intermediates that lead to the formation of NO_X. The first type is the NO_X adsorbing catalyst and the second is the low NO_X promoter. The second type of additive, $DeNO_X$, can be added directly to the catalyst and does not require substitution of the platinum promoter. This technology is feasible and reduces NO_X emissions to 40 ppmv.

$LoTO_X$™ Technology: The $LoTO_X$™ system injects ozone into the flue gas stream to oxidize insoluble NO_X to soluble oxidized compounds. The ozone rapidly reacts with insoluble NO and NO_2 to form soluble N_2O_5, which rapidly reacts with moisture in the gas stream to from nitric acid. The nitric acid is removed in an aqueous scrubber and neutralized. $LoTO_X$™ Technology reduces NO_X emissions by about 50 percent (40 ppmv to 20 ppmv). This technology is feasible but rejected as BACT on an economic basis as the cost effectiveness is $40,370/ton reduction.

Selective Catalyst Reduction (SCR): As discussed earlier this technology is feasible but is rejected as BACT on an economic basis as the cost effectiveness is $36,496/ton reduction.

CO Boiler Controls: The refinery does not use CO boilers because the FCCU Regenerator is operated in Full Burn Combustion mode which minimizes the CO formation. Therefore this technology is infeasible.

The refinery recently completed an 18-month catalyst demonstration study for NO_X emissions as required under the First Revised Consent Decree. MPC succeeded in reducing the nitrogen oxide concentration from 180 to 60 ppmv at zero percent oxygen. MPC will achieve a concentration of 40 ppmv for NO_X emissions.

MPC proposes the use of Catalyst Additives to achieve a NO_X concentration of 40 ppmv at zero percent oxygen for the FCCU Regenerator Vent as BACT. The FCCU Regenerator Vent is equipped with a NO_X CEM.

Control techniques for CO and VOC include Full Burn Combustion and CO Boiler.

Full Burn Combustion: Complete combustion can be achieved by running the regenerator at full burn and by maintaining the reactor temperature range from 850 to

1020 ° F with an oxygen content range of 0.5 to 2 percent in the FCCU Regenerator. CO emissions are eliminated to the maximum extent possible with a full burn operation. This technology is technically feasible.

CO Boiler Controls: The refinery does not use CO boilers because the FCCU Regenerator is operated in Full Burn Combustion mode which minimizes the CO formation. Therefore this technology is infeasible.

MPC proposes full burn operation to control CO emissions as BACT and shall monitor the daily coke burn-off rate and the CO concentration as alternative compliance. Full burn, which is also a good combustion practice, is proposed as BACT for VOC emissions.

Control techniques for PM_{10} and SO_2 include Electrostatic Precipitator (ESP) and Wet Gas Scrubber.

Electrostatic Precipitator (ESP): An ESP operates by electrically charging particles and then separating them from the gas stream with a collector of the opposite charge. High voltage direct current discharge electrodes, typically wires, are suspended in the gas stream to impose a negative charge on the particles. The particles are driven to positive collecting electrodes (typically plates) located opposite the wires. Particles are removed from the collection plates by rapping devices that strike the collection and discharge electrodes. The dust falls into hoppers and is conveyed to a disposal system. ESPs are usually used to capture coarse particles at high concentrations. Small particles at low concentrations are not effectively collected by an ESP. Capital and operating costs of an ESP are usually high and have a removal efficiency of 73-89 percent. This technology is technically feasible.

Wet Gas Scrubber: There are several types of wet scrubbing apparatus available. In each case, a water spray is introduced into the exhaust stream, resulting in the cooling and condensing of organic material. The water vapor condenses onto the organic aerosol which then becomes large enough to settle or be removed by cyclonic collectors, filters, or mist eliminators. The different types of wet scrubbers are; Multiple Spray Chambers, Combination Packed Tower and Cyclonic Collector, and Wet Scrubbers (Venturi) and can achieve an efficiency of 95 percent or greater. This technology is technically feasible.

MPC proposes Venturi Wet Gas Scrubbers to control PM_{10} and SO_2 as BACT. MPC will achieve concentration limits of 0.3 lb/1000 lb coke burn rate for PM_{10} and 25 ppmv at zero percent oxygen for SO_2 with the addition of caustic solution in the wet gas scrubber from the FCCU Regenerator Vent. This will reduce the formation of SO_3 thus reducing the formation *of H_2SO_4; therefore MPC proposes Venturi Wet Gas Scrubbers as BACT for H_2SO_4.*

B. ANALYSIS OF EXISTING AIR QUALITY

PSD regulations require an analysis of existing air quality for the impacts of those pollutant emissions which increase significantly from a proposed major source. PM/PM_{10}, SO_2, NO_X, CO, and VOC are the pollutants of concern in this case.

Dispersion modeling of PM/PM_{10}, SO_2, NO_X, CO, and VOC emissions from the facility indicated that a refined analysis is required for CO (1-Hour), NO_2 (Annual), PM_{10} (24-Hour and Annual) and SO_2 (3-Hour, 24-Hour, and Annual) for the GME Project. The initial modeling also indicated that a Preconstruction Monitoring Analysis is required for PM_{10} and SO_2. Existing ambient monitors were approved as surrogate to additional preconstruction monitoring.

The VOC emissions increase from the GME Project is greater than 100 tons per year; therefore, ozone preconstruction monitoring is required. LDEQ approved the existing Garyville Ozone Monitor as a surrogate to additional preconstruction monitoring. Details are listed in Table II.

C. NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS) ANALYSIS

Refined modeling predicted compliance with CO (1-Hour and 8-Hour), NO_2 (Annual), PM_{10} (24-Hour and Annual), and SO_2 (3-Hour, 24-Hour, and Annual) standards.

The Scheffe screening analysis predicted that the GME Project complies with the ozone impact analysis (NAAQS for Ozone) which is the surrogate for VOC.

D. PSD INCREMENT ANALYSIS

PSD Increment analysis predicted compliance with NO_2 (Annual), PM_{10} (24-Hour and Annual), and SO_2 (3-Hour, 24-Hour, and Annual) Class II PSD Increment standards.

E. SOURCE RELATED GROWTH IMPACTS

Secondary growth effects are minimal. The GME Project on completion will require approximately 1000 temporary and 177 permanent refinery jobs. The current municipal and residential services in the surrounding communities should be adequate to support the proposed GME Project.

F. SOILS, VEGETATION, AND VISIBILITY IMPACTS

The air quality analysis indicated that post project concentrations of the criteria pollutants are below the PSD NAAQS; therefore, there will be no significant impact on area soils, vegetation, or visibility. Visibility analysis was performed per Level II screening approach using US EPA's VISCREEN model (version 1.01).

G. CLASS I AREA IMPACTS

Breton National Wildlife Area, the nearest Class I area, is more than 100 kilometers from the site, precluding any significant impact.

H. TOXIC IMPACT

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

V. CONCLUSION

The Department of Environmental Quality - Office of Environmental Services has made a preliminary determination to approve the PSD permit modification for the MPC, Louisiana Refining Division, in Garyville, St. John the Baptist 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

LOUISIANA REFINING DIVISION, GARYVILLE MAJOR EXPANSION
AGENCY INTEREST NO. 3165
MARATHON PETROLEUM COMPANY LLC
GARYVILLE, ST. JOHN THE BAPTIST PARISH, LOUISIANA
PSD-LA-719, SEPTEMBER 23, 2006

This permit is issued under the following conditions:

1. 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 September **, 2006 and subject to the following emission limitations and other specific conditions. Specifications submitted are contained in the application and Emission Inventory Questionnaire (EIQ) dated May 1, 2006, as well as additional information as of September 2006.

2. To demonstrate compliance with the limitations of this permit, permittee shall conduct emissions monitoring and perform compliance/emissions tests as listed in Table VII using methods specified by the cited regulations and 40 CFR 60, Appendix A, Method 7E - Determination of Nitrogen Oxides Emissions from Stationary Sources for NO_X emissions, Method 5 - Determination of Particulate Emissions from Stationary Sources for PM_{10} emissions, and Method 10 - Determination of Carbon Monoxide Emissions from Stationary Sources for CO emissions. The tests shall be conducted according to the schedule listed in Louisiana Air Emission Permit General Condition VIII.

LOUISIANA AIR EMISSION PERMIT
GENERAL CONDITIONS

I. This permit is issued on the basis of the emissions reported in the application for approval of emissions and in no way guarantees that the design scheme presented will be capable of controlling the emissions to the type and quantities stated. Failure to install, properly operate and/or maintain all proposed control measures and/or equipment as specified in the application and supplemental information shall be considered a violation of the permit and LAC 33:III.501. If the emissions are determined to be greater than those allowed by the permit (e.g. during the shakedown period for new or modified equipment) or if proposed control measures and/or equipment are not installed or do not perform according to design efficiency, an application to modify the permit must be submitted. All terms and conditions of this permit shall remain in effect unless and until revised by the permitting authority.

II. The permittee is subject to all applicable provisions of the Louisiana Air Quality Regulations. Violation of the terms and conditions of the permit constitutes a violation of these regulations.

