Chevron Aggregates PSD Project Revision 0.5b

To	Project number	Subject	Date
MDEQ	60681342	List of Revision 0.5b Changes	September 11, 2025

Introduction

Chevron Products Company (Chevron) owns and operates the fully integrated Pascagoula Refinery (the "Refinery") in Jackson County, Mississippi. Chevron is submitting this revision to the Aggregates PSD Project (the "Project") Major Modification Permit-to-Construct Application to Mississippi Department of Environmental Quality (MDEQ). Details on the revisions to this application (referred to as Revision 0.5b) are provided below. The full permit application reflecting these changes are included with this submittal, in addition to a revised modeling archive package.

Revision 0.5b Changes

The following changes have been made to the Project scope/emissions:

- Emissions calculation baseline for PM/PM_{10}/$PM_{2.5}$.
- Revised heat input and emission rates for all pollutants for AZ-571 / F-34401 (Tanks 14 and 15 Thermal Oxidizer).
- Revised the short-term NOx emission rate for AE-013 / F-1101/1102 (Crude I).
- Revised the short-term permitted NOx emission rate for BQ-523 / F-8300C (Coker)

The following changes have been made to the Project modeling demonstration in response to MDEQ comments on the modeling section of the Revision 0.5 application:

- Removed the use of the Equivalent Building Demonstration (EBD) building parameters from the BPIP output.
- Aligned the modeling baseline with the applicability baseline in Appendix A and revised all modeling analyses.

List of Changed Pages and Documents

- The Table of Contents for the application was updated to reflect the removal of the Equivalent Building Dimensions sub-section in Section 6.
- The Tables and Figures sections of the Table of Contents were updated to reflect change in page numbers in Section 6.
- Page 1-8 of the application was updated to reflect the addition of AZ-571 / F-34401 (Tanks 14 and 15 Thermal Oxidizer).
- Page 1-12 of the application was updated to correct a typo in the first paragraph of the Diethanolamine Regeneration Unit (Plant 94) section.
- Page 1-13 of the application was updated to reflect a change in the correct reduction in PM_{10}/$PM_{2.5}$ emission limits.
- In Section 2 (Forms) has been updated to reflect the following:

  - Section A (Facility Information) updated Form 5 with current date and signature.
  - Section B (Facility-wide Emissions Information) has been updated to reflect the addition of AZ-571 / F-34401 (Tanks 14 and 15 Thermal Oxidizer).
  - Section B (Facility-wide Emissions Information) has been updated to reflect the revised short-term NO_x emission rate for AE-013 / F-1101/1102.
  - Section C (External Combustion Sources) has been updated to reflect the addition of AZ-571 / F-34401 (Tanks 14 and 15 Thermal Oxidizer).
  - Section L4 (Oxidation Systems) has been updated to reflect the replacement of AZ-571 / F-34401 (Tanks 14 and 15 Thermal Oxidizer).
- Page 3-1 of the application was updated to reflect the change in $PM/PM_{10}/PM_{2.5}$ baseline period.
- Page 3-2 of the application was updated to reflect adding MDEQ Emission Point AZ-571 (F-34401, Thermal Oxidizer for T-14 and T-15) as part of the Project.
- Page 3-4 of the application was updated to reflect additional information regarding sweeping activities at the Refinery in the Marketing Terminal Paved Roads subsection.
- Table 4-2 of the application was updated to reflect the revised project-related emissions increases.
- Table 4-3 of the application was updated to reflect the revised project increases and decreases.
- Table 5-2 of the application was updated to correct a typo in the Requirement column for the Sampling Connection Systems.
- Sections 6 and 7 of the application have been updated to reflect changes made to the Project modeling demonstration and are provided in full.
- Appendix A of the application has been updated to reflect changes made to the emissions baseline for all sources and is provided in full.
- Appendix C of the application containing all modeling files and supporting documentation has been updated to reflect changes made to the Project modeling demonstration and is provided in full.

Appendix A

Response to MDEQ Comments on Modeling Sections of Revision 0.5 Permit Application

On behalf of Chevron Products Company (Chevron), AECOM has provided responses to the comments provided by the Mississippi Department of Environmental Quality (MDEQ) Modeling Section received July 18, 2025

Equivalent Building Dimension

In the review of the building downwash analysis, it was noted that the modeling for stacks [List of relevant stacks, e.g., F-1503, F-6250, etc.] was performed using BPIP-PRIME with inputs derived from an Equivalent Building Dimension (EBD) wind tunnel study, rather than standard BPIP-calculated values.

Pursuant to air quality modeling guidelines, Chevron must provide a comprehensive technical justification for the use of these non-default values.

Please be advised of the procedural pathways for each approach:

• Standard Approach: If the standard BPIP-PRIME outputs are used for the AERMOD simulation, the modeling can be reviewed and approved directly by MDEQ, which is the most expedient path.

• Proposed EBD Approach: The use of site-specific EBD data from a wind tunnel study is considered a non-standard source characterization. While this approach does not require an alternative model approval, it does necessitate a more rigorous review process. Per EPA guidance, such a non-standard source characterization must be submitted to the EPA Model Clearinghouse for concurrence. This step involves review at the EPA Headquarters level and will significantly extend the permitting timeline.

If Chevron chooses to proceed with the EBD approach, the following documentation is required for our review and for the subsequent submittal to the EPA Model Clearinghouse:

1. A copy of the full EBD wind tunnel study report(s) used to derive the values.
2. A clear technical justification explaining why standard BPIP-PRIME was considered inadequate for this specific facility, with particular focus on the porous nature of the structures.
3. A summary of how the EBD-derived values were implemented in the final AERMOD input files.

This information is necessary for the Mississippi Department of Environmental Quality to complete its review and to compile the package for EPA Model Clearinghouse submittal, should that be the chosen path. Please confirm which modeling approach you intend to use for the final compliance demonstration.

Response: Chevron proposes to pursue both approaches in parallel. In the short term, the modeling analysis was updated to use the standard BPIP-PRIME outputs in AERMOD. In the long term, a submittal package will be prepared based on the requirements outlined above and provided to MDEQ for review with the goal of submitting the package to the EPA Model Clearinghouse with the goal of using the EBD-derived values in future modeling analyses.

Section 6 - Air Quality Analysis – Modeled Sources

The total mass of PM2.5 emissions included in the AERMOD input files for the annual PM2.5 SIL modeling for the ship and barge scenarios totals 90.6 tpy and 90.55 tpy, respectively. Table A-1 indicates that the net project emission changes for PM2.5 is 92.85 tpy. Please explain this discrepancy.

Response: The Appendix A baseline period was different than the modeling baseline period. Both have been revised to be the same baseline period, the average of the highest two consecutive calendar years in the 10-year baseline period.

For annual PM2.5 SIL modeling, several sources were modeled with negative emission rates including coke transfer points and conveyors. Chevron must provide the basis for the sources modeled with negative emission rates.

Response: As shown in the original PSD Aggregates Project permit application submitted in March 2025, Tables A-17 through A-22 show the baseline and post-project fugitive dust emissions for the coke pile, conveyors and bulldozing activities. The baseline emissions calculations account for the following control measures:

- Application of chemical dust suppressant at Coke Conveyor Transfer Point 2.
- 90% control efficiency applied to wind erosion and bulldozing emissions based on occasional application of wet suppression with chemicals as needed.
- Sweeping twice per week began during the PM baseline period in May 2017.

The post-project emissions calculations account for the following control measures which will be included in the operating permit:

- Application of chemical dust suppressant at Coke Conveyor Transfer Point 2.
- 95% control efficiency applied to wind erosion and bulldozing emissions based on application of water each day to reactivate the chemical dust suppressant (A&WMA Air Pollution Engineering Manual Second Edition page 694, Table 4 (wet suppression with chemicals)).
- 45% control efficiency applied to all post-pile coke transfer points based on application of water to reactivate the chemical dust suppressant.
- The marketing terminal road segments were resurfaced, reducing the silt loading value, after the PM baseline period and sweeping still occurs twice per week.

A dust management plan will be developed as part of the permit requirements.

Section 6 - Air Quality Analysis – In-stack Ratios for OLM

Please identify the source and provide the basis for NO2/NOx ratios used in cumulative NO2 modeling for the following sources (source IDs are from the AERMOD input files):

OLEO_1 - 0.2

AQ082 - .154

CO_5 - 0.2

CO_2 - 0.01

CO_1 - 0.01

F_1603 - .106 (NO2 NOx Ratio spreadsheet indicates an ISR of .14). This is one of the larger sources with a NOx emission rate of 18.9 g/s or 150 Lb/Hr.

Response: Sources OLEO_1 and CO_5 are boilers located at Oleo X (former First Chemical property) and the Chevron Cogen Facility. AECOM reviewed the EPA ISR database NO2_ratio_data and Alpha

Database tabs for all ISRs related to boilers. The highest ISR is 0.2036; therefore, 0.2 was used for these sources.

Source AQ082 is a non-emergency engine located near the Effluent Treatment Plant (ETP) on Chevron property close to the fenceline. The engine was tested to determine the NO2/NOx ratio.

Sources CO_1 and CO_2 at the Chevron Cogen Facility were tested in 2015 for their NO2/NOx ratio. The values were provided by Mississippi Power.

Source F_1603 was tested in November 2022 and the highest ISR was 10.6% (0.106). This value was not updated in the NO2 NOx spreadsheet submitted with the May 2025 modeling archive. This has been updated with the revised modeling analysis.

Section 6 - Air Quality Analysis – Modeling of Secondary $PM_{2.5}$ Emissions

Table 6-5 lists the annual project NOx emissions at a level of 573.3 tpy. Table A-1 lists the net project NOx emission changes at a level of 662.74 tpy. Please explain this discrepancy.

Response: The Appendix A baseline period was different than the modeling baseline period. The modeling baseline period has been revised to be the same baseline period, the average of the highest two consecutive calendar years in the 10-year baseline period.

Table 6-6 lists the annual project VOC emissions at a level of 80 tpy. Table A-1 lists the net project VOC emission changes at a level of 125.91 tpy. Please explain this discrepancy.

Response: The 80 tpy value was a placeholder that was never updated when Appendix A was finalized. This has been revised in the updated MERP calculations.

Section 6 - Air Quality Analysis – Background Source Inventory for Cumulative NO2 Modeling

Please provide the basis for the monthly emission rate scalars used for sources OP_4, OP_3 and OP_5 (Omega Protein facility).

Response: In the modeling archive folder "Modeling Archive Rev0-5 May 2025.zip\NOx Cumulative Inventory\MDEQ\Supporting Data\Jackson_AI1823_Omega", Omega Protein's SMOP Renewal Application dated October 2023 states the facility will operate from mid-April through November 1; therefore, the months included in the modeling analysis were April through October.

7. Facility Operating Information

A. Number of employees at the facility: 67

		Average Actual	Maximum Potential
B.	Hours per day the facility will operate:	*	24
C.	Days per week the facility will operate:	*	7
D.	Weeks per year the facility will operate:	*	29
E.	Months the facility will operate:	Mid April-November 1	Mid April-November 1

This section states that representative actual emissions were used in the NAAQS analysis where available, per the 2024 Appendix W Table 8-2. It is requested that the sources that were modeled with representative actual emissions be identified along with the basis for the emissions rate modeled in cumulative NO2 NAAQS modeling.

Response: Chevron Cogen Units 3 and 4 were replaced in November 2020 and March 2021, respectively. Unit 3 was tested in October 2022 for NOx. The maximum NOx emission rate for the turbine and HRSG were calculated based on the test data from both units, using the maximum firing rate across all tests and the highest emission factor for both the turbine and HRSG on both natural gas and refinery fuel gas (RFG) across all tests.

Maximum turbine firing rate: 268.4 mmbtu/hr

Highest turbine emission factor: 0.262 lb/mmbtu

Turbine NOx emission rate: 70.3208 lb/hr

Maximum HRSG firing rate: 80.0 mmbtu/hr

Highest turbine emission factor: 0.215 lb/mmbtu

Turbine NOx emission rate: 17.20 lb/hr

Total NOx emission rate: 87.5208 lb/hr (11.0274 g/s) per unit

All other sources included in the NAAQS and PSD modeling were included at their permitted emission rates.