III. The attached Annual Emission Rates listing and/or Emission Inventory Questionnaire sheets establish the emission limitations and are a part of the permit. Any operating limitations are noted in the Specific Conditions or, where included, Tables 2 and 3 of the Permit. The synopsis is based on the application and Emission Inventory Questionnaire dated May 1, 2006 as well as the additional information as of September 23, 2006.

IV. This permit shall become invalid, for the sources not constructed, if:

A. Construction is not commenced, or binding agreements or contractual obligations to undertake a program of construction of the project are not entered into, within two (2) years (18 months for PSD permits) after issuance of this permit, or;

B. If construction is discontinued for a period of two (2) years (18 months for PSD permits) or more.

The administrative authority may extend this time period upon a satisfactory showing that an extension is justified. This provision does not apply to the time period between construction of the approved phases of a phased construction project. However, each phase must commence construction within two (2) years (18 months for PSD permits) of its projected and approved commencement date.

V. The permittee shall submit semiannual reports of progress outlining the status of construction, noting any design changes, modifications or alterations in the construction schedule which have or may have an effect on the emission rates or ambient air quality levels. These reports shall continue to be submitted until such time as construction is certified as being complete. Furthermore, for any significant change in the design, prior approval shall be obtained from the Office of Environmental Services, Permits Division.

VI. The permittee shall notify the Department of Environmental Quality, Office of Environmental Services, Permits Division within ten (10) calendar days from the date that construction is certified as complete and the estimated date of start-up of operation. The appropriate Regional Office shall also be so notified within the same time frame.

VII. Any emissions testing performed for purposes of demonstrating compliance with the limitations set forth in paragraph III shall be conducted in accordance with the methods described in the Specific Conditions and, where included, Tables 1, 2, 3, 4, and 5 of this permit. Any deviation from or modification of the methods used for testing shall have prior approval from the Office of Environmental Assessment, Environmental Technology Division

VIII. The emission testing described in paragraph VII above, or established in the specific conditions of this permit, shall be conducted within sixty (60) days after achieving normal production rate or after the end of the shakedown period, but in no event later than 180 days after initial start-up (or restart-up after modification). The Office of Environmental Assessment, Environmental Technology Division shall be notified at least (30) days prior to testing and shall be given the opportunity to conduct a pretest meeting and observe the emission testing. The test results shall be submitted to the Environmental Technology Division within sixty (60) days after the complete testing. As required by LAC 33:III.913, the permittee shall provide necessary sampling ports in stacks or ducts and such other safe and proper sampling and testing facilities for proper determination of the emission limits.

IX. The permittee shall, within 180 days after start-up and shakedown of each project or unit, report to the Office of Environmental Compliance, Surveillance Division any significant difference in operating emission rates as compared to those limitations specified in paragraph III. This report shall also include, but not be limited to, malfunctions and upsets. A permit modification shall be submitted, if necessary, as required in Condition I.

X. The permittee shall retain records of all information resulting from monitoring activities and information indicating operating parameters as specified in the specific conditions of this permit for a minimum of at least five (5) years.

XI. If for any reason the permittee does not comply with, or will not be able to comply with, the emission limitations specified in this permit, the permittee shall provide the Office of Environmental Compliance, Surveillance Division with a written report as specified below.

A. A written report shall be submitted within 7 days of any emission in excess of permit requirements by an amount greater than the Reportable Quantity established for that pollutant in LAC 33.I.Chapter 39.

B. A written report shall be submitted within 7 days of the initial occurrence of any emission in excess of permit requirements, regardless of the amount, where such emission occurs over a period of seven days or longer.

C. A written report shall be submitted quarterly to address all emission limitation exceedances not included in paragraphs 1 or 2 above. The schedule for submittal of quarterly reports shall be no later than the dates specified below for any emission limitation exceedances occurring during the corresponding specified calendar quarter:

1. Report by June 30 to cover January through March
2. Report by September 30 to cover April through June
3. Report by December 31 to cover July through September
4. Report by March 31 to cover October through December

D. Each report submitted in accordance with this condition shall contain the following information:

1. Description of noncomplying emission(s);
2. Cause of noncompliance;
3. Anticipated time the noncompliance is expected to continue, or corrected, the duration of the period of noncompliance;
4. Steps taken by the permittee to reduce and eliminate the noncomplying emissions; and
5. Steps taken by the permittee to prevent recurrences of the noncomplying emissions.

E. Any written report submitted in advance of the timeframes specified above, in accordance with an applicable regulation, may serve to meet the reporting requirements of this condition provided all information specified above is included. For Part 70 sources, reports submitted in accordance with Part 70 General Condition R shall serve to meet the requirements of this condition provided all specified information is included. Reporting under this condition does not relieve the permittee from the reporting requirements of any applicable regulation, including LAC 33.I.Chapter 39, LAC 33.III.Chapter 9, and LAC 33.III.5107.

XII. Permittee shall allow the authorized officers and employees of the Department of Environmental Quality, at all reasonable times and upon presentation of identification, to:

A. Enter upon the permittee's premises where regulated facilities are located, regulated activities are conducted or where records required under this permit are kept;

B. Have access to and copy any records that are required to be kept under the terms and conditions of this permit, the Louisiana Air Quality Regulations, or the Act;

C. Inspect any facilities, equipment (including monitoring methods and an operation and maintenance inspection), or operations regulated under this permit; and

D. Sample or monitor, for the purpose of assuring compliance with this permit or as otherwise authorized by the Act or regulations adopted thereunder, any substances or parameters at any location.

XIII. If samples are taken under Section XII.D. above, the officer or employee obtaining such samples shall give the owner, operator or agent in charge a receipt describing the sample obtained. If requested prior to leaving the premises, a portion of each sample equal in volume or weight to the portion retained shall be given to the owner, operator or agent in charge. If an analysis is made of such samples, a copy of the analysis shall be furnished promptly to the owner, operator or agency in charge.

XIV. The permittee shall allow authorized officers and employees of the Department of Environmental Quality, upon presentation of identification, to enter upon the permittee's premises to investigate potential or alleged violations of the Act or the rules and regulations adopted thereunder. In such investigations, the permittee shall be notified at the time entrance is requested of the nature of the suspected violation. Inspections under this subsection shall be limited to the aspects of alleged violations. However, this shall not in any way preclude prosecution of all violations found.

XV. The permittee shall comply with the reporting requirements specified under LAC 33:III.919.E as well as notification requirements specified under LAC 33:III.927.

XVI. In the event of any change in ownership of the source described in this permit, the permittee and the succeeding owner shall notify the Office of Environmental Services, Permits Division, within ninety (90) days after the event, to amend this permit.

XVII. Very small emissions to the air resulting from routine operations, that are predictable, expected, periodic, and quantifiable and that are submitted by the permitted facility and approved by the Permits Division are considered authorized discharges. Approved activities are noted in the General Condition XVII Activities List of this permit. To be approved as an authorized discharge, these very small releases must:

1. Generally be less than 5 TPY
2. Be less than the minimum emission rate (MER)
3. Be scheduled daily, weekly, monthly, etc., or
4. Be necessary prior to plant startup or after shutdown [line or compressor pressuring/depressuring for example]

These releases are not included in the permit totals because they are small and will have an insignificant impact on air quality. This general condition does not authorize the maintenance of a nuisance, or a danger to public health and safety. The permitted facility must comply with all applicable requirements, including release reporting under LAC 33:I.3901.

XVIII. Provisions of this permit may be appealed in writing pursuant to La. R.S. 30:2024(A) within 30 days from receipt of the permit. Only those provisions specifically appealed will be suspended by a request for hearing, unless the secretary or the assistant secretary elects to suspend other provisions as well. Construction cannot proceed except as specifically approved by the secretary or assistant secretary. A request for hearing must be sent to the following:

Attention: Office of the Secretary, Legal Services Division
La. Dept. of Environmental Quality
Post Office Box 4302
Baton Rouge, Louisiana 70821-4302

XIX. Certain Part 70 general conditions may duplicate or conflict with state general conditions. To the extent that any Part 70 conditions conflict with state general conditions, then the Part 70 general conditions control. To the extent that any Part 70 general conditions duplicate any state general conditions, then such state and Part 70 provisions will be enforced as if there is only one condition rather than two conditions.

LOUISIANA REFINING DIVISION, GARYVILLE MAJOR EXPANSION
AGENCY INTEREST NO. 3165
MARATHON PETROLEUM COMPANY LLC
GARYVILLE, ST. JOHN THE BAPTIST PARISH, LOUISIANA
PSD-LA-719, SEPTEMBER 23, 2006

TABLE I: BACT COST SUMMARY

Control Alternatives for Process Heaters and Boilers		Availability/ Feasibility	Negative Impacts (a)	Control Efficiency %	Emissions Reduction (TPY)	Annualized Cost ($)	Cost Effectiveness ($/Ton)	Notes
PM_{10}	Refinery Fuel Gas Combustion	Yes/Yes	3					Chosen as BACT
	Compliance with NESHAP, Subpart DDDDD	Yes/Yes	None					Chosen as BACT
SO_2	Low Sulfur Refinery Fuel Gas – 25 ppmv of H_2S	Yes/Yes	None					Chosen as BACT
	Flue Gas Desulfurization	Yes/No	b	80				
	$SCOSO_X$™	Yes/No	b	95				
NO_X	Ultra Low NO_X Burners (ULNB) (without air preheat)	Yes/Yes	None	w/o air 0.03 lb/MM BTU				Chosen as BACT
	ULNB with SCR for Heaters (Voluntary SCR Control)	Yes/Yes	None	0.0125 Lb/MM BTU			$10,247 thru $73,226	
	ULNB with Fuel Gas Recirculation (FGR)	Yes/Yes	None	0.04 lb/MM BTU				Chosen as BACT for Boilers
	Water Injection Style Burners	Yes/No	b					
	Non-Selective Catalytic Reduction	Yes/No	b					
	Selective Non-Catalytic Reduction	Yes/No	b					
	$SCONO_X$™	No/No	b					

Control Alternatives for Process Heaters and Boilers		Availability / Feasibility	Negative Impacts (a)	Control Efficiency %	Emissions Reduction (TPY)	Annualized Cost ($)	Cost Effectiveness ($/Ton)	Notes
CO/VOC	Good Combustion Practices using Refinery Fuel Gas	Yes/Yes	None					Chosen as BACT
	Compliance with NESHAP, 40 CFR 63, Subpart DDDDD	Yes/Yes	None					Chosen as BACT
	Catalytic Oxidation for CO/VOC	Yes/Yes	1, 2, 3	90/50			$13,081 to $62,473	
	$SCONO_X$™	No/No	1, 2, 3					

Notes: a) Negative impacts: 1) economic, 2) environmental, 3) energy, 4) safety
b) Technically infeasible, economic analysis was not performed

LOUISIANA REFINING DIVISION, GARYVILLE MAJOR EXPANSION
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PSD-LA-719, SEPTEMBER 23, 2006

TABLE I: BACT COST SUMMARY

Control Alternatives for Sulfur Recovery Unit		Availability / Feasibility	Negative Impacts (a)	Control Efficiency %	Emissions Reduction (TPY)	Annualized Cost ($)	Cost Effectiveness ($/Ton)	Notes
SO_2	Reduced Sulfur Crude	Yes/No	1					
	Parallel Multistage Claus Trains	Yes/Yes	None	>99.9				Chosen as BACT
	Thermal Oxidizer	Yes/Yes	None	>99.5				Chosen as BACT
H_2S	Recycle of Sulfur Pit Emissions to SRU	Yes/Yes	None	99.9				Chosen as BACT
	Degassing Liquid Sulfur	Yes/Yes	None	>95				Chosen as BACT
PM_{10}	Air Fuel Ratio	Yes/Yes	None					Chosen as BACT
NO_X	Air Fuel Ratio			0.2 Lb/MM BTU				
CO	Air Fuel Ratio							
VOC	Air Fuel Ratio							

Notes: a) Negative impacts: 1) economic, 2) environmental, 3) energy, 4) safety
b) Technically infeasible, economic analysis was not performed

TABLE I: BACT COST SUMMARY

Control Alternatives for Storage Tanks		Availability / Feasibility	Negative Impacts (a)	Control Efficiency %	Emissions Reduction (TPY)	Annualized Cost ($)	Cost Effectiveness ($/Ton)	Notes
VOC	Thermal Oxidation	Yes/No	1	98			$38,924 to $200,771	
	Floating Roof (Existing Tanks)	Yes/No	1	95			$16,100 to $104,700	
	Floating Roof (New Tanks) except 34-08 and 35-08	Yes/Yes	None					Chosen as BACT

Notes:
a) Negative impacts: 1) economic, 2) environmental, 3) energy, 4) safety
b) Technically infeasible, economic analysis was not performed

TABLE I: BACT COST SUMMARY

Control Alternatives for Cooling Towers		Availability / Feasibility	Negative Impacts (a)	Control Efficiency %	Emissions Reduction (TPY)	Annualized Cost ($)	Cost Effectiveness ($/Ton)	Notes
PM_{10}	Indirect Contact Tower Exchanger	Yes/No	b					
	Drying Cooling Tower	Yes/No	b					
	High Efficiency Drift Eliminators	Yes/Yes	None	0.005% drift rate				Chosen as BACT
VOC	Indirect Contact Tower Exchanger	Yes/No	b					
	Drying Cooling Tower	Yes/No	b					
	Heat Exchanger/Cooling Tower Monthly Monitoring	Yes/Yes	None					Chosen as BACT

Notes: a) Negative impacts: 1) economic, 2) environmental, 3) energy, 4) safety
b) Technically infeasible, economic analysis was not performed

TABLE I: BACT COST SUMMARY

Control Alternatives for Emergency Generators		Availability / Feasibility	Negative Impacts (a)	Control Efficiency %	Emissions Reduction (TPY)	Annualized Cost ($)	Cost Effectiveness ($/Ton)	Notes
SO_2	Low Sulfur Diesel as Fuel	Yes/Yes	None					Chosen as BACT

Notes: a) Negative impacts: 1) economic, 2) environmental, 3) energy, 4) safety
b) Technically infeasible, economic analysis was not performed

TABLE I: BACT COST SUMMARY

Control Alternatives for Coke Handling		Availability / Feasibility	Negative Impacts (a)	Control Efficiency %	Emissions Reduction (TPY)	Annualized Cost ($)	Cost Effectiveness ($/Ton)	Notes
PM_{10}	Enclosure of Conveyor, Coke Pit, and Crusher	Yes/Yes	None					Chosen as BACT
	Maintain Moisture Content	Yes/Yes	None					Chosen as BACT

Notes: a) Negative impacts: 1) economic, 2) environmental, 3) energy, 4) safety
b) Technically infeasible, economic analysis was not performed

TABLE I: BACT COST SUMMARY

Control Alternatives for Wastewater Treatment Plant (WWTP)		Availability / Feasibility	Negative Impacts (a)	Control Efficiency %	Emissions Reduction (TPY)	Annualized Cost ($)	Cost Effectiveness ($/Ton)	Notes
VOC	NSPS and NESHAP Standards	Yes/Yes	None	>95				Chosen as BACT

Notes:
a) Negative impacts: 1) economic, 2) environmental, 3) energy, 4) safety
b) Technically infeasible, economic analysis was not performed

TABLE I: BACT COST SUMMARY

Control Alternatives for Marine Loading		Availability / Feasibility	Negative Impacts (a)	Control Efficiency %	Emissions Reduction (TPY)	Annualized Cost ($)	Cost Effectiveness ($/Ton)	Notes
VOC	Products True Vapor Pressure Equal to and Greater than 0.5 psia	Yes/Yes	None	>98				Chosen as BACT
PM_{10}, SO_2, NO_X, CO	Vapor Combustor (Compliance with NSPS Standards)	Yes/Yes	None	NA				Chosen as BACT

Notes:
a) Negative impacts: 1) economic, 2) environmental, 3) energy, 4) safety
b) Technically infeasible, economic analysis was not performed

TABLE I: BACT COST SUMMARY

Control Alternatives for Fluidized Catalytic Cracking Unit (FCCU)		Availability / Feasibility	Negative Impacts (a)	Control Efficiency %	Emissions Reduction (TPY)	Annualized Cost ($)	Cost Effectiveness ($/Ton)	Notes
NO_X	Feedstock Hydrotreatment	Yes/No	c	50-80				
	$LoTO_X$™	Yes/No	d	50			$40,370	
	Selective Catalytic Reduction (SCR)	Yes/No	1, 2,3	50			$36,496	
	CO Boiler	Yes/No	b	70-85				
	Catalytic Additives	Yes/Yes	None	66-78				Chosen as BACT
CO and VOC	CO Boiler	Yes/No	b	70-85				
	Full Burn Combustion	Yes/Yes	None					Chosen as BACT
PM_{10} and SO_2, H_2SO_4	Electrostatic Precipitator (ESP)	Yes/No	b	70-93				
	Wet Scrubbers	Yes/Yes	None	>95				Chosen as BACT

Notes:
a) Negative impacts: 1) economic, 2) environmental, 3) energy, 4) safety
b) Technically infeasible, economic analysis was not performed
c) MPC is already hydrotreating the FCCU Charge
d) Technically infeasible, economic analysis performed

TABLE II: AIR QUALITY ANALYSIS SUMMARY ($\mu g/m^3$)

Pollutant	Averaging Period	Preliminary Screening Conc.	Significant Monitoring Conc.	Current Monitored Conc.	Level of Significant Impact	Maximum Modeled Conc.	Modeled + Background Conc.	NAAQS	Modeled PSD Increment Consumption	Allowable Class II PSD Increment
CO	1-Hour	2,094.1	NR	1067.20	2000	3233.42	3233.42	40000	-	-
	8-Hour	475.2	575	649.60	500	560.50	941.11	10000	-	-
NO_2	Annual	2.9	14	15.28	1	36.32	36.32	100	0	25
PM_{10} *	24-Hour	17.6	10	44.00	5	69.92	99.67	150	25.5	30
	Annual	1.8	NR	23.00	1	8.26	28.01	50	0	17
SO_2 *	3-Hour	169.5	NR	93.10	25	828.62	828.62	1300	499.6	512
	24-Hour	50.5	13	29.26	5	226.67	226.67	365	49.2	91
	Annual	5.3	NR	7.98	1	39.86	39.86	80	0	20