Appendix B

Revision 0.5b PSD Application

Pascagoula Aggregates PSD Project

Major Modification Permit-to-Construct Application

Chevron Products Company

Project number: 60681342

September 11, 2025

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List of Acronyms and Abbreviations

3DEP	3D Elevation Program
µg/m^3	microgram per cubic meter
AERMOD	AMS/EPA Regulatory Model
AFP	Aromax® Feed Prep area
AQRV	Air Quality Related Value
bbl	barrels
BACT	Best Available Control Technology
BPIP	Building Profile Input Program
CAA	Clean Air Act
CALPUFF	integrated Gaussian puff modeling system
CALPOST	post processing package for CALPUFF
CFC	chlorofluorocarbons
CFR	Code of Federal Regulations
Chevron	Chevron Products Company
CI	compresson ignition
CMPU	chemical manufacturing process units
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CPP	Cermak Peterka Petersen, Inc. Wind Engineering Consultants
CRU	catalytic reformer units
CSP	Chevron Sweetening Process
DEA	diethanolamine
ECGP	East Gulf Coastal Plain
EPA	United States Environmental Protection Agency
FCC	fluid catalytic cracking
FCCU	fluid catalytic cracking units
FCU	fluid coking units
FLAG	Federal Land Managers AQRV Work Group
FLM	Federal Land Manager
GEP	Good Engineering Practice

GHG	greenhouse gas
GRSM	Generic Reaction Set Method
gr/100 scf	grains per 100 standard cubic feet
H_2S	hydrogen sulfide
H_2SO_4	sulfuric acid
HAP	Hazardous Air Pollutants
HCFC	hydro chlorofluorocarbons
HCR	hydrocracker
HDN	hydrodenitrification
HF	hydrogen fluoride
HGO	Heavy Gas Oil
IDW/HDF	Isodewaxing/Hydrofinishing
IMPROVE	Interagency Monitoring of Protected Visual Environments
Isomax	Isocracker II
kg/ha/yr	kilograms per hectare per year
km	kilometers
lb/MMBtu	pounds per million British thermal units
LAER	Lowest Achievable Emission Rate
LCC	Lambert Conformal Conic
LDAR	Leak Detection and Repair
LER	Light Ends Recovery
LHC	Light Heart Cut
LPG	liquified petroleum gas
MACT	Maximum Achievable Control Technology
MBPD	thousand barrels per day
MDEQ	Mississippi Department of Environmental Quality
MERP	Modeled Emission Rates for Precursors
MiSBD	Minor Source Baseline Date
M	meter
mg/m^3	milligram per cubic meter
Mm-1	inverse megameters
MMBtu/hr	million British thermal units per hour

MMIF	Mesoscale Model Interface Program
MON	Miscellaneous Organic Chemical Production and Processes
msl	mean sea level
MVISBK	method used for background light extinction calculation
NAAQS	National Ambient Air Quality Standards
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
NAD83	North American Datum 1983
NH3	ammonia
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHT	Naphtha Hydrotreater
NNSR	Non-Attainment New Source Review
NOx	nitrogen oxides
NO_2	nitorgen dioxide
NSPS	New Source Performance Standards
NSR	New Source Review
NWR	National Wildlife Refuge
NX	number of cells in the X direction
NY	number of cells in the Y direction
OLM	Ozone Limiting Method
Pb	lead
PM_{10}	particulate matter less than 10 micrometers
$PM_{2.5}$	particulate matter less than 2.5 micrometers
PM	particulate matter
PMT	Pascagoula Marketing Terminal
ppb	parts per billion
ppm	parts per million
ppmv	parts per million by volume
PBOP	Pascagoula Base Oil Project
PBL	Planetary Boundary Layer
PRIME	Plume Rise Model Enhancement
Project	Pascagoula Aggregates PSD Project

PRPU	Petroleum Refinery Processing Unit
PSD	Prevention of Significant Deterioration
psia	pounds per square inch absolute
PVMRM2	Plume Volume Molar Ratio Method Version 2
RACT	reasonably available control technology
RBLC	RACT/BACT/LAER Clearinghouse
RDS	Residuum Desulfurization
Refinery	Pascagoula Refinery
RFG	refinery fuel gas
RGG	reducing gas generator
Rhen I	Rheniformer I
RICE	Reciprocating Internal Combustion Engines
RMP	Risk Management Plan
SCOT	Shell Claus off-gas treatment
SIA	significant impace area
SIL	significant impact levels
SO_2	sulfur dioxide
SO_4	sulfate
SOCMI	Synthetic Organic Chemical Manufacturing Industry
SRU	Sulfur Recovery Unit
TRS	total recoverable sulfur
tpy	tons per year
ULSD	Ultra Low Sulfur Diesel
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
VGO	vacuum gas oil
VHAP	volatile hazardous air pollutant
VOC	volatile organic compound
VOL	volatile organic liquids
WRF	Weather Research and Forecasting Model
WWT	Wastewater Treater

1. Introduction

Chevron Products Company (Chevron) owns and operates the fully integrated Pascagoula Refinery (the “Refinery”) in Jackson County, Mississippi. The Refinery can process approximately 361,000 barrels per day of crude oil into a variety of motor fuels and petrochemicals for sale in markets worldwide. The Refinery is designed to feed heavy, sour crude oil and convert the heaviest asphalt-like portion into light products. It is primarily a "fuels" refinery, in that the Refinery's main products are motor gasoline, jet fuel, and diesel fuel. Other products include fuel oils, liquefied petroleum gas (LPG), aviation gasoline, benzene, Group II base oils, petroleum coke, ammonia and sulfur.

Chevron is proposing the Aggregates PSD Project (the “Project”) in order to authorize annual processing at higher refinery crude feed rates as well as lighter crude slates, up to 394,000 barrels per operating day, which will potentially affect the operation of several process units. The Project will not include the installation of any new emission sources. Process units affected by the project include feed rate increases at Crude I (Plant 11), Crude II (Plant 61), and HCR (plant 81A). Physical modification debottleneck projects may also be implemented in Crude I, Crude II as well as Hydrofiner (Plant 22) in order to support sustained operation at the higher processing rates. Process units Rheniformer I (Plant 15), Base Oil (Plant 82) and Coker (Plant 83) are also included as project affected due to a potential increase in available feed resulting from the increase in refinery operating capacity. Operation of the F-2101 boiler (Plant 21) and F-6410/KGT6410 in the Hydrogen II Plant (Plant 64) are assumed project-affected (worst case emissions) in order to provide increased steam and hydrogen, respectively in support of the increased refinery processing. Sulfur recovery units II and III (Plant 27), IV (Plant 90), V (Plant 91) and VI (Plant 92) are also assumed to be affected due to a potential increase in sour gas/sulfur production. Also, there will be increased purchased feed and product shipments that will affect storage tanks and operations in the marketing terminal and wharf areas.

The Project-related emission increases exceed the Prevention of Significant Deterioration (PSD) significance thresholds for nitrogen oxides (NO_X), volatile organic compounds (VOC), particulate matter less than 10 micrometers (PM_{10}), fine particulate matter less than 2.5 micrometers ($PM_{2.5}$) and greenhouse gases (GHGs). Therefore, the Refinery is required to conduct a PSD netting analysis for these pollutants, details of which are provided in **Section 4** of this document. Based on the results of a netting analysis for projects within the Project’s contemporaneous period, the Project is subject to PSD review for NO_X, VOC, PM_{10}, and $PM_{2.5}$ and GHGs. A Best Available Control Technology (BACT) analysis is required for VOC emissions from the piping component changes because Chevron is proposing to add and/or reconfigure piping components which will result in an increase in VOC emissions. BACT is not required for other emission units and other triggering pollutants because there will be no physical modifications or changes to the method of operation for these units.

Dispersion modeling results show that the project will be insignificant for 24-hour and annual PM_{10}, 24-hour and annual $PM_{2.5}$; as well as Class I Air Quality Related Values (AQRVs) for Regional Haze, Acidic Deposition, Annual NO_2, 24-hour and Annual PM_{10}, and 24-hour and Annual $PM_{2.5}$. The project exceeds the significant impact levels (SILs) for 1-hour and Annual NO_2 for Class II modeling. Cumulative modeling was performed to determine that the project would not exceed the National Ambient Air Quality Standards (NAAQS).

The purpose of this application is to request the Mississippi Department of Environmental Quality (MDEQ) to issue a permit-to-construct for the Aggregates PSD Project. Emission changes are the result of the increased utilization of the existing crude distillations units along with downstream process units, ancillary support equipment, tankage and product loading facilities that are not being physically modified (Project-affected units), and piping modifications. **Section 2.0** of this document contains the MDEQ Application Forms for Air Pollution Control Permit to Operate Air Emissions Equipment. **Section 3.0** contains a discussion of the Air Emission Calculations. **Section 4.0** contains a Regulatory Applicability Analysis and **Section 5.0** contains a BACT analysis. **Section 6.0** contains an Air Quality Modeling Analysis for the

Project while **Section 7.0** contains an Additional Impact Analysis required for a PSD air permit application. Detailed air emission calculations are included in **Appendix A**. Supporting information related to the BACT evaluation is provided in **Appendix B**. Air quality modeling support information is included in **Appendix C**.

Project Location

Chevron's Pascagoula Refinery is located in the unincorporated John C. Stennis - Bayou Cassotte Industrial Park in Jackson County, east of the City of Pascagoula, Mississippi. The Refinery occupies approximately 1,000 acres of the 3,000 acres Chevron owns. It consists of 20 major refining processing units, approximately 200 storage tanks, 4 marine terminals, and 1 truck loading terminal. The Refinery operates around the clock and can process approximately 361,000 barrels of crude oil per operating day, with a workforce of approximately 1,593 permanent employees. A facility location map for the Pascagoula Refinery is provided in **Figure 1-1**. A Project location map which identifies the areas of the Pascagoula Refinery impacted by the Project is provided in **Figure 1-2**.

Proposed Project Scope

This project is to authorize annual refinery operations at increased operating day feed rates for three process units, Crude I (plant 11), Crude II (Plant 61) and Lube Hydrocracker (Plant 81A). The Crude I & II rate increases are to a combined operating day feed rate of 394,000 barrels per day. The Lube Hydrocracker has a potential rate increase of up to 53,000 barrels per day.

Potential physical modifications through debottleneck projects are included in this application for Plants 11, 22 and 61 in order to support sustained operation at the higher processing rates. An overview for each of these debottleneck projects is provided in the Plant descriptions below.

The Project will affect emission units/sources in the plants listed below:

- Plant 11 – Crude Unit I
- Plants 15 and 115 – Rheniformer 1 and Naphtha Hydrotreater
- Plant 18 – Distillate Treating I
- Plant 20 – Light Ends Recovery I
- Plant 21 – Boiler Plant Utilities
- Plant 22 – Hydrofiner
- Plant 27 – H_2S Recovery and Sulfur Recovery Units II and III
- Plant 32 – Effluent Treatment System
- Plant 33 – Coke Handling and Storage
- Plant 34 – Blending
- Plant 37 – Acid and Marketing Area
- Plant 40 – Light Ends Recovery II
- Plant 45 – Shipping
- Plant 59 – Sour Gas Treating
- Plant 61 – Crude Unit II
- Plant 64 – Hydrogen II

- Plant 68 – Treaters II
- Plant 81A – Residuum Desulfurization Unit Module A (Lube Hydrocracker)
- Plant 82 – Base Oil
- Plant 83 – Delayed Coker Unit
- Plants 90, 91 and 92 – Sulfur Recovery Units IV, V and VI
- Plant 94 – Amine Regen
- Plant 95 – Wastewater Treatment
- Plant 5171 – Pascagoula Marketing Terminal

Crude Unit I (Plant 11)

The proposed Project will increase the overall crude processing capacity at both crude units of the Refinery. The scope inside the Crude I area may also include implementation of a debottleneck project. The Crude I debottleneck project may include installation of new and/or upgraded heat exchangers and modification or replacement of pumps along with the associated piping and needed instrumentation changes. As the throughput through the distillation towers is expected to increase due to the Project, Atmospheric Column Furnace (F-1101) and Vacuum Column Furnace (F-1102), which are vented through two common stacks (AE-013), are included in this permit application as Project-affected sources.