NR = Not Required
NAAQS = National Ambient Air Quality Standards

* Preconstruction monitoring data: Wallace Industrial Monitor

TABLE III: SUMMARY OF PROPOSED BACT

Source Description	Pollutant	Most Feasible BACT Selected
Process Heater and Boiler **SCR – Voluntary control**	NO_X	ULNB (without preheat) - 0.03 lb/MM BTU
		ULNB with SCR for heaters (with preheat) – 0.0125 lb/MM BTU
		ULNB with FGR for Boiler – 0.04 lb/MM BTU
	CO/VOC	Good Combustion Practices using Refinery Fuel Gas
		Compliance with NESHAP, 40 CFR 63, Subpart DDDDD CO 400 ppmv
	PM_{10}	Refinery Fuel Gas Combustion
		Proper Burner Design and Operation
	SO_2	Low Sulfur Refinery Fuel Gas – 25 ppmv H_2S (Annual Average)
Sulfur Recovery Unit	SO_2	99.9% Sulfur Conversion Efficiency 99.5% TGTU Thermal Oxidizer Conversion Efficiency <93.41 ppmv SO_2 on Dry Basis at Outlet (0% Oxygen) Good Work Practices
Sulfur Pits/Storage Tanks/Sulfur Loading	H_2S	Degassing of Liquid Sulfur to 15 ppmv H_2S Recycle of Sulfur Pit emissions
TGTU Thermal Oxidizer	NO_X	N O_X 0.20 lb/MM BTU
	CO	Air-Fuel Ratio as Control
	PM_{10}	Air-Fuel Ratio as Control
	VOC	Air-Fuel Ratio as Control
Storage Tanks	VOC	Compliance with all Applicable Federal & State Regulations

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TABLE III: SUMMARY OF PROPOSED BACT

Source Description	Pollutant	Most Feasible BACT Selected
Cooling Towers	PM_{10}	High Efficiency Drift Eliminators (0.005% drift)
	VOC	LDAR Program with Monthly Monitoring
Fugitive Emissions	VOC	Compliance with Approved Streamlined Requirements Compliance with LDAR
Emergency Generators	NO_X	Good Operating Practices
	CO	Good Operating Practices
	SO_2	Low Sulfur Diesel
	PM_{10}	Good Operating Practices
	VOC	Good Operating Practices
Coking Handling (Conveyors, Coke Pit, Crusher, etc.)	PM10	Combination of Enclosure and Water Spray
WWTP	VOC	Compliance with NSPS, 40 CFR 60, Subpart QQQ and NESHAP, 40 CFR 61, Subpart FF Proper Design
Marine Loading	VOC	Control Emissions for Products Having True Vapor Pressure > 0.5 psia
Marine Vapor Combustor	NO_X	NO_X 0.2 lb/MM BTU
	CO	Compliance with NSPS, 40 CFR 60, Subpart A
	SO_2	H_2S at <25 ppm
	PM_{10}	Compliance with NSPS, 40 CFR 60, Subpart A
	VOC	Compliance with NSPS, 40 CFR 60, Subpart A

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TABLE IV: MAXIMUM ALLOWABLE EMISSION RATES

EQT	ID/EIQ	Capacity MM BTU/hr	Maximum Permitted Emission Rates													
			PM/PM_{10}		SO_2		NO_X		CO		VOC		H_2S		H_2SO_4	
			lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
EQT185	1-08	368.40	2.74		10.67		11.79		14.74		0.55					
EQT186	2-08	368.40	2.74		10.67		11.79		14.74		0.55					
EQT187	3-08	155.20	1.16		4.50		6.21		6.21		0.23					
EQT188	4-08	155.20	1.16		4.50		6.21		6.21		0.23					
EQT189	5-08	75.70	0.56		2.19		2.27		3.03		0.11					
EQT190	6-08	138.40	1.03		4.01		4.15		5.54		0.21					
EQT191	7A-08	474.00	3.53		13.73		14.22		18.96		0.71					
EQT192	7B-08	542.4	4.04		15.72		16.27		21.70		0.81					
EQT193	7C-08	333.80	2.49		9.67		10.01		13.35		0.50					
EQT195	9-08	73.80	0.55		2.14		2.22		2.95		0.11					
EQT196	10-08	121.80	0.91		3.53		3.65		4.87		0.18					
EQT197	11-08	85.10	0.63		2.46		2.55		3.40		0.13					
EQT198	12-08	85.10	0.63		2.46		2.55		3.40		0.13					
EQT199	13-08	361.30	2.69		10.47		11.56		14.45		0.54					
EQT200	14-08	183.30	1.37		11.59		5.51		7.33		0.27					
EQT201	15-08	480.10	3.58		41.59		15.36		19.20		0.72					
EQT202	16-08	525.70	3.92		15.23		21.03		21.03		0.79					
EQT204	18-08	63.70	0.47		61.67		12.75		2.55		0.03					
EQT205	19-08	63.70	0.47		61.67		12.75		2.55		0.03		<0.01	<0.01		
EQT206	20-08	22.80	0.17	0.39	0.90	2.23	2.22	5.11	2.45	5.09	0.59	1.40				

TABLE IV: MAXIMUM ALLOWABLE EMISSION RATES

EQT	ID/EIQ	Capacity MM BTU/hr	Maximum Permitted Emission Rates													
			PM/PM_{10}		SO_2		NO_X		CO		VOC		H_2S		H_2SO_4	
			lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
EQT207	20-08 SU/SD	22.80			215.20	7.56	40.53	0.60	8.68	0.12	139.04	1.74	0.55	0.01		
EQT208	21-08	1,341 hp	3.69	0.27	0.02	<0.01	51.96	3.78	11.20	0.82	4.14	0.30				
EQT209	22-08	671 hp	1.84	0.13	0.01	<0.01	25.98	1.89	5.60	0.41	2.07	0.15				
EQT210	23-08	1229.17 scfm	0.07	0.26					1.05	3.68	0.45	1.58				
EQT211	24-08	30,000 gpm	0.90	3.16							1.26	4.42				
EQT212	31-08	1,000 tons/hr	0.04	0.07							0.01	0.01				
EQT213	32-08	96,250 gpm	2.89	10.13							4.04	14.16				
EQT214	33A-08	4,500 lb/day									45.00	6.57				
EQT215	33B-08	4,500 lb/day									45.00	6.57				
EQT216	48-08	1,412.50	10.52		32.54		45.20		56.50		7.62					
EQT217	49-08	250,000 lb/hr									22.25	1.60				
EQT218	50-08	3,125 lb/hr							4.72	2.36	0.05	0.16				
EQT219	52-08	2,472			<0.01	<0.01	1.80	6.30	20.22	70.86	<0.01	0.01	<0.01	<0.01		
EQT220	53-08	2,500 gpm	0.26	0.89							0.11	0.37				
EQT221	54-08	5 MMscf/hr							33.42	0.41						
EQT223	34-08	8.4 MM gal									0.43					
EQT224	35-08	12.6 MM gal									0.38					
EQT225	36-08	12.6 MM gal									4.75					
EQT226	37-08	12.6 MM gal									3.15					
EQT227	38-08	12.6 MM gal									3.15					

TABLE IV: MAXIMUM ALLOWABLE EMISSION RATES

EQT	ID/EIQ	Capacity MM BTU/hr	Maximum Permitted Emission Rates													
			PM/PM_{10}		SO_2		NO_X		CO		VOC		H_2S		H_2SO_4	
			lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
EQT228	39-08	21 MM gal									1.05		0.02			
EQT229	40-08	21 MM gal									3.28		0.02			
EQT230	41-08	21 MM gal									3.28		0.02			
EQT231	42-08	21 MM gal									3.28		0.02			
EQT232	43-08	21 MM gal									3.28					
EQT233	44-08	21 MM gal									3.28					
EQT236	47-08	210000 gal									0.17					
EQT237	57-08	12.6 MM gal									3.15					
EQT075	15-74	6.3 MM gal									2.24					
EQT076	16-74	6.3 MM gal									1.82					
EQT077	17-74	6.3 MM gal									1.34					
EQT078	18-74	1.47 MM gal									1.67					
EQT079	19-74	1.47 MM gal									2.33					
EQT080	20-74	2.31 MM gal									2.33					
EQT081	21-74	2.31 MM gal									2.33					
EQT082	22-74	6.3 MM gal									2.99					
EQT083	23-74	6.3 MM gal									2.98					
EQT084	24-74	6.3 MM gal									0.65					
EQT085	25-74	6.3 MM gal									0.65					
EQT087	27-74	3.15 MM gal									0.75					

TABLE IV: MAXIMUM ALLOWABLE EMISSION RATES

EQT	ID/EIQ	Capacity MM BTU/hr	Maximum Permitted Emission Rates													
			PM/PM_{10}		SO_2		NO_X		CO		VOC		H_2S		H_2SO_4	
			lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
EQT088	28-74	3.15 MM gal									0.75					
EQT089	29-74	21 MM gal									1.10		0.02			
EQT090	30-74	21 MM gal									1.16		0.02			
EQT091	31-74	21 MM gal									1.16		0.02			
EQT092	32-74	21 MM gal									3.93					
EQT093	33-74	21 MM gal									1.16		0.02			
EQT094	34-74	21 MM gal									1.16		0.02			
EQT095	35-74	21 MM gal									1.16		0.02			
EQT096	36-74	12.6 MM gal									2.79					
EQT097	37-74	12.6 MM gal									0.52		0.18			
EQT098	38-74	12.6 MM gal									2.79					
EQT099	39-74	12.6 MM gal									0.27		0.18			
EQT100	40-74	12.6 MM gal									2.79					
EQT101	41-74	12.6 MM gal									0.27		0.18			
EQT102	42-74	12.6 MM gal									0.27		0.18			
EQT103	43-74	2.31 MM gal									0.62		0.01			
EQT104	44-74	2.31 MM gal									0.13					
EQT105	45-74	2.31 MM gal									0.10					
EQT112	63-74	21 MM gal									0.92		0.02			
EQT113	64-74	6.3 MM gal									9.06					

TABLE IV: MAXIMUM ALLOWABLE EMISSION RATES

EQT	ID/EIQ	Capacity MM BTU/hr	Maximum Permitted Emission Rates													
			PM/PM_{10}		SO_2		NO_X		CO		VOC		H_2S		H_2SO_4	
			lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
EQT114	65-74	6.3 MM gal									2.01					
EQT115	66-74	12.6 MM gal									2.79					
EQT116	67-74	6.3 MM gal									1.39					
EQT117	68-74	12.6 MM gal									3.49					
EQT118	71-74	21 MM gal									1.16		0.02			
EQT120	73-74	12.6 MM gal									0.38					
EQT121	74-74	12.6 MM gal									0.38					
EQT122	75-74	12.6 MM gal									0.38					
EQT123	76-74	12.6 MM gal									0.38					
EQT125	77-74	8.4 MM gal									3.56					
EQT126	78-74	8.4 MM gal									1.64					
EQT127	79-74	8.4 MM gal									2.59					
EQT128	80-74	8.4 MM gal									2.59					
EQT129	90-74	6.3 MM gal									0.45		0.01			
EQT131	93-80	6.3 MM gal									0.14		<0.01			
EQT132	94-80	6.3 MM gal									0.14		<0.01			
EQT133	95-80	6.3 MM gal									0.14		<0.01			
EQT134	96-80	6.3 MM gal									0.13		<0.01			
EQT135	97-80	8.4 MM gal									2.40		1.08			
EQT136	98-80	8.4 MM gal									2.40		1.08			

TABLE IV: MAXIMUM ALLOWABLE EMISSION RATES

EQT	ID/EIQ	Capacity MM BTU/hr	Maximum Permitted Emission Rates													
			PM/PM_{10}		SO_2		NO_X		CO		VOC		H_2S		H_2SO_4	
			lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
EQT138	120-91	6.3 MM gal									1.39					
EQT143	99-80	4.2 MM gal									0.68		0.18			
EQT178	3-05	21 MM gal									3.94					
EQT048	107-90	50,000 bbl/hr	0.24		1.31		20.04		2.61		64.73					
EQT050	124-9-91	94 gpm									0.01	0.04				
EQT051	124-10-91	21,000 gal									0.09	0.33				
EQT052	124-11-91	3,780 gal									<0.01	0.01				
EQT053	124-12-91	3,780 gal									<0.01	0.01				
EQT054	134-96	65,081 bbl/hr									2.46	8.98				
EQT066	TV-10	750 LTD											3.06			
EQT238	13-00	750 LTD											0.21			
EQT239	26-08	750 LTD											0.04			
EQT240	27-08	750 LTD											0.04			
EQT241	28-08	750 LTD											0.08			
EQT242	29-08	750 LTD											0.08			
EQT243	51-74	750 LTD											1.70			
EQT245	122-91	750 LTD											1.91			
ARE006	3-00	1,000 tons/hr	0.03	0.03							0.01	0.01				
ARE007	2-00	1,000 tons/hr	0.04	0.07							0.01	0.01				
ARE008	4-00	1,000 tons/hr	0.18	0.19							0.04	0.04				

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EQT	ID/EIQ	Capacity MM BTU/hr	Maximum Permitted Emission Rates													
			PM/PM_{10}		SO_2		NO_X		CO		VOC		H_2S		H_2SO_4	
			lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
ARE009	5-00	1,000 tons/hr	0.03	0.03							0.01	0.01				
ARE010	9-00	1,000 tons/hr	4.17	4.33												
ARE011	30-08	7,125 gpm									39.52	138.47				
EQT028	6-00	1,000 tons/hr	0.03	0.03							0.05	0.05				
EQT029	7-00	1,000 tons/yr	0.03	0.03							0.01	0.01				
EQT030	8-00	1,200 tons/hr	0.04	0.03							0.01	0.01				
EQT165	86-74	254,318 scfm	77.60	105.12	110.12	173.63	164.62	270.40	481.76	633.03	0.07	0.29			10.41	30.38
EQT172	124-1-91	9.60	0.05		0.20		0.43		0.56		0.15					
FUG006	10-00										11.73	42.81				
FUG008	14-00				0.01	0.04							0.09	0.34		
FUG010	16-00										0.28	1.02	0.11	0.40		
FUG015	Unit 9										7.06	24.75				
FUG016	Unit 10										24.80	86.89				
FUG024	Unit 19										0.28	1.02	0.11	0.40		
FUG025	Unit 20				0.01	0.04							0.09	0.34		
FUG026	Unit 21										0.07	0.27	0.12	0.43		
FUG030	Unit 25										7.29	25.53				
FUG031	Unit 26										8.74	30.61				
FUG035	Unit 32										0.07	0.27	0.12	0.43		
FUG036	Unit 33										0.28	1.02	0.11	0.40.		

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TABLE IV: MAXIMUM ALLOWABLE EMISSION RATES

EQT	ID/EIQ	Capacity MM BTU/hr	Maximum Permitted Emission Rates													
			PM/PM_{10}		SO_2		NO_X		CO		VOC		H_2S		H_2SO_4	
			lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
FUG037	Unit 34				0.01	0.04								0.09	0.34	
FUG044	Unit 60										2.00	7.01				
FUG052	51-08								1.89	6.63	1.11	3.88				
FUG053	Unit 205										19.25					
FUG054	Unit 205A										1.80					
FUG055	Unit 210										17.01					
FUG056	Unit 211										0.96					
FUG057	Unit 212										2.62					
FUG058	Unit 212A										0.13					
FUG059	Unit 214										4.55					
FUG060	Unit 215										8.63					
FUG061	Unit 220				0.01								0.09			
FUG062	Unit 221										0.07		0.12			
FUG063	Unit 222										7.88					
FUG064	Unit 222A										1.53					
FUG065	Unit 222B										0.93					
FUG066	Unit 232										0.07		0.12			
FUG067	Unit 233										0.28		0.12			
FUG068	Unit 234				0.01								0.09			
FUG069	Unit 241										0.14					

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EQT	ID/EIQ	Capacity MM BTU/hr	Maximum Permitted Emission Rates													
			PM/PM_{10}		SO_2		NO_X		CO		VOC		H_2S		H_2SO_4	
			lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
FUG070	Unit 243										1.01					
FUG071	Unit 247										0.07		0.12			
FUG072	Unit 250										0.44					
FUG073	Unit 250A										0.18					
FUG074	Unit 259										0.71					
FUG075	Unit 260										3.92					
FUG076	Unit 263										10.33					
FUG077	Unit 265										1.88					
FUG078	Unit 267										2.89					
FUG079	Unit 271										0.57					
GRP018																
GRP019																
GRP020																
GRP028	GME Fug. Cap					0.07						320.71		2.38		
GRP029	H/B Cap			155.09		208.03		462.60		832.57		54.18				
GRP030	GME TO Cap			3.33		201.83		89.32		17.86		0.18		0.02		