The Project will not noticeably alter the product stream compositions coming out of the Crude I Unit going to further processing. The Project will use stripped water from the Sulfur Complex for desalter wash water which could result in an increase in wastewater routed to T-181 and ultimately processed by the Effluent Treatment System (Plant 32).

Figure 1-3 at the end of this section is a simplified flow diagram of these units.

Rheniformer I/Naphtha Hydrotreater (Plants 15 and 115)

Plant 15

Rheniformer I (Rhen I) upgrades the quality of hydrocarbons fed to the unit through reforming reactions that convert straight-chain hydrocarbons into cyclic and aromatic hydrocarbons. The reaction products are high-octane gasoline components. Rhen I consists of a series of heaters and reactors, a product separator, and a light end stripper. The Rhen feed from the Naphtha Hydrotreater (NHT) enters and is mixed with hydrogen, heated in fired heaters F-1501/02/03 (AG-043) and passed over catalyst in a series of reactors. The feed is then cooled and sent to a product separator where the heavy liquid falls to the bottom and the hydrogen goes overhead. Hydrogen is compressed and recycled back into the system. The Rheniformer reaction also results in the creation of excess hydrogen. Any excess hydrogen that is not recycled back into the system is routed for use elsewhere in the refinery.

The liquid from the product separator is routed to a separation column. Light ends (such as propane and butane) are separated from the liquid. The column bottoms have an increased octane rating and are used as a feedstock for other refinery processes or in gasoline blending.

The frequency of Rhen I regenerations is not expected to increase. However, due to the Project, the throughput to Rhen I will increase. Consequently, process heaters F-1501/02/03 are considered Project-affected sources.

Plant 115

The NHT is used to remove nitrogen and sulfur from the medium straight run gasoline and other naphtha streams going to Rhen I. Nitrogen and sulfur reduce the activity of catalyst in the reformer reactors, thereby reducing production of desired products.

The NHT consists of a feed preheat section, a reactor section, and a product separation section. Feed to the NHT is mixed with hydrogen and heated in a fired heater (F-1531) to bring the mixture up to reaction temperature. The mixture is then passed through the two reactors that convert sulfur to hydrogen sulfide (H_2S) and nitrogen to ammonia. The reactor effluent is cooled, and water is injected to absorb the ammonia and H_2S. Reactor effluent is separated after the reaction, with unreacted hydrogen being "flashed" in a high-pressure separator and compressed for use in recycling. The liquid hydrocarbon goes to a low-pressure separator, then to a distillation column (with a fixed reboiler, F-1532) where the additional H_2S is separated from the liquid. The distillation column bottoms go through a sulfur adsorber to remove any trace amounts of H_2S before being fed to Rhen I. Heaters F-1531 (AG-041) and F-1532 (AG-042) for the NHT are not Project-affected.

Figure 1-4 at the end of this section is a simplified flow diagram of these units.

Distillate Treating I (Plant 18)

The Distillate Treating Plant treats distillate products before routing them to tankage and blending. Treatment options include caustic washing to remove hydrogen sulfide, Merox treatment to convert mercaptans into sulfides and disulfides, and salt drying to remove water. Plant 18 is considered a Project-affected unit because distillate fuel production may increase. However, there will be no physical changes, operational changes or emission increases at this emissions unit.

Figure 1-5 at the end of this section is a simplified flow diagram of these units.

Light Ends Recovery I (Plant 20)

The Light Ends Recovery (LER) Plant I processes butane and lighter hydrocarbon streams produced in other refinery units. The liquid and vapor streams fed to the unit are treated to remove H_2S and separated into individual components for sale or use elsewhere in the refinery.

The LER consists of a treating section and a distillation section. Liquid and vapor feeds are routed through the treating section where caustic and water washers remove H_2S. The caustic waters are degassed and routed to wastewater treating. The treated hydrocarbon stream then enters the distillation section of the unit where the first two distillation columns separate propane and lighter streams from the butanes. The butane is cooled and routed elsewhere in the refinery. The stream containing propane and lighter compounds is dried and compressed, then fed to a second column where the propane is condensed and separated from other stream components. The propane is routed to tankage for sales. The lighter components are routed to the refinery sweet gas system where they are mixed with other refinery-produced gas to become fuel gas.

Figure 1-6 at the end of this section is a simplified flow diagram of this plant.

Boiler Plant/Utilities (Plant 21)

Facility-wide steam production may increase due to the Project. The Boiler Plant is responsible for providing and managing utilities required by the various units within the Refinery, including steam. The Boiler Plant consists of three boilers, F-2101, F-2102 and F-2103 (AL-104, AL-105 and AL-106, respectively). F-2101 is included in this permit application as an affected emission unit to meet increased steam demand.

Figure 1-7 at the end of this section is a simplified flow diagram of these units.

Hydrofiner (Plant 22)

The Hydrofiner is designed to remove sulfur from hydrocarbon feeds through a process called hydrogenation. Sulfur removal is accomplished by passing a mixture of hydrogen and hydrocarbon feed through a catalyst packed reactor at controlled temperature and pressure. The feed temperature is controlled by heater F-2201 (AM-111) prior to entering the reactor. The sulfur in the feed is converted to H_2S in the reactor. The H_2S is removed in the stripper C-2202 and sent to sour gas. The nitrogen in the feed forms ammonia that falls out in the water and is sent to sour water. The hydrocarbon feed processed by the Hydrofiner is typically kerosene from Crude I and Crude II, or naphtha from Crude I and II, when the hydrodesulfurization (HDS) unit in Plant 115 is down. After sulfur removal, the product is pumped to the tank field as jet fuel.

The Aggregates Project may include a debottleneck modification to the Hydrofiner unit. Potential scope of the modification includes pumps, exchangers, separator, recycle compressor, and piping upgrades. No modifications are planned to the F-2201 furnace at this time.

Figure 1-8 at the end of this section is a simplified flow diagram of these units.

H_2S Recovery and Sulfur Recovery Units (Plant 27)

Plant 27 consists of four different processes: H_2S recovery unit, three sour water concentrators, a sour water degassing unit, and two identical sulfur recovery units. **Figures 1-9** and **1-10** at the end of this section are simplified flow diagrams of these units.

H_2S Recovery

The H_2S Recovery Unit removes H_2S and trace carbon dioxide (CO_2) and ammonia (NH_3) directly from sour gas streams using an amine absorption process. After H_2S removal, the gas stream is routed to the fuel gas system. The rich amine is combined with rich amine from other units and flashed to remove gases and dissolved hydrocarbons. The flash gas is amine scrubbed for H_2S removal and then routed to the SRU thermal oxidizers prior to discharging to the atmosphere. The H_2S is removed from the rich amine and routed to the sulfur recovery plants. **Figure 1-9** at the end of this section includes a simplified flow diagram of this unit.

Sour Water Degassing

The sour water degassing section removes hydrocarbons from the sour water feed to the sour water concentrators. Non-condensable gases and light hydrocarbons flashed from the sour water are amine scrubbed to remove H_2S and then routed to the relief system.

Sour Water Concentrators

The sour water concentrators II, III, and IV separate degassed sour water into an ammonia/H_2S-rich gas stream and an ammonia/H_2S concentrated water stream. The concentrated water stream is stored in tank T-198, then routed to the Wastewater Treatment Plant (Plant 95). The remaining stripped water stream is routed to process units and effluent treating. The gas stream is amine scrubbed and sent to Flare #2 or as feed to SRU II/III. **Figure 1-10** at the end of this section includes a simplified flow diagram of these units.

Sulfur Recovery Units

SRU II and III recover elemental sulfur from H_2S gas streams through a catalytic conversion process. The product sulfur is purified and stored for sale. The combined tail gas from SRU II and III is routed to a tail gas recovery system to recover additional sulfur compounds remaining in the exit gas stream prior to combusting in the thermal oxidizer.

SRU II and III each consist of a reaction furnace, three burner/converter/condenser units, the sulfur storage pit, and a tail gas recovery unit. The tail gas recovery unit utilizes Shell Claus off-gas treatment (SCOT) technology for recovery of additional sulfur from the gases leaving the SRUs. The H_2S-rich gas first enters a knockout drum prior to the reaction furnace to remove any liquids. In the reaction furnace most of the H_2S is converted into elemental sulfur and some sulfur dioxide (SO_2). Sulfur vapors are condensed and routed to the sulfur storage pit. The remaining vapors are heated and routed to a catalytic converter that converts H_2S and SO_2 to sulfur. Sulfur vapor from the converter is partially condensed and routed to the sulfur storage pit. The remaining gases are once again heated, converted, and partially condensed. The condensed sulfur is routed to the sulfur storage pit. The remaining gases are then heated, converted, and partially condensed again. The condensed sulfur is routed to the sulfur storage pit and the remaining sulfur gas is routed to the tail gas unit for further recovery of sulfur compounds prior to discharge to the atmosphere.

Tail gas from the last condenser in the SRU enters the reducing gas generator (RGG) to be reheated to reaction conversion temperature. The RGG uses hydrogen to ensure conversion of SO_2 to H_2S. RGG products flow to the hydrogenation reactor where a catalyst converts all remaining sulfur compounds to H_2S. The stream is cooled in the Quench column before reaching the amine absorber. The amine enters the Absorber. The H_2S is absorbed by the amine and the overhead gas from the Absorber passes through the thermal oxidizer before being emitted to the atmosphere. These emissions are continually monitored by an SO_2 analyzer before discharge. The bottoms of the absorber are routed to an amine regenerator where the H_2S is stripped from the amine by heating supplied from a steam reboiler. The liberated H_2S is recycled back to the H_2S acid gas knockout drum and the regenerated amine solution is routed back to the Absorber.

The sulfur recovery units will be affected by a potential increase in sour gas production resulting from the increased crude processing. All of the SRU's are assumed to be project-affected rather than SRU's IV, V or VI as a conservative emissions basis.

Effluent Treating System (Plant 32)

The Effluent Treating System was built to meet Phase II limitations for ammonia-nitrogen, and total recoverable copper effluent discharge limitations as well as all other effluent treatment discharge limitations and requirements. The Effluent Treating System includes:

- primary oil water separation;
- storage and equalization;
- secondary oil-water separation;
- biological treatment;
- filtration system;
- biosolids management; and
- oily residuals management.

Figure 1-11 at the end of this section includes a simplified flow diagram of this plant.

Coke Conveyor and Storage (Plant 33)

The Coke Conveyor & Storage moves coke product from the Coker Unit in the refinery to a shipping area, where the coke product is loaded on vessels and sent to domestic and international markets.

The unit consists of the coke pit material-handling systems that move coke from the coke pit in the Coker Unit to storage areas near the wharf, coke storage areas, and coke loading facilities (AR-002). Coke is transferred from the pit to the coke storage area at the wharf via a two-mile long enclosed conveyor. Stackers at the wharf distribute the coke into piles, where it remains until it is reconveyed aboard ships. During times when the conveyor system is down for maintenance, coke is transferred to the coke storage area via trucks (AR-003). Dust suppressants are applied throughout the transfer process to control fugitive dust emissions. The coke storage yard located in shipping is also equipped with an aerial water suppressant system that aids in reducing the coke dust emissions. The Project proposes to add daily watering along the truck routes when coke is transferred via this method to aid in reducing fugitive dust from truck travel.

Figure 1-12 at the end of this section includes a simplified flow diagram of this process.

Storage and Blending (Plant 34)

The Storage and Blending Area:

- Provides storage capacity for crude oil and other feed stocks, intermediates, chemicals, additives, final products, offset products, and recovered oil.
- Blends component stocks together to make final products.
- Loads LPGs (propane, propene, butanes, and butenes) into railcars and spent chemicals into trucks and railcars.
- Unloads LPG railcars and fresh chemical trucks.
- Receives crude oil and other purchased feed stocks from and delivers finished products to Plant 45 pipelines.
- Receives intermediates and fresh chemicals from Shipping and delivers spent chemicals, product chemicals, and intermediate and finished products to Shipping.