TABLE IV: BACT SELECTION FOR STORAGE TANKS

EQT No.	EIQ No.	Tank No.	Volume (barrels)	Roof	Material Stored	Applicable Regulations			Per 63.640(n)	BACT Shall comply with
						LAC 33:III.	40 CFR 60 Subpart	40 CFR 63 Subpart CC		
EQT075	15-74	150-7	6.3 MM gal	EFR	Cracked Distillate	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT076	16-74	150-6	6.3 MM gal	IFR	Gasoline	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT077	17-74	150-5	6.3 MM gal	IFR	Cracked Distillate	2103	Kb	Group 2	1	40 CFR 60 Subpart Kb
EQT078	18-74	35-2	1.47 MM gal	EFR	Sweet Naphtha/LSR Naphtha	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT079	19-74	35-1	2.31 MM gal	EFR	Gasoline Blend Stock (GBS)	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT080	20-74	55-1	2.31 MM gal	EFR	GBS/N. Gasoline	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT081	21-74	55-2	2.31 MM gal	EFR	GBS/N. Gasoline	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT082	22-74	150-1	6.3 MM gal	EFR	Gasoline/Platformate/Natural Gas Condensate (NGC)	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT083	23-74	150-2	6.3 MM gal	EFR	NGC/Gasoline	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT084	24-74	150-3	6.3 MM gal	EFR	LOC Platformate/HOC Platformate	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT085	25-74	150-4	6.3 MM gal	EFR	LOC Platformate/HOC Platformate	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT087	27-74	75-1	3.15 MM gal	FR	ULSD	NA	K	Group 2	7	40 CFR 63 Subpart CC
EQT088	28-74	75-2	3.15 MM gal	FR	ULSD	NA	K	Group 2	7	40 CFR 63 Subpart CC
EQT089	29-74	500-1	21 MM gal	EFR	Crude Oil/Slop Oil	2103	K	Group 1	5	40 CFR 63 Subpart CC

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EQT No.	EIQ No.	Tank No.	Volume (barrels)	Roof	Material Stored	Applicable Regulations			Per 63.640(n)	BACT Shall comply with
						LAC 33:III.	40 CFR 60 Subpart	40 CFR 63 Subpart CC		
EQT090	30-74	500-2	21 MM gal	EFR	Crude Oil	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT091	31-74	500-3	21 MM gal	EFR	Crude Oil	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT092	32-74	500-4	21 MM gal	EFR	Gasoline	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT093	33-74	500-5	21 MM gal	EFR	Crude Oil/Slop Oil	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT094	34-74	500-6	21 MM gal	EFR	Crude Oil/Slop Oil	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT095	35-74	500-7	21 MM gal	EFR	Crude Oil	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT096	36-74	300-1	12.6 MM gal	FR	ULSD	NA	K	Group 2	7	40 CFR 63 Subpart CC
EQT097	37-74	300-2	12.6 MM gal	FR	Asphalt/ No. 6	NA	K	Group 2	7	40 CFR 63 Subpart CC
EQT098	38-74	300-4	12.6 MM gal	FR	ULSD	NA	K	Group 2	7	40 CFR 63 Subpart CC
EQT099	39-74	300-5	12.6 MM gal	FR	Asphalt	NA	K	Group 2	7	40 CFR 63 Subpart CC
EQT100	40-74	300-7	12.6 MM gal	FR	ULSD	NA	K	Group 2	7	40 CFR 63 Subpart CC
EQT101	41-74	300-3	12.6 MM gal	FR	Asphalt	NA	K	Group 2	7	40 CFR 63 Subpart CC
EQT102	42-74	300-6	12.6 MM gal	FR	Asphalt	NA	K	Group 2	7	40 CFR 63 Subpart CC
EQT103	43-74	55-4	2.31 MM gal	FR	Sour Naphtha	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT104	44-74	55-5	2.31 MM gal	FR	Deasphaltic Oil	NA	K	Group 2	7	40 CFR 63 Subpart CC
EQT105	45-74	55-6	2.31 MM gal	FR	Gasoil	NA	K	Group 2	7	40 CFR 63 Subpart CC
EQT112	63-74	500-8	21 MM gal	EFR	Crude Oil	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT113	64-74	150-8	6.3 MM gal	EFR	Gasoline	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT114	65-74	150-10	6.3 MM gal	EFR	Gasoline	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT115	66-74	300-8	12.6 MM gal	FR	ULSD	NA	K	Group 2	7	40 CFR 63 Subpart CC
EQT116	67-74	150-9	6.3 MM gal	FR	ULSD	NA	K	Group 2	7	40 CFR 63 Subpart CC
EQT117	68-74	300-9	12.6 MM gal	EFR	Gasoline	2103	K	Group 1	5	40 CFR 63 Subpart CC

TABLE IV: BACT SELECTION FOR STORAGE TANKS

EQT No.	EIQ No.	Tank No.	Volume (barrels)	Roof	Material Stored	Applicable Regulations			Per 63.640(n)	BACT Shall comply with
						LAC 33:III.	40 CFR 60 Subpart	40 CFR 63 Subpart CC		
EQT118	71-74	500-9	21 MM gal	EFR	Crude Oil	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT120	73-74	300-10	12.6 MM gal	FR	Gasoil	NA	K	Group 2	7	40 CFR 63 Subpart CC
EQT121	74-74	300-11	12.6 MM gal	FR	Gasoil	NA	K	Group 2	7	40 CFR 63 Subpart CC
EQT122	75-74	300-12	12.6 MM gal	FR	Gasoil	NA	K	Group 2	7	40 CFR 63 Subpart CC
EQT123	76-74	300-12	12.6 MM gal	FR	Gasoil	NA	K	Group 2	7	40 CFR 63 Subpart CC
EQT125	77-74	200-1	8.4 MM gal	EFR	NGC/Alkylate	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT126	78-74	200-2	8.4 MM gal	EFR	Mixed Naphtha	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT127	79-74	200-3	8.4 MM gal	EFR	Alkylate/Mixed Naphtha	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT128	80-74	200-4	8.4 MM gal	EFR	Mixed Naphtha	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT129	90-74	150-11	6.3 MM gal	EFR	Sour Naphtha	2103	K	Group 1	5	40 CFR 63 Subpart CC
EQT131	93-80	150-12	6.3 MM gal	EFR	Sour LAGO/Sour Kerosene	2103	Ka	Group 1	5	40 CFR 63 Subpart CC
EQT132	94-80	150-13	6.3 MM gal	EFR	Sour LAGO/Sour Kerosene	2103	Ka	Group 1	5	40 CFR 63 Subpart CC
EQT133	95-80	150-14	6.3 MM gal	EFR	Sour LAGO/Sour Kerosene	2103	Ka	Group 1	5	40 CFR 63 Subpart CC
EQT134	96-80	150-15	6.3 MM gal	EFR	Sour LAGO/Sour Kerosene	2103	Ka	Group 1	5	40 CFR 63 Subpart CC
EQT135	97-80	200-5	8.4 MM gal	FR	Asphalt/Slurry	NA	Ka	Group 2	7	40 CFR 63 Subpart CC
EQT136	98-80	200-6	8.4 MM gal	FR	Asphalt	NA	Ka	Group 2	7	40 CFR 63 Subpart CC
EQT138	120-91	150-16	6.3 MM gal	FR	ULSD	NA	NA	Group 2	7	40 CFR 63 Subpart CC

LOUISIANA REFINING DIVISION, GARYVILLE MAJOR EXPANSION
AGENCY INTEREST NO. 3165
MARATHON PETROLEUM COMPANY LLC
GARYVILLE, ST. JOHN THE BAPTIST PARISH, LOUISIANA
PSD-LA-719, SEPTEMBER 23, 2006

TABLE IV: BACT SELECTION FOR STORAGE TANKS

EQT No.	EIQ No.	Tank No.	Volume (barrels)	Roof	Material Stored	Applicable Regulations			Per 63.640(n)	BACT Shall comply with
						LAC 33:III.	40 CFR 60 Subpart	40 CFR 63 Subpart CC		
EQT143	99-80	100-1	4.2 MM gal	FR	Slurry	NA	Ka	Group 2	7	40 CFR 63 Subpart CC
EQT178	3-05	500-10	21 MM gal	EFR	Gasoline	2103	Kb	Group 1	2	40 CFR 63 Subpart CC
EQT223	34-08	200-7	8.4 MM gal	FR	No. 6 Fuel Oil	NA	NA	Group 2	4	40 CFR 63 Subpart CC
EQT224	35-08	300-14	12.6 MM gal	FR	Gasoil	NA	NA	Group 2	4	40 CFR 63 Subpart CC
EQT225	36-08	300-15	12.6 MM gal	EFR	Gasoline/NG	2103	Kb	Group 1	2	40 CFR 63 Subpart CC
EQT226	37-08	300-16	12.6 MM gal	EFR	Gasoline	2103	Kb	Group 1	2	40 CFR 63 Subpart CC
EQT227	38-08	300-17	12.6 MM gal	EFR	Gasoline/Sweet Kerosene	2103	Kb	Group 1	2	40 CFR 63 Subpart CC
EQT228	39-08	500-11	21 MM gal	EFR	Crude Oil	2103	Kb	Group 1	2	40 CFR 63 Subpart CC
EQT229	40-08	500-12	21 MM gal	EFR	Crude Oil/ Gasoline	2103	Kb	Group 1	2	40 CFR 63 Subpart CC
EQT230	41-08	500-13	21 MM gal	EFR	Crude Oil/ Gasoline	2103	Kb	Group 1	2	40 CFR 63 Subpart CC
EQT231	42-08	500-14	21 MM gal	EFR	Crude Oil/ Gasoline	2103	Kb	Group 1	2	40 CFR 63 Subpart CC
EQT232	43-08	500-15	21 MM gal	EFR	Gasoline/Sweet Kerosene/ULSD	2103	Kb	Group 1	2	40 CFR 63 Subpart CC
EQT233	44-08	500-16	21 MM gal	EFR	Sweet Kerosene/ ULSD/Gasoline	2103	Kb	Group 1	2	40 CFR 63 Subpart CC
EQT236	47-08	5-4	210000 gal	IFR	Sour Water	NA	NA	Group 2	4	40 CFR 63 Subpart CC
EQT237	57-08	300-18	12.6 MM gal	EFR	Sweet Kerosene/ ULSD/Gasoline	2103	Kb	Group 1	2	40 CFR 63 Subpart CC