The Blending Area includes storage tanks, pumps, piping system components, loading racks, and oily water drain systems. Plant 34 also includes sampling equipment, several small cooling towers to provide localized cooling water supply, a diesel engine driven firewater pump, and a relief drum that vents to the flare gas recovery system. The Project will increase gasoline, diesel fuel, base oil and Jet A throughput in the storage tanks in Plant 34.

Figure 1-13 at the end of this section is a simplified flow diagram of this plant**.**

Acid and Marketing Areas (Plant 37)

The Acid and Marketing Area:

- Stores fresh and spent sulfuric acid.
- Stores finished products for the Chevron Marketing Terminal.
- Odorizes LPG and loads it into railcars
- Loads Base Oil into railcars

The Acid and Marketing Area includes tanks, pumps, and piping system components. It also includes the aviation gasoline railcar loading rack, and railcar loading facilities, and base oil railcar loading facilities. The Project may result in an increase of the Marketing Terminal storage tank throughputs for finished products.

Figure 1-14 at the end of this section is a simplified flow diagram of this plant.

Light Ends Recovery Plant II (Plant 40)

The LER II Plant processes saturated light ends from a variety of refinery sources rich in n-butane. LER II Plant consists of a feed separation section, a treating section, and a product separation section. Feed to the unit enters a separation column where ethane and the majority of H_2S are removed and sent to further processing for sulfur removal. The bottoms from the column enter a treating section where H_2S is removed through contact with lean diethanolamine (DEA). Any remaining H_2S and mercaptans are then removed in caustic and Merox treating. The Merox caustic is regenerated and reused in the sweetening process. The treated hydrocarbon stream is fed to another purification column where propane is removed overhead. The propane product is routed through molecular sieve driers to remove any water that may be entrained and is then sent to storage. The bottoms of the column are fed to the debutanizer, where butane is separated from the heavier C5+ hydrocarbons.

Figure 1-15 at the end of this section is a simplified flow diagram of this plant.

Shipping (Plant 45)

The Shipping Unit loads products and spent materials into marine vessels.

The following control devices are located in Shipping:

- *Main Wharf Vapor Recovery System* – This system collects loading emissions from Berths 2 through 5 and routes them through a lean-oil absorption system.
- *Berth 6 Vapor Recovery System* – This system collects loading emissions from Berth 6 and routes them through a lean-oil absorption system.
- *Berth 1 Caustic Scrubber* – This system collects emissions from the loading of spent sulfuric acid and routes them through a caustic scrubber to control sulfur dioxide.
- *Thermal Oxidizer* - The emissions from the wharf Sulfur Storage Tanks T-14 and T-15 are controlled by the Thermal Oxidizer, F-34401.

The Project will result in an increase in the production of base oils, gasoline, Jet A, diesel, and aviation gas. The incremental production is assumed to be loaded at the Marketing Terminal and wharf facilities.

Figure 1-16 at the end of this section is a simplified flow diagram of this unit.

Sour Gas Treating (Plant 59)

Plant 59 has three functions:

- Removing H_2S and CO_2 from sour gas before routing to the fuel gas system. Sour Gas Treatment consists of absorbing H_2S and CO_2 in a DEA Absorber.
- Following H_2S and CO_2 removal from the sour gas, the treated gas stream is routed to an adjacent treatment section for mercaptan removal.
- Treating the C_3/C_4 stream from Plant 66 to remove H_2S prior to additional processing. C_3/C_4 treating consists of removing H_2S with DEA followed by caustic scrubbing to remove residual H_2S and water washing to remove residual caustic.

Plant 59 consists of process gas absorbers, process piping systems, caustic and process water break tanks, and a relief drum.

Figure 1-17 at the end of this section is a simplified flow diagram of this unit.

Crude II Unit (Plant 61)

The Crude II Unit distills crude oil into various intermediate and product streams that are fed to other refinery units for further processing. Certain streams from the crude unit will be ready for blending or sales with only minor treating in other units.

The Crude II Unit major sections include primary heat exchange and desalting, secondary heat exchange and flash, atmospheric furnace and column, stabilizer column, and vacuum furnace and column. Crude enters the plant from the tank farm and is heated in a series of heat exchangers before being contacted with water in the desalter where salt and solids are removed. The crude from the desalters is then routed to the flash drum where any remaining water and light end hydrocarbons are removed. The crude leaving the flash drum is preheated in more exchangers and brought up to temperature in the atmospheric feed furnace. This stream enters the atmospheric distillation column where the feed is split into multiple streams. The overhead of the atmospheric column is separated in the stabilizer column into straight run naphtha and process gas. The remaining products from the atmospheric column are medium and heavy straight run naphtha, kerosene (jet), heavy gas oil (diesel), Isomax feed, and a bottoms stream that goes to the Vacuum column.

The heavy bottoms stock from the atmospheric column is fed through the vacuum furnace and into the vacuum column. This column further separates the stream by fractionalization. The light products go overhead and the heavier ones go down the column. Products from the Vacuum column are Hydrodenitrogenation (HDN) feed, vacuum gas oils (VGO), and a bottoms product called residuum. Gas from the vacuum column is routed to the Sour Gas Treater units for further processing.

The Aggregates Project may include a debottleneck modification to Crude II to process lighter crudes and increase jet product capacity. The scope of this modification could include upgrades to column internals, heat exchangers, pumps along with piping modifications. No modifications are planned for the F-1101/02 furnaces.

Figure 1-18 at the end of this section is a simplified flow diagram of this plant.

Hydrogen II (Plant 64)

The Hydrogen II Plant produces high purity hydrogen for use in several refinery process units. The unit converts natural gas into hydrogen and CO_2 through a shift/conversion reaction. The unit is also fed low purity hydrogen from reforming operations elsewhere in the refinery to increase the purity. The Hydrogen II Plant consists of feed preparation, reaction, purification and methanation.

Feed Preparation

Natural gas, the Hydrogen Plant feed, must be sulfur and chloride free before entering the Hydrogen Unit. The feed is preheated with steam and routed through activated carbon drums to remove sulfur and chlorides.

Reaction

The desulfurized feed is then heated, mixed with steam, and fed to a reformer furnace to produce syn-gas consisting of hydrogen, carbon monoxide (CO), CO_2, and a trace of methanol. More hydrogen and methanol are produced as the syn-gas reacts with more steam in the shift converters.

Purification

The syn-gas then flows through a series of exchangers and knockout drums that condense steam before routing through an ethylene glycol contactor to remove traces of water. The ethylene glycol is regenerated by boiling out the water. The dry syn-gas is compressed before entering the carbon dioxide removal system. A gas turbine (KGT-6410; BH-232) drives the syn-gas compressor. The exhaust from the gas turbine is normally routed to the reformer furnace (F-6410; BH-231) where it is used as hot combustion air for the furnace burners. CO_2 is removed through a solvent contact absorber. The solvent is then regenerated by stripping CO_2 out of the solvent to atmosphere with cold dry air.

Methanation

The syn-gas then flows to the methanator. The methanator converts any trace CO or CO_2 to methane. The hydrogen is then sent into the Refinery for use in other processes.

The Project may result in increased hydrogen demand due to the increased crude processing capacity. Hydrogen II Unit is normally the swing hydrogen unit and is the worst case from an emissions basis over Hydrogen III Unit. Therefore, F-6410 and KGT-6410 are project affected units.

Figure 1-19 at the end of this section is a simplified flow diagram of this unit.

Treaters II Unit (Plant 68)

The Distillate Treater II Plant treats four streams: pentanes or pen-hex, light heart cut, kerosene, and heavy gas oil.

Pentanes or pen-hex are sweetened in the five Chevron Sweetening Process (CSP) Treaters by injecting air into the pentanes stream prior to passing over copper catalyst where mercaptans are converted to disulfides. The pentanes are then sent to a degassing drum where light ends are routed to relief. Routine emissions from the pentane sweetening and degassing are from:

- The excess air vents on the five CSP treaters (D-6810 A, B, C, D, E);
- Fugitive emissions from piping system components and process drains.

Light Heart Cut (LHC) from Plant 62 is routed to Aromax® Feed Prep (AFP) feed for further processing in the refinery. Routine emissions from LHC treating are fugitive emissions from piping system components and process drains. Kerosene is routed through exchangers and coalescers as necessary to remove water. The kerosene then passes through a salt drier to remove any remaining water and a clay treater to remove color bodies. Routine emissions from kerosene treatment are attributable to fugitive emissions from piping system components and process drains. Heavy Gas Oil (HGO) is routed through exchangers and a coalescer as necessary to remove water. The HGO then passes through a salt drier to remove any remaining water. Routine emissions from the HGO treatment are attributable to fugitive emissions from piping system components and process drains.

Plant 68 routine emissions also include emissions from the oil mist generating system used for lubricating pumps. Periodic emissions can occur when the various trains of Plant 68 are de-pressured to relief during shutdowns or routine light ends venting if the flare gas recovery capacity is exceeded.

Figure 1-20 at the end of this section is a simplified flow diagram of this unit.

Residuum Desulfurization Unit Module A (Plant 81A)

The Residuum Desulfurization (RDS) Unit removes sulfur and metals from VGO feedstock by catalytically converting the sulfur to H2S and depositing the metals on the catalyst as metal sulfides. In the process of de-sulfurization, some mild cracking occurs, forming light products. The RDS Unit is split into 3 modules: A, B and C. Module A is the lube hydrocracker (HCR). Modules B and C, which are not affected by this project, consist of feed preheat, reaction, separation, and fractionation.

The lube HCR unit processes VGO prior to feeding into the waxy feed fractionation unit in Plant 82. The feedstock to the HCR is a mixture of gas oils from the Refinery’s existing Crude and Vacuum units. The HCR process unit includes make-up hydrogen compression, an inter-reactor exchanger, reactor internals, wash water injection pumps, a feed surge drum, recycle compressor, and an HCR product stripper. The HCR has two operating blocks (light and heavy) and has the design capacity to process up to 53 thousand barrels per day (MBPD) of VGO depending on the block.

The existing furnaces (F-8110, F-8120, and F-8130) within Plant 81 will not be modified, however due to the potential increase in utilization in Module A, F-8110 (BP-511) is considered to be a Project-affected emission unit.

Figure 1-21 at the end of this section is a simplified flow diagram of this unit.

Base Oil Isodewaxing/Hydrofinishing Plant (Plant 82)

The Base Oil Isodewaxing/Hydrofinishing (IDW/HDF) Plant (Plant 82) produces base oils at a nominal annual average rate of 25 MBPD. Plant 82 consists of waxy feed fractionation, and reactor, separation, and distillation sections used to produce four grades of lube oils (60R, 100R, 220R & 600R) and utilizes manufactured hydrogen within the refinery. Plant 82 has 3 operating blocks (100R, 220R and 600R) with 60R produced in each block. Four process heaters, F-8210, F-8220, F-8250 and F-8280, support operations in Plant 82. One cooling tower provides process water cooling to Plant 82.

In addition to producing base oils, Plant 82 co-products include small quantities of ultra-low sulfur diesel (ULSD), naphtha, and LPG.

Figure 1-22 at the end of this section is a simplified flow diagram of these units.

Delayed Coker Unit (Plant 83)

The Coker converts residuum to lighter products and petroleum coke by thermally cracking the Coker feed. The Coker is also able to process oily sludge, recovered oil, and treat light streams from the refinery. In the Coker, products are vaporized off the coke, condensed, and distilled in a fractionator column. The products produced include sour gas, propane/butane, pentane/hexane, naphtha, light coker gas oil, heavy coker gas oil, and heavy-heavy coker gas oil. All these streams are used in blending or as feed to other refinery process units.

The Coker process encompasses feed preheat, coking, and separation. Feed to the Coker is preheated in an exchanger and routed to the main fractionator, which acts as a surge drum. The feed is pumped from the fractionator, and then enters one of the three (3) furnaces (F-8300A/B/C; BQ-521, BQ-522 and BQ-523) that heat the stream before it enters the bottom of the coke drums.

The coking cycle is as follows:

- *Feed (Coking)* – When the hot feed enters the coke drum, it cracks and vaporizes. The vapors go overhead and the coke stays behind in the drum.
- *Strip* – At the completion of the feed step, the hot drum is stripped to the fractionator with steam. This removes any residual hydrocarbons. Towards the end of this step, the stripping steam rate is reduced and the drum overhead is switched to the blowdown system.
- *Quench* – Water is pumped into the coke drum in a controlled manner to cool the coke.
- *Vent and Drain* – At the completion of the quench cycle, the drum is allowed to de-pressure and then it is vented to the atmosphere prior to draining the water out of the drum to the coke pit.
- *Drill* – Once the drum is drained, a pilot hole is drilled through the coke and the coke is cut out of the drum into the coke pit with high-pressure water.
- *Steam Purge and Pressure Test* – The drum is then purged with steam to remove air and is pressure tested.
- *Preheat* – The hot overhead from the sister drum is routed to the drum to bring it up to temperature before hot feed is put back into the drum. Normally the vapors are routed to the Coker Fractionator, but if the drum is not coming up to temperature quickly enough, the vapors are routed to the D-8302 Drum.

Note: The Coker has three modules with two drums each. While one drum is coking, the sister drum is going through the remaining steps in the cycle. The modules are on a schedule such that only one drum is being drilled at a time.

The light products are routed back to the main fractionator flash zone for separation. Vapors from the fractionator overhead are compressed and then sent to separation, producing sour gas, propane/butane, pentane/hexane, and naphtha. The sour gas is hydrotreated to reduce the non-H_2S sulfur before performing H_2S removal in the Sour Gas Treater plants. H_2S and mercaptans are removed from the propane/butane stream with DEA and Merox® caustic before being routed to the alkylation plant. Pentane/hexane and naphtha are routed to downstream units for hydroprocessing. Light coker gas oil, heavy coker gas oil, and heavy-heavy coker gas oil are also processed in downstream hydrotreaters.

Figure 1-23 at the end of this section is a simplified flow diagram of these units.

Sulfur Recovery Units IV, V and VI (Plants 90, 91 and 92)

SRU IV, V and VI are three separate trains which each recover elemental sulfur from refinery H_2S streams. The sulfur is purified and stored for sales. The tail gas from SRU IV, V and VI is routed to a tail gas recovery system to recover additional sulfur compounds additional sulfur from the SO_2 in the sulfur plant exhaust. SRU IV, V and VI each consist of a reaction furnace, three sulfur burner/converter/condenser units, the sulfur storage pit, and a tail gas recovery unit. The tail gas recovery system consists of a reaction furnace, three sulfur burner/converter/condenser units and a tail gas unit. There is a sulfur storage pit and two sulfur storage tanks controlled by a caustic scrubber (BW-018 and BW-019) common to the three trains. The tail gas recovery unit utilizes Stretford technology for recovery of additional sulfur from gases leaving the SRUs.

In the reaction furnace most of the H_2S is converted into elemental sulfur and some SO_2. The sulfur vapors are partially condensed, and the liquefied sulfur is routed to the sulfur pit. The remaining vapors are heated and routed to a catalytic converter that converts H_2S and SO_2 to sulfur. As with the reaction furnace, sulfur vapors from the converter are partially condensed and the liquefied sulfur is routed to the sulfur storage pit. The remaining gases are heated, converted, and partially condensed, with condensed sulfur routed to the sulfur storage pit. The process is then repeated, and the remaining sulfur gas is routed to the tail gas unit.

Tail gas from the last condenser in each SRU enters the RGG to be reheated to reaction conversion temperature. The RGG produces hydrogen to ensure conversion of SO_2 to H_2S. RGG products flow to the hydrogenation reactor where a catalyst converts all remaining sulfur compounds to H_2S. The stream is cooled in the Contact Condenser Desuperheater before reaching the Stretford solution absorber. The gas/Stretford mixture enters the Absorber/Evaporator. The H_2S is absorbed by the Stretford solution and the overhead gas from the Absorber/Evaporator passes through the emergency combustor before being emitted to the atmosphere. These emissions are continually monitored by a Total Reduced Sulfur (TRS) analyzer before discharge. The bottoms of the absorber are routed to a reaction tank where elemental sulfur, water, and Stretford by-products are formed. The solution is then routed to three oxidizing tanks where sulfur particles are skimmed off. The sulfur slurry then goes to a vacuum filter to separate sulfur from Stretford solution. The sulfur is melted into the decanter and pumped to storage. The Stretford solution is recovered and reused. Process water is routed to the effluent.

Figure 1-24 at the end of this section is a simplified flow diagram of these units.

Diethanolamine Regeneration Unit (Plant 94)

The Diethanolamine Regeneration Unit removes H_2S from DEA streams, which have absorbed H_2S from sour gases produced in several areas of the Refinery. This process produces Lean DEA (H_2S-free) and acid gas. The Lean DEA is recycled and used to absorb H_2S in several processes throughout the refinery. The acid gas is scrubbed to remove NH_3, then routed to the Sulfur Recovery Units for further processing. Plant 94 consists of two identical trains that can run together or one at a time depending on the needs of the refinery for Lean DEA.

Each DEA Regeneration train consists of feed flash drum and preheaters, amine regenerator, and gas scrubber. Rich DEA first enters the flash drum for removal of dissolved hydrocarbons from the DEA. The rich DEA is then routed through a preheat heat exchanger and then to the regenerator. Any dissolved hydrocarbons removed in the flash drum are sent to the relief drum and caustic scrubbed to remove H_2S from the Lean DEA.

In the DEA Regenerator, H_2S and trace amounts of CO_2 and NH_3 are stripped out of the Rich DEA by heating supplied from steam reboilers. The Lean DEA leaving the bottom of the Regenerator is cooled and sent to various Refinery units for reuse. The overhead acid gas from the Regenerator is sent to an ammonia scrubber which separates NH_3, a sulfur recovery unit impurity, from the H_2S gas. The H_2S gas is then sent to the Sulfur Recovery Units.

Figure 1-25 at the end of this section is a simplified flow diagram of this plant.

Wastewater Treater (Plant 95)

The Wastewater Treater strips H_2S and ammonia from concentrated sour water. H_2S is routed to the sulfur recovery units. The ammonia is liquefied and stored for sale

The Wastewater Treater Unit (WWT) is comprised of three main areas: feed preparation, H_2S and ammonia stripping, and ammonia purification.

In feed preparation, sour water feed is initially cooled and degassed to release dissolved gases, H_2S, NH_3, and light hydrocarbons. The sour water is stored in tanks T-197 along with water from the Sour Water Concentrators (Plant 27). While in the tank, entrained oil and solids are separated and the feed composition to the unit is stabilized. The sour water is then pumped to the H_2S stripping column where the H_2S is removed from the feed water. The effluent from the first column is sent to the ammonia stripping column, where any remaining H_2S and NH_3 are stripped from the water.

The WWT ammonia vapors are scrubbed by chilled ammoniated water to remove H_2S, passed through an oil/water separator to remove traces of oil, and through a caustic solution to remove traces of H_2S. The vapors are then liquefied by compression and the liquid NH_3 is stored for sale. The ammonia vapors from the ammonia stripping column can also be routed to Sulfur Recovery Units II and III for processing. The treated water is reused in refinery operations or discharged to the refinery effluent system.

Figure 1-26 at the end of this section is a simplified flow diagram of this unit.

Pascagoula Marketing Terminal (Plant 5171)

The Pascagoula Marketing Terminal (PMT) loads jet fuel, motor gasoline, and diesel into tank trucks. The PMT has the capability to blend ethanol into the motor gasoline and also injects small amounts of product additives prior to loading into tank trucks. The marketing terminal consists of three loading rack lanes, a vapor recovery carbon bed system to control gasoline loading emissions, and several additive and dye injection systems. The Project will result in an increase in the annual product loading rates.

Figure 1-27 at the end of this section is a simplified flow diagram of this unit.

Emission Limit Updates

Chevron is proposing NO_X, PM_{10} and $PM_{2.5}$ permit limits for selected project-affected emission sources. The proposed emission limits support the PSD applicability/non-applicability analysis and the dispersion modeling results. The sources with new or revised emission limits consist of several process heaters and the three boilers.

Table A-42 in **Appendix A** presents the proposed NO_X and $PM_{10}/PM_{2.5}$ emission limits for the process heaters and the three boilers. The proposed short term and annual emission rates are based on unit heat input duties, Chevron operating experience, emissions factors, and Chevron emissions data. The proposed emission limits will reduce current NO_X emission limits by 28.2 tons/yr and current $PM_{10}/PM_{2.5}$ emission limits by 7.3 tons/yr.

Project Schedule

The construction activities required for the Project are scheduled to begin in September 2025, with operation in post-Project mode expected to start by the third quarter of 2027.