TABLE V: BEST AVAILABLE CONTROL TECHNOLOGY SELECTION

Emission Point	Description	PSD Applies Y/N	Pollutant	BACT Limits	Reason For No BACT
1-08 2-08	GME A & B Crude Heaters	Y	PM_{10}	0.0075 lb/MM BTU (Good engineering practice, design, and operation)	
			SO_2	25 ppmv as H_2S (Use of low sulfur refinery fuel gas)	
			NO_X	0.0125 lb/MM BTU (Voluntary installation of SCR)	Cost Effectiveness $10,000-$73,000/ton reduction
			CO	0.04 lb/MM BTU (Good engineering practice, design, and operation)	
			VOC	0.0015 lb/MM BTU (Good engineering practice, design, and operation)	
3-08 4-08	GME A & B Vacuum Tower Heaters	Y	PM_{10}	0.0075 lb/MM BTU (Good engineering practice, design, and operation)	
			SO_2	25 ppmv as H_2S (Use of low sulfur refinery fuel gas)	
			NO_X	0.0125 lb/MM BTU (Voluntary installation of SCR)	Cost Effectiveness $10,000-$73,000/ton reduction
			CO	0.04 lb/MM BTU (Good engineering practice, design, and operation)	
			VOC	0.0015 lb/MM BTU (Good engineering practice, design, and operation)	

TABLE V: BEST AVAILABLE CONTROL TECHNOLOGY SELECTION

Emission Point	Description	PSD Applies Y/N	Pollutant	BACT Limits	Reason For No BACT
5-08	GME Naphtha Hydrotreater Reactor Charge Heater	Y	PM_{10}	0.0075 lb/MM BTU (Good engineering practice, design, and operation)	
			SO_2	25 ppmv as H2S (Use of low sulfur refinery fuel gas)	
			NO_X	0.03 lb/MM BTU (UNLB without air preheat)	
			CO	0.04 lb/MM BTU (Good engineering practice, design, and operation)	
			VOC	0.0015 lb/MM BTU (Good engineering practice, design, and operation)	
6-08	GME Naphtha Hydrotreater Stripper Reboiler Heater	Y	PM_{10}	0.0075 lb/MM BTU (Good engineering practice, design, and operation)	
			SO_2	25 ppmv as H2S (Use of low sulfur refinery fuel gas)	
			NO_X	0.03 lb/MM BTU (UNLB without air preheat)	
			CO	0.04 lb/MM BTU (Good engineering practice, design, and operation)	
			VOC	0.0015 lb/MM BTU (Good engineering practice, design, and operation)	
7A-08 7B-08 7C-08	GME Platformer Heater Cell No. 1, 2, and 3	Y	PM_{10}	0.0075 lb/MM BTU (Good engineering practice, design, and operation)	

TABLE V: BEST AVAILABLE CONTROL TECHNOLOGY SELECTION

Emission Point	Description	PSD Applies Y/N	Pollutant	BACT Limits	Reason For No BACT
7A-08 7B-08 7C-08 (Contd.)	GME Platformer Heater Cell No. 1, 2 & 3	Y	SO_2	25 ppmv as H2S (Use of low sulfur refinery fuel gas)	
			NO_X	0.03 lb/MM BTU (UNLB without air preheat)	
			CO	0.04 lb/MM BTU (Good engineering practice, design, and operation)	
			VOC	0.0015 lb/MM BTU (Good engineering practice, design, and operation)	
9-08	GME KHT Reactor Charge Heater	Y	PM_{10}	0.0075 lb/MM BTU (Good engineering practice, design, and operation)	
			SO_2	25 ppmv as H2S (Use of low sulfur refinery fuel gas)	
			NO_X	0.03 lb/MM BTU (UNLB without air preheat)	
			CO	0.04 lb/MM BTU (Good engineering practice, design, and operation)	
			VOC	0.0015 lb/MM BTU (Good engineering practice, design, and operation)	
10-08	GME KHT Stripper Reboiler Heater	Y	PM_{10}	0.0075 lb/MM BTU (Good engineering practice, design, and operation)	
			SO_2	25 ppmv as H2S (Use of low sulfur refinery fuel gas)	

TABLE V: BEST AVAILABLE CONTROL TECHNOLOGY SELECTION

Emission Point	Description	PSD Applies Y/N	Pollutant	BACT Limits	Reason For No BACT
10-08 (Contd.)	GME KHT Stripper Reboiler Heater	Y	NO_X	0.03 lb/MM BTU (UNLB without air preheat)	
			CO	0.04 lb/MM BTU (Good engineering practice, design, and operation)	
			VOC	0.0015 lb/MM BTU (Good engineering practice, design, and operation)	
11-08 12-08	GME HCU Train 1 & 2 Reactor Charge Heaters	Y	PM_{10}	0.0075 lb/MM BTU (Good engineering practice, design, and operation)	
			SO_2	25 ppmv as H2S (Use of low sulfur refinery fuel gas)	
			NO_X	0.03 lb/MM BTU (UNLB without air preheat)	
			CO	0.04 lb/MM BTU (Good engineering practice, design, and operation)	
			VOC	0.0015 lb/MM BTU (Good engineering practice, design, and operation)	
13-08	GME HCU Fractionator Heater	Y	PM_{10}	0.0075 lb/MM BTU (Good engineering practice, design, and operation)	
			SO_2	25 ppmv as H2S (Use of low sulfur refinery fuel gas)	
			NO_X	0.03 lb/MM BTU (UNLB without air preheat)	
			CO	0.04 lb/MM BTU (Good engineering practice, design, and operation)	

TABLE V: BEST AVAILABLE CONTROL TECHNOLOGY SELECTION

Emission Point	Description	PSD Applies Y/N	Pollutant	BACT Limits	Reason For No BACT
13-08 (Contd.)	GME HCU Fractionator Heater	Y	VOC	0.0015 lb/MM BTU (Good engineering practice, design, and operation)	
14-08	GME Sats Gas Plant Hot Oil Heater	Y	PM_{10}	0.0075 lb/MM BTU (Good engineering practice, design, and operation)	
			SO_2	25 ppmv as H2S (Use of low sulfur refinery fuel gas)	
			NO_X	0.03 lb/MM BTU (UNLB without air preheat)	
			CO	0.04 lb/MM BTU (Good engineering practice, design, and operation)	
			VOC	0.0015 lb/MM BTU (Good engineering practice, design, and operation)	
15-08	GME Coker Charge Heater	Y	PM_{10}	0.0075 lb/MM BTU (Good engineering practice, design, and operation)	
			SO_2	25 ppmv as H2S (Use of low sulfur refinery fuel gas)	
			NO_X	0.0125 lb/MM BTU (Voluntary installation of SCR)	Cost Effectiveness $10,000-$73,000/ton reduction
			CO	0.04 lb/MM BTU (Good engineering practice, design, and operation)	
			VOC	0.0015 lb/MM BTU (Good engineering practice, design, and operation)	
16-08	GME Boiler No. 1	Y	PM_{10}	0.0075 lb/MM BTU (Good engineering practice, design, and operation)	

TABLE V: BEST AVAILABLE CONTROL TECHNOLOGY SELECTION

Emission Point	Description	PSD Applies Y/N	Pollutant	BACT Limits	Reason For No BACT
16-08 (Contd.)	GME Boiler No. 1	Y	SO_2	25 ppmv as H2S (Use of low sulfur refinery fuel gas)	
			NO_X	0.04 lb/MM BTU (UNLB with FGR)	
			CO	0.04 lb/MM BTU (Good engineering practice, design, and operation)	
			VOC	0.0015 lb/MM BTU (Good engineering practice, design, and operation)	
18-08 19-08	GME Thermal Oxidizer No. 1 & 2	Y	PM_{10}	0.0075 lb/MM BTU (Good engineering practice, design, and optimized air-fuel ratio)	
			SO_2	93.41 ppm on a dry basis corrected to 0% excess air {Use of Parallel, Multistage Claus trains and tail gas treater (greater than 99.9% efficiency), TGTU Thermal Oxidizer (greater than 99.5% conversion efficiency, CEM), proper operating practices for sour water storage, recycling sulfur pit vents, degas of the liquid sulfur product upstream of the sulfur pits to 15 ppmv, and excess SRU capacity}	
			NO_X	0.20 lb/MM BTU (Good engineering practice, design, and operation)	
			CO	0.04 lb/MM BTU (Good engineering practice, design, and optimized air-fuel ratio)	