Figure 1-1 Facility Location Map

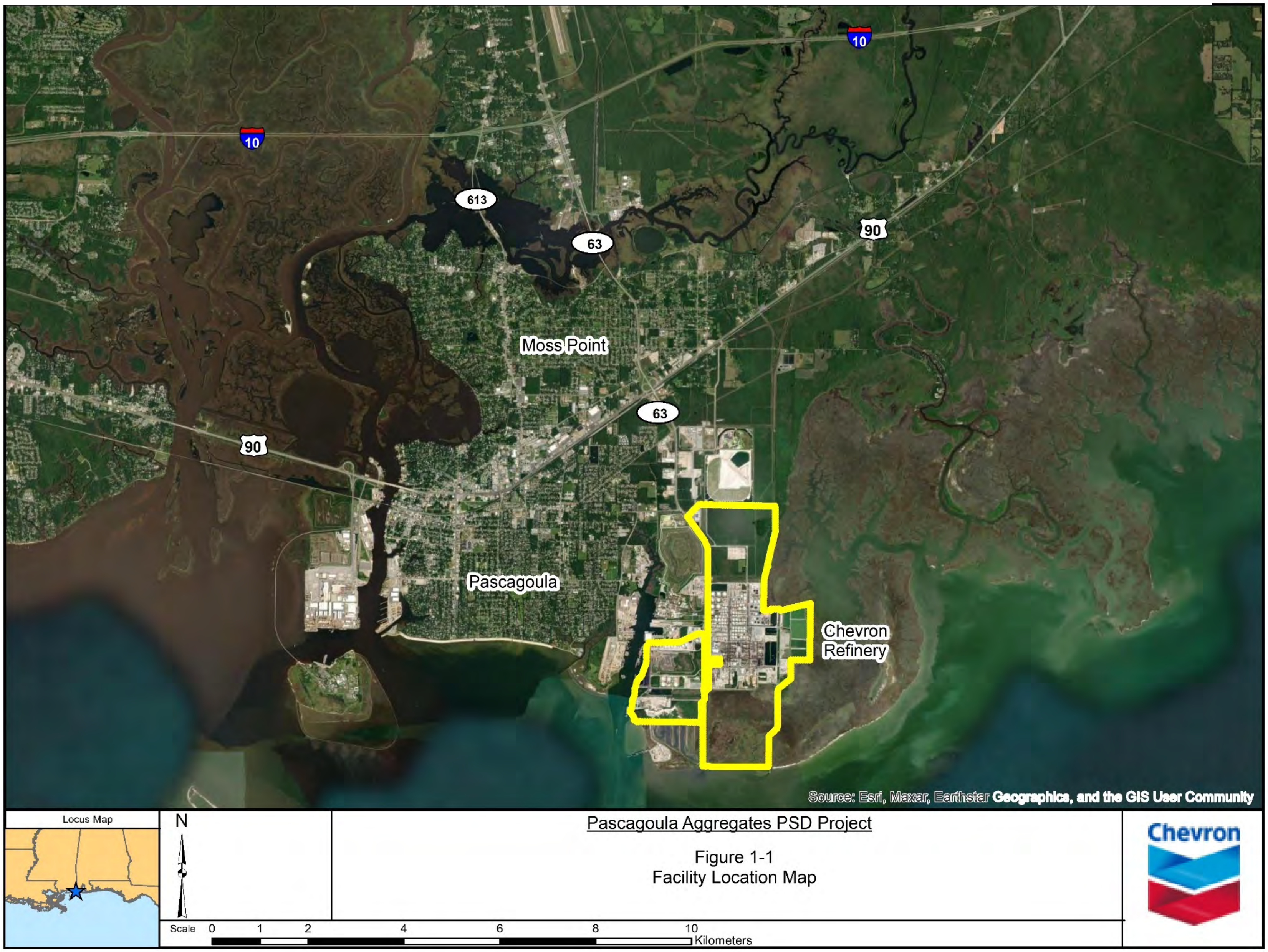


Figure 1-2 Air Emissions Footprint

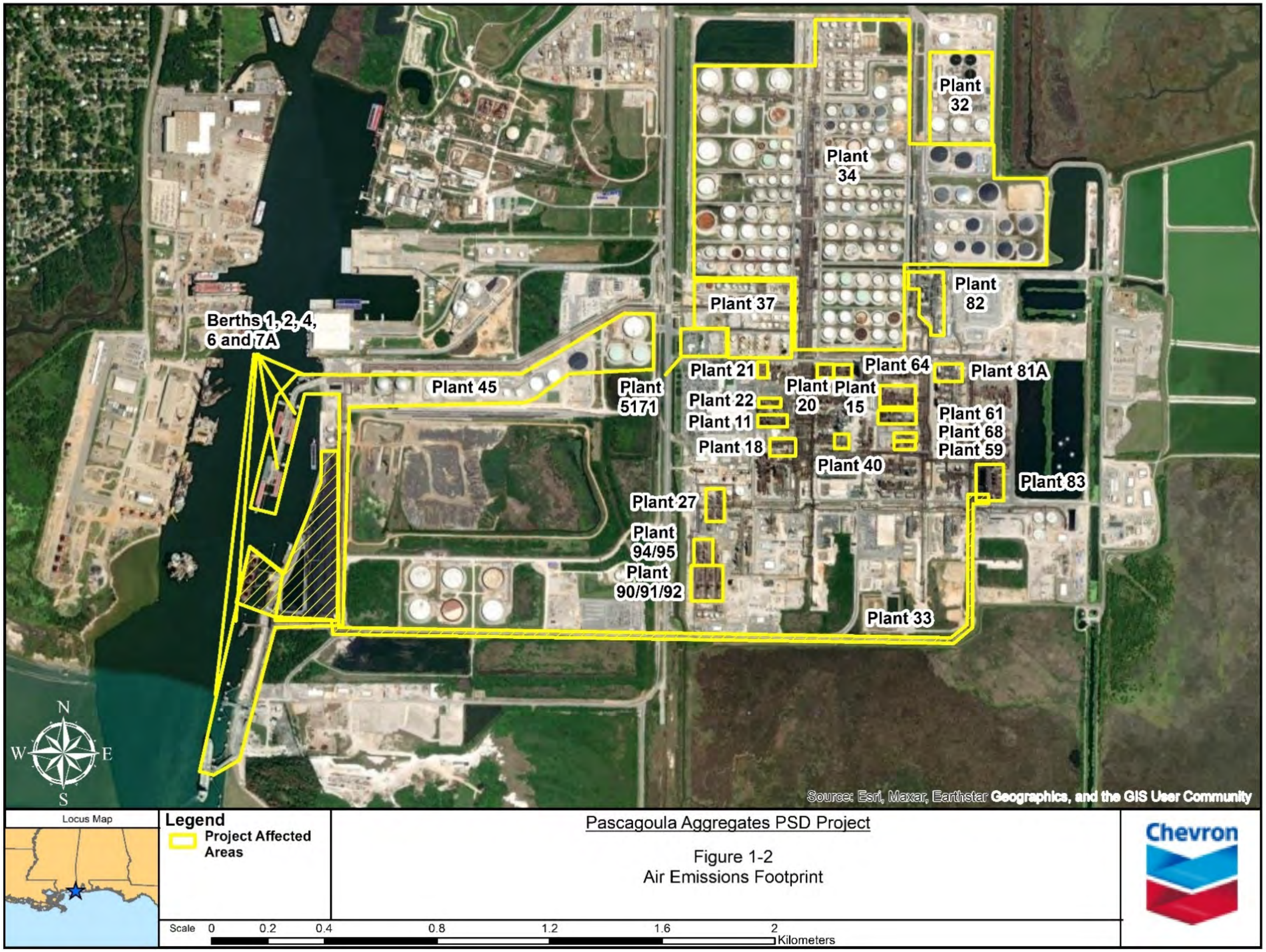


Figure 1-3 Flow Schematic – Crude I Unit (Plant 11)

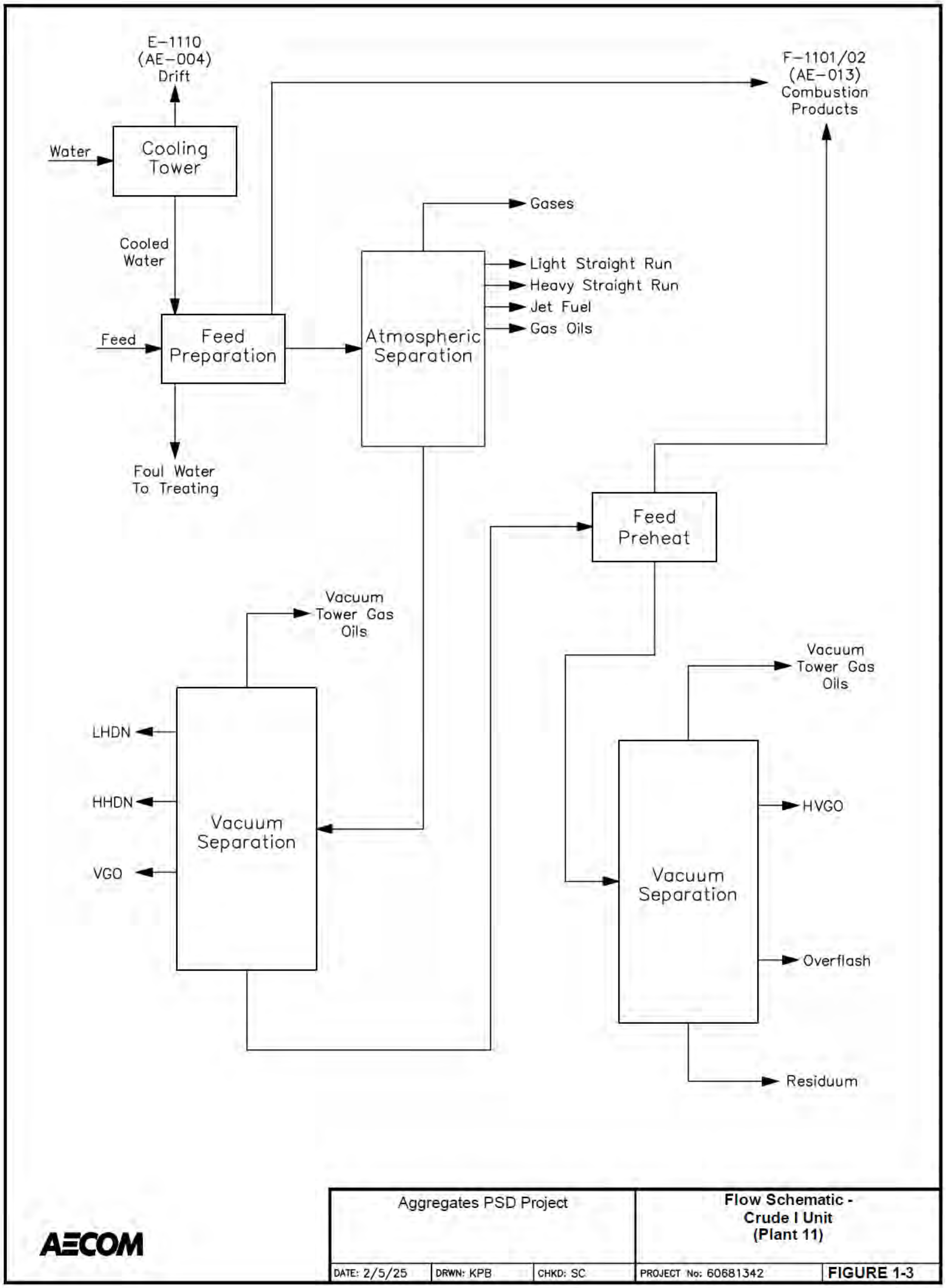


Figure 1-4 Flow Schematic – Rheniformer I/Naphtha Hydrotreater (Plants 15 & 115)

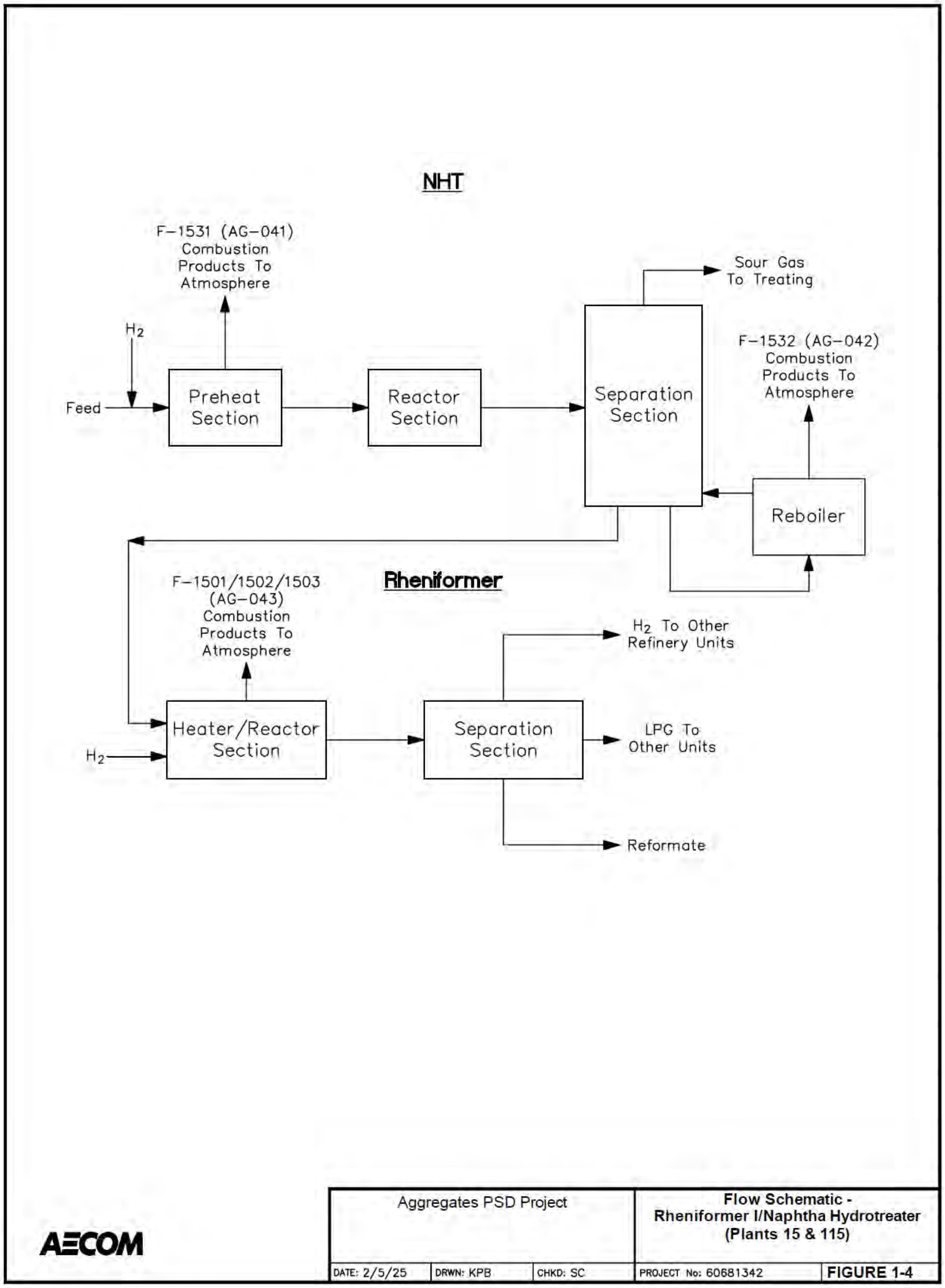


Figure 1-5 Flow Schematic – Distillate Treating I Unit (Plant 18)

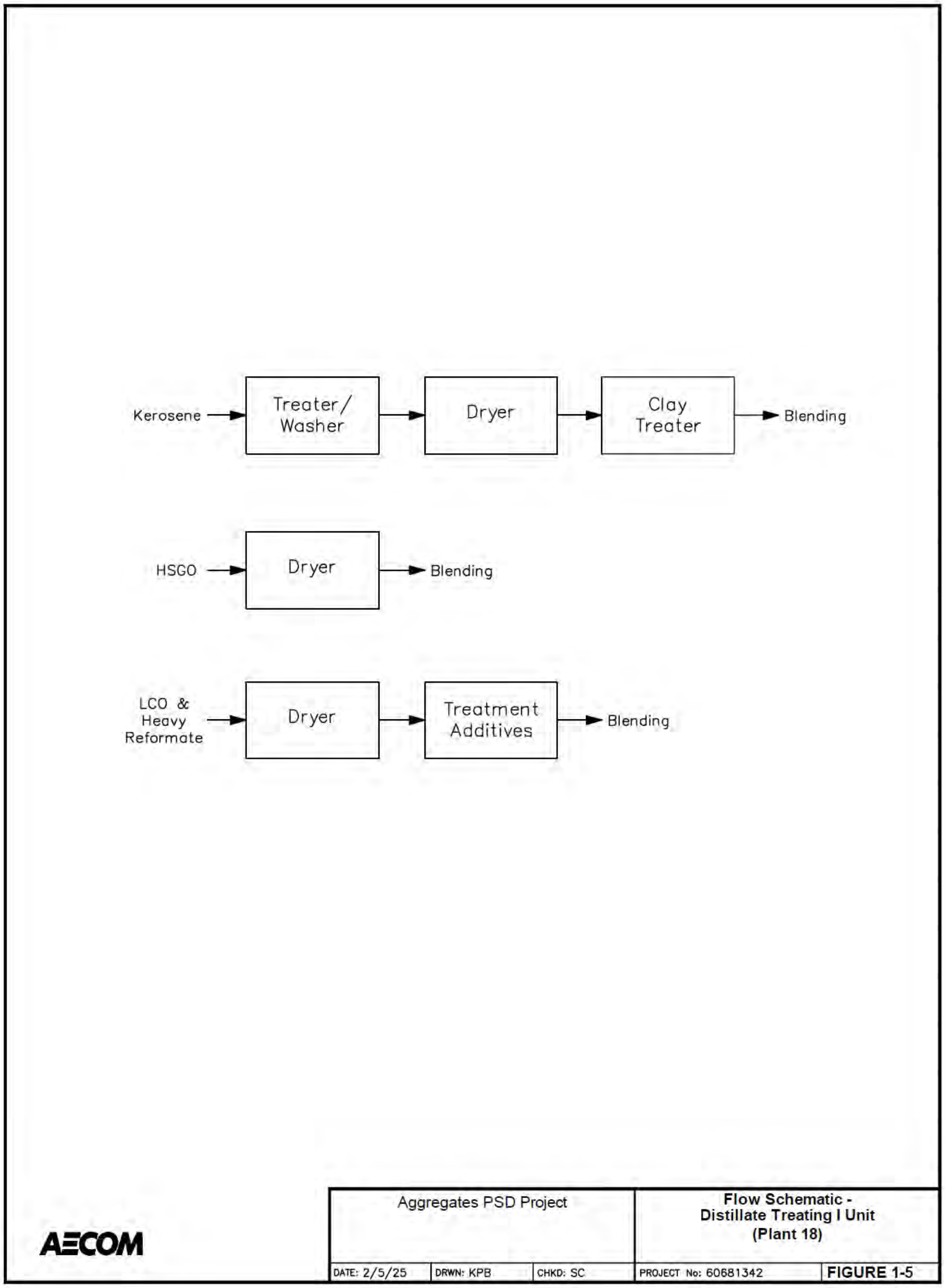


Figure 1-6 Flow Schematic – Light Ends Recovery I (Plant 20)

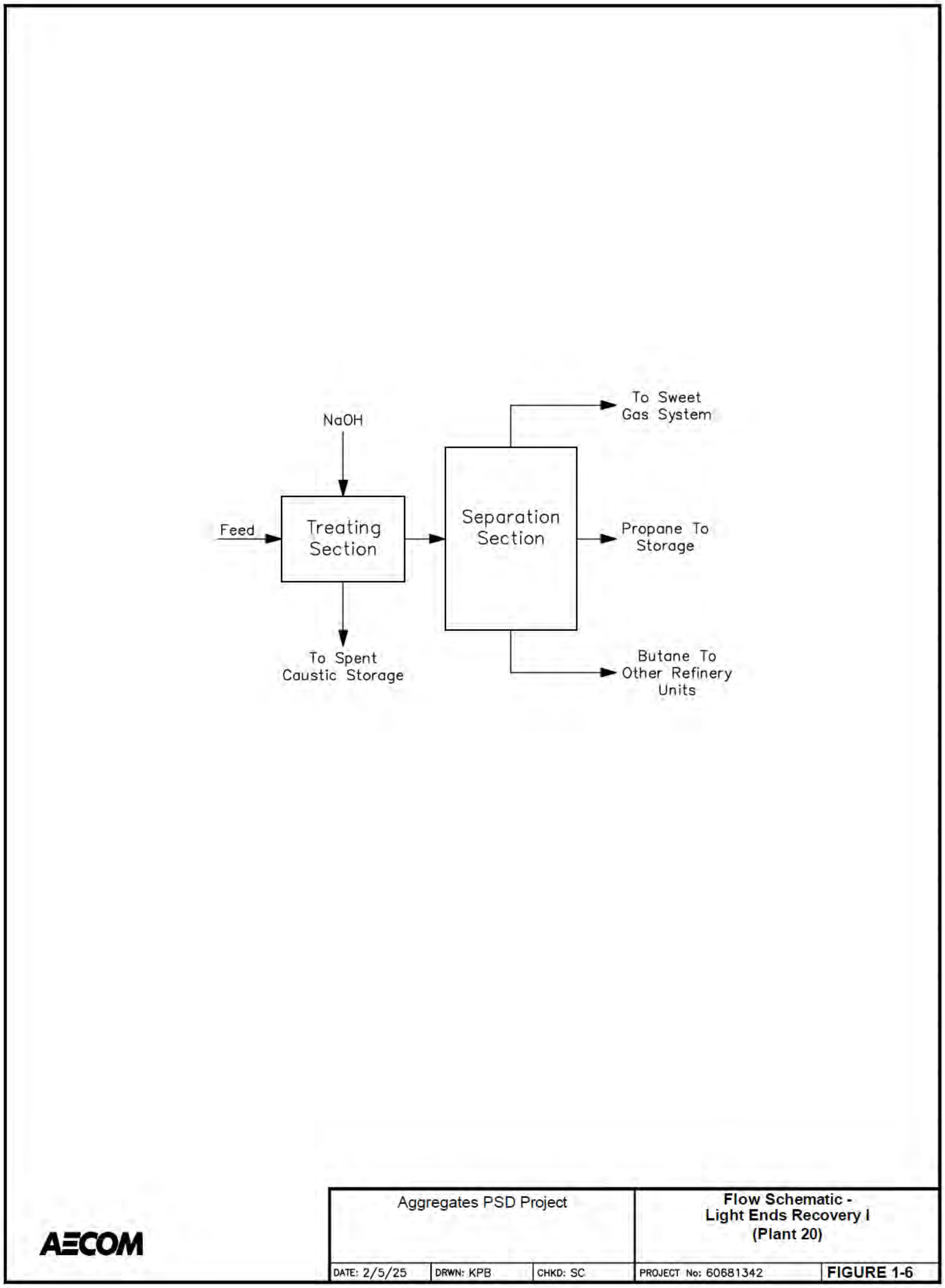


Figure 1-7 Flow Schematic – Boiler Plant/Utilities (Plant 21)

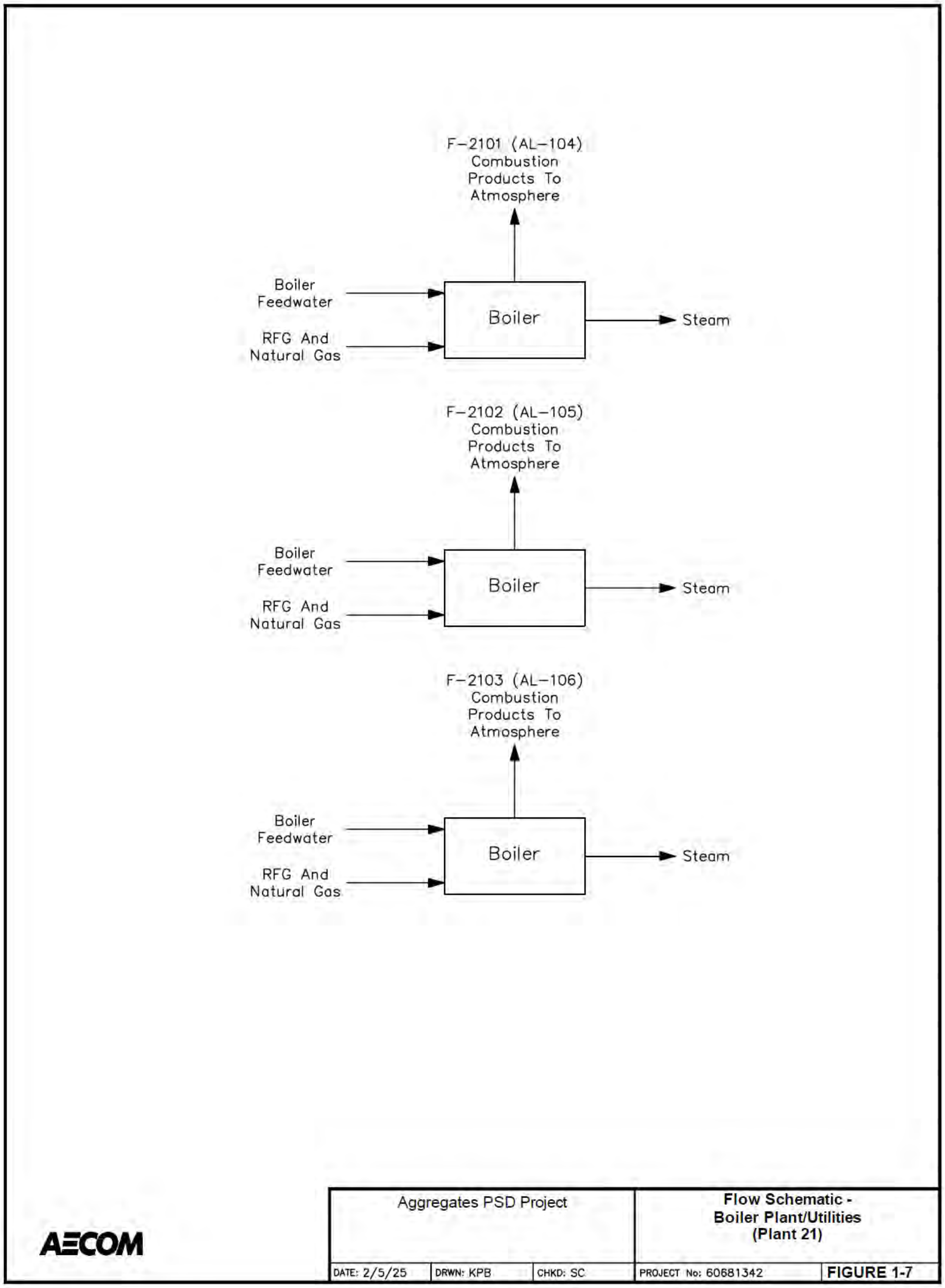


Figure 1-8 Flow Schematic – Hydrofiner (Plant 22)