TABLE V: BEST AVAILABLE CONTROL TECHNOLOGY SELECTION

Emission Point	Description	PSD Applies Y/N	Pollutant	BACT Limits	Reason For No BACT
18-08 19-08 (Contd.)	GME Thermal Oxidizer No. 1 & 2	Y	VOC	0.0004 lb/MM BTU (Good engineering practice, design, and optimized air-fuel ratio)	
20-08	GME Flare	Y	Opacity	40 CFR 60, Appendix A, Method 9 when emissions are detected visually	Control Device having a 98% or greater DRE for VOC
			PM_{10}	NSPS, 40 CFR 60, Subpart A NESHAP, 40 CFR 63, Subpart A	
			SO_2		
			NO_X		
			CO		
			VOC		
21-08	GME Emergency Generator (Dock)	Y	PM_{10}, SO_2, NO_X, CO, VOC	Low Sulfur Diesel as fuel	Emergency use – Add on control is infeasible
22-08	GME Emergency Generator (Tank Farm)	Y	PM_{10}, SO_2, NO_X, CO, VOC	Low Sulfur Diesel as fuel	Emergency use – Add on control is infeasible
23-08	GME Platformer Regenerator Vent	Y	PM_{10}, CO, VOC	None	Minor Source – Add on control economically and otherwise infeasible
		N	HCl, Cl_2	None	Not a regulated pollutant under PSD

TABLE V: BEST AVAILABLE CONTROL TECHNOLOGY SELECTION

Emission Point	Description	PSD Applies Y/N	Pollutant	BACT Limits	Reason For No BACT
24-08 32-08 53-08	GME Cooling Tower No. 1 & 2 and GME Hydrogen Plant Cooling Tower	Y	PM_{10}	High efficiency drift eliminators with a draft rate of 0.005%	
			VOC	Monthly monitoring program under LDAR	
31-08	GME Coke Stockpile	Y	PM_{10}	Use of water sprays, enclosures, and maintaining moisture content of 8-12%	
33A-08 33B-08	A & B Coke Drum Vent	Y	VOC	None	Minor Source (trace) – Add on control economically infeasible
		N	H_2S	None	Increase due to the project less than the significance threshold
48-08	GME Hydrogen Reformer Furnace Flue Gas Vent	Y	PM_{10}	0.0075 lb/MM BTU (Good engineering practice, design, and operation)	
			SO_2	25 ppm as H2S (Use of low sulfur refinery fuel gas)	
			NO_X	0.0125 lb/MM BTU (Voluntary installation of SCR)	Cost Effectiveness $10,000-$73,000/ton reduction
			CO	0.04 lb/MM BTU (Good engineering practice, design, and operation)	
			VOC	0.0015 lb/MM BTU (Good engineering practice, design, and operation)	

TABLE V: BEST AVAILABLE CONTROL TECHNOLOGY SELECTION

Emission Point	Description	PSD Applies Y/N	Pollutant	BACT Limits	Reason For No BACT
124-1-91	Thermal Drying Unit Heatec Heater	Y	PM_{10}, SO_2, NO_X, CO, VOC	Good engineering practice, design, and operation	Minor Source – Add on control economically infeasible
86-74	FCCU Regenerator Vent	Y	PM_{10}	0.3 lb/1,000 lb coke burn rate, daily monitoring of coke burn off rate (Use of Venturi Wet Gas Scrubbers)	Control device Venturi
			SO_2	25 ppmv at 0% oxygen, continuous monitoring of SO_2 concentration (Use of Venturi Wet Gas Scrubbers with the addition of caustic solution)	
			NO_X	40 ppmv at 0% oxygen, continuous monitoring of NO_X concentration (Use of catalyst additives)	
			CO	Full burn operation, daily monitoring of CO concentration	
			VOC	Full burn operation, daily monitoring of coke burn-off rate	
			H_2SO_4	Use of Venturi Wet Gas Scrubbers with addition of caustic solution	
26-08 thru 29-08, 13-00, 51-74 122-91 TV-10	Sulfur Plant No. 4 & 5, Sulfur Storage, Sulfur Loading, and Sulfur Pits	N	H_2S	None	Increase due to the project less than the significance threshold

TABLE V: BEST AVAILABLE CONTROL TECHNOLOGY SELECTION

Emission Point	Description	PSD Applies Y/N	Pollutant	BACT Limits	Reason For No BACT
52-08	GME Hydrogen Plant Flare	Y	Opacity	40 CFR 60, Appendix A, Method 9 when emissions are detected visually	
			PM_{10}	40 CFR 60, Subpart A	
			SO_2		
55-08	GME Marine Vapor Combustor	Y	PM_{10}	NSPS, 40 CFR 60, Subpart A NESHAP, 40 CFR 63, Subpart A	Control Device having a 98% or greater DRE for VOC
			SO_2		
			NO_X		
			CO		
			VOC		Voluntarily will control products having a true vapor pressure greater than 0.5 psia
107-90	Dock Loading Marine Vapor Combustor	Y	PM_{10} SO_2 NO_X CO	NSPS, 40 CFR 60, Subpart A NESHAP, 40 CFR 63, Subpart A	Control Device
			VOC		Voluntarily will control products having a true vapor pressure greater than 0.5 psia

TABLE V: BEST AVAILABLE CONTROL TECHNOLOGY SELECTION

Emission Point	Description	PSD Applies Y/N	Pollutant	BACT Limits	Reason For No BACT
134-96	Marine and Barge Loading Operations (Uncontrolled)	Y	VOC	None	Voluntarily will control products having a true vapor pressure greater than 0.5 psia
124-9-91 124-10-91 124-11-91 124-12-91	Thermal Drying Unit Wastewater Sump and Tanks	Y	VOC	NSPS, 40 CFR 60, Subpart QQQ NESHAP, 40 CFR 61, Subpart FF (Proper design of Wastewater Treatment)	
2-00 thru 8-00	Coker Unit (Stockpile, Crushing, Loading, Conveyor)	Y	PM_{10}	Use of water sprays, enclosures, and maintaining moisture content of 8-12%	
9-00	Coker Haul Road	Y	PM_{10}	Use of water sprays	
30-08	Wastewater Collection System & Treatment	Y	VOC	NSPS, 40 CFR 60, Subpart QQQ NESHAP, 40 CFR 61, Subpart FF (Proper design of Wastewater Treatment)	
51-08	GME Hydrogen Plant Fugitives	Y	VOC	LAC 33:III.2121	

TABLE VI: SUMMARY OF PROPOSED BACT FOR FUGITIVE EMISSIONS (EQUIPMENT LEAK DEFINITION)

Emission Points – Units 9, 19, 20, 21, 25, 26, 32, 33, 34, 60, 205, 205A, 210, 211, 212, 212A, 214, 215, 220, 221, 222, 222A, 222B, 232, 233, 234, 241, 243, 247, 250, 250A, 259, 260, 263, 265, 267, and 271

Components – Service	**BACT Selected Based on Most Stringent Regulation Program and EPA First Revised Consent Decree***
Valves-Light Liquid	500 ppm
Valves-Heavy Liquid	No Visual Leaks
Valves-Gas	500 ppm
Pumps-Light Liquid	2,000 ppm
Pumps-Heavy Liquid	No Visual Leaks
Pressure Relief Valve-Gas	500 ppm
Pressure Relief Valve-Liquid	500 ppm
Connectors-Light Liquid	500 ppm
Compressors-VOC	5000 ppm
Closed Vent System	500 ppm
Regulation include LA Refinery MACT Determination of July 26, 1994; LAC 33:III.2121; LAC 33:III.Chapter 51, NSPS, 40 CFR 60, Subpart GGG, NESHAP, 40 CFR 63, Subpart CC; and the First Revised Consent Decree date of entry November 17, 2005	

TBLE VII: COMPLIANCE TEST REQUIREMENTS

Emission Point	**Control Devices / Work Practices**	**Test Method**	**Criteria Being Tested**	**Notes**
1-08 thru 6-08, 7A-08, 7B-08, 7C-08, 9-08 thru 16-08, 18-08, and 19-08	Ultra Low NOX Burners (ULNB) ULNB with SCR ULNB with FGR Low Sulfur Refinery Fuel Gas	40 CFR 60, Appendix A, Method 1-4 40 CFR 60, Appendix A, Method 5 or Method 201A 40 CFR 60, Appendix A, Method 6C 40 CFR 60, Appendix A, Method 7E 40 CFR 60, Appendix A, Method 10 40 CFR 60, Appendix F	Stack parameters PM_{10} SO_2 Nitrogen oxide CO	CEM for H_2S in fuel gas CEM for NO_X and O_2 CEM for CO (where applicable)
51-08, 205, 205A, 210, 211, 212, 212A, 214, 215, 220, 221, 222, 222A, 222B, 232, 233, 234, 241, 243, 247, 250, 250A, 259, 260, 263, 265, 267, and 271	Leak Detection and Repair (LDAR)	40 CFR 60, Appendix A, Method 21	VOC	-