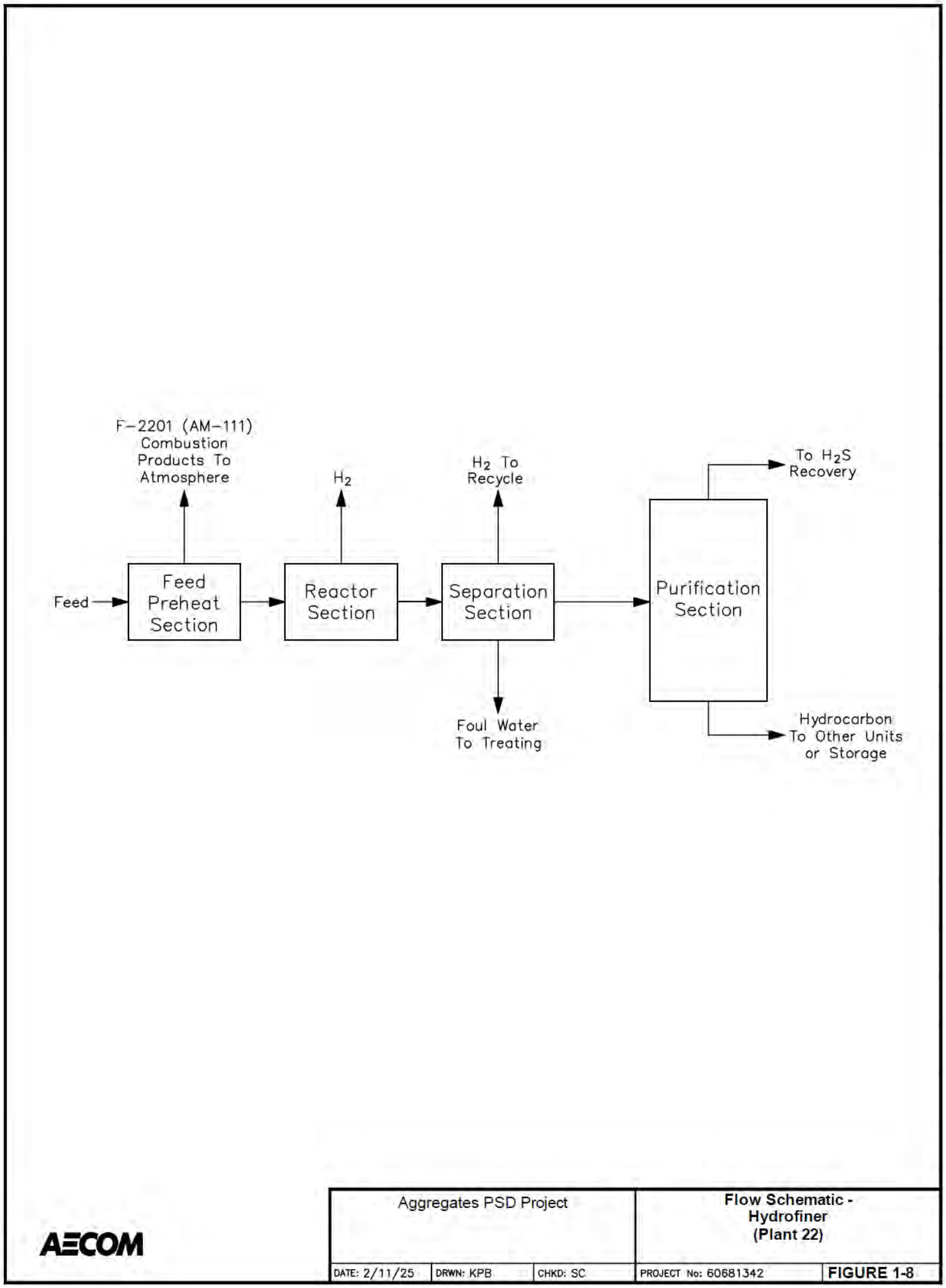


Figure 1-9 Flow Schematic – H_2S Recovery & Sour Water Concentrator Units (Plant 27)

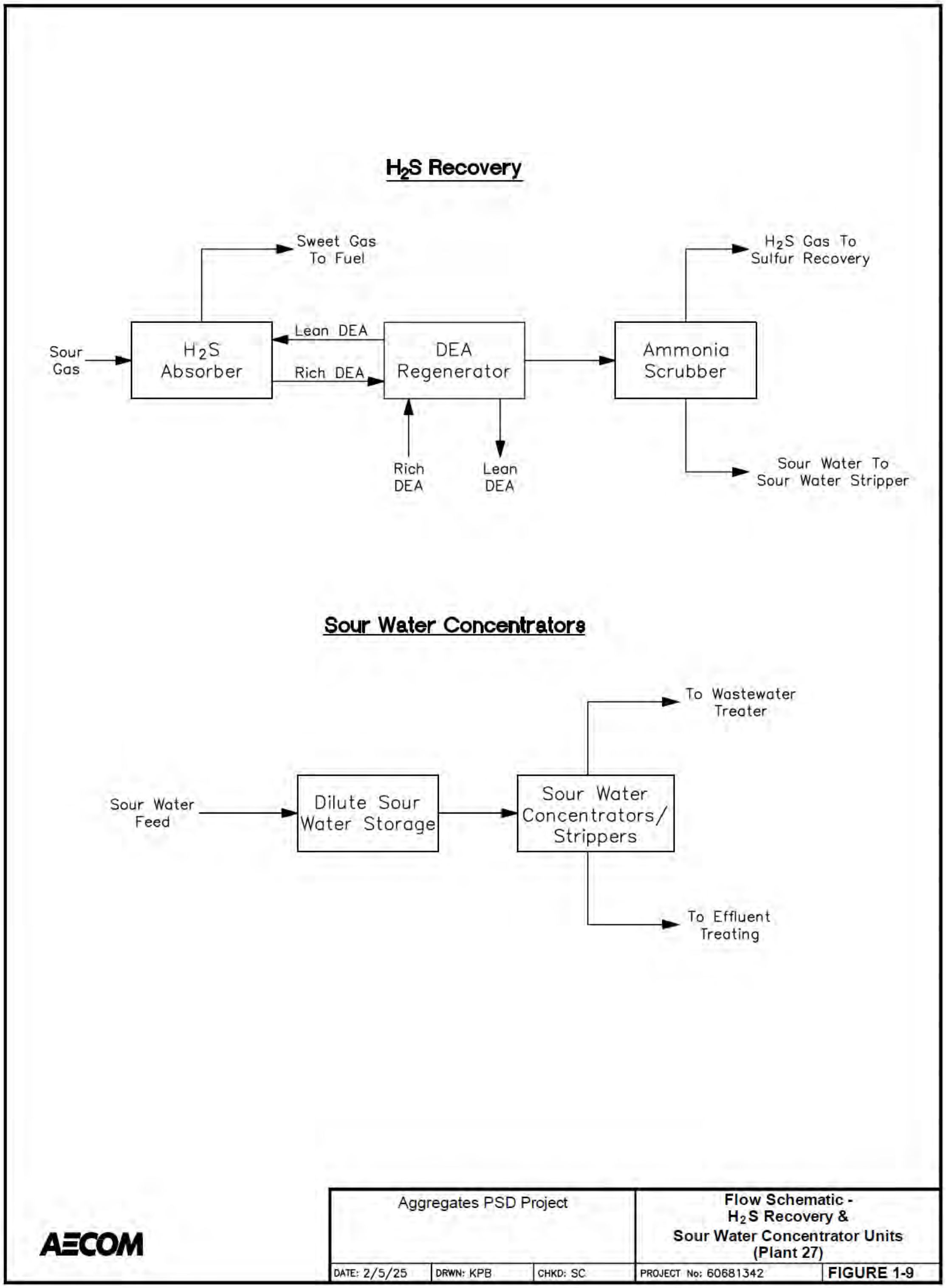


Figure 1-10 Flow Schematic – SRU II & III (Plant 27)

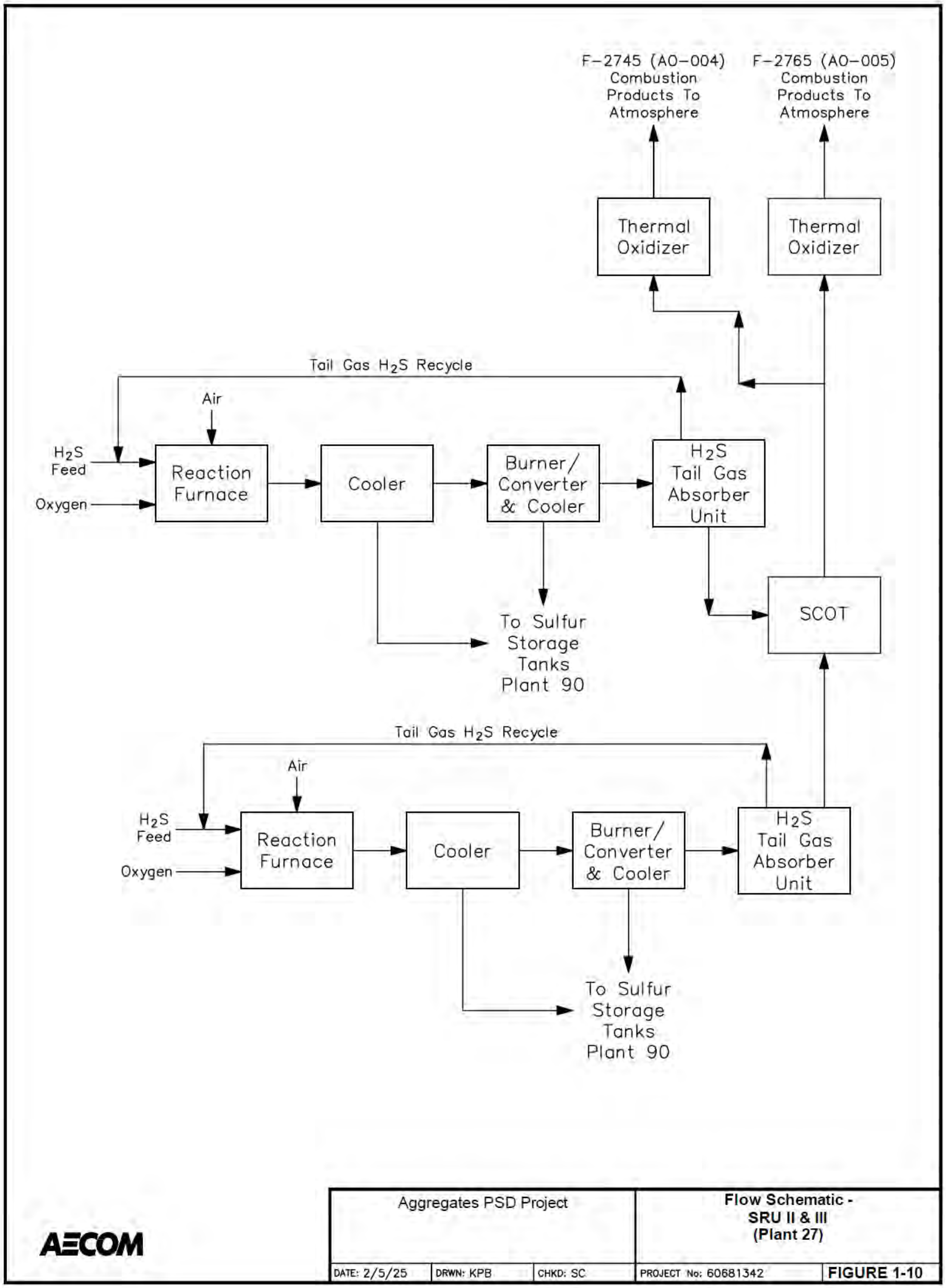


Figure 1-11 Flow Schematic – Effluent Treating System (Plant 32)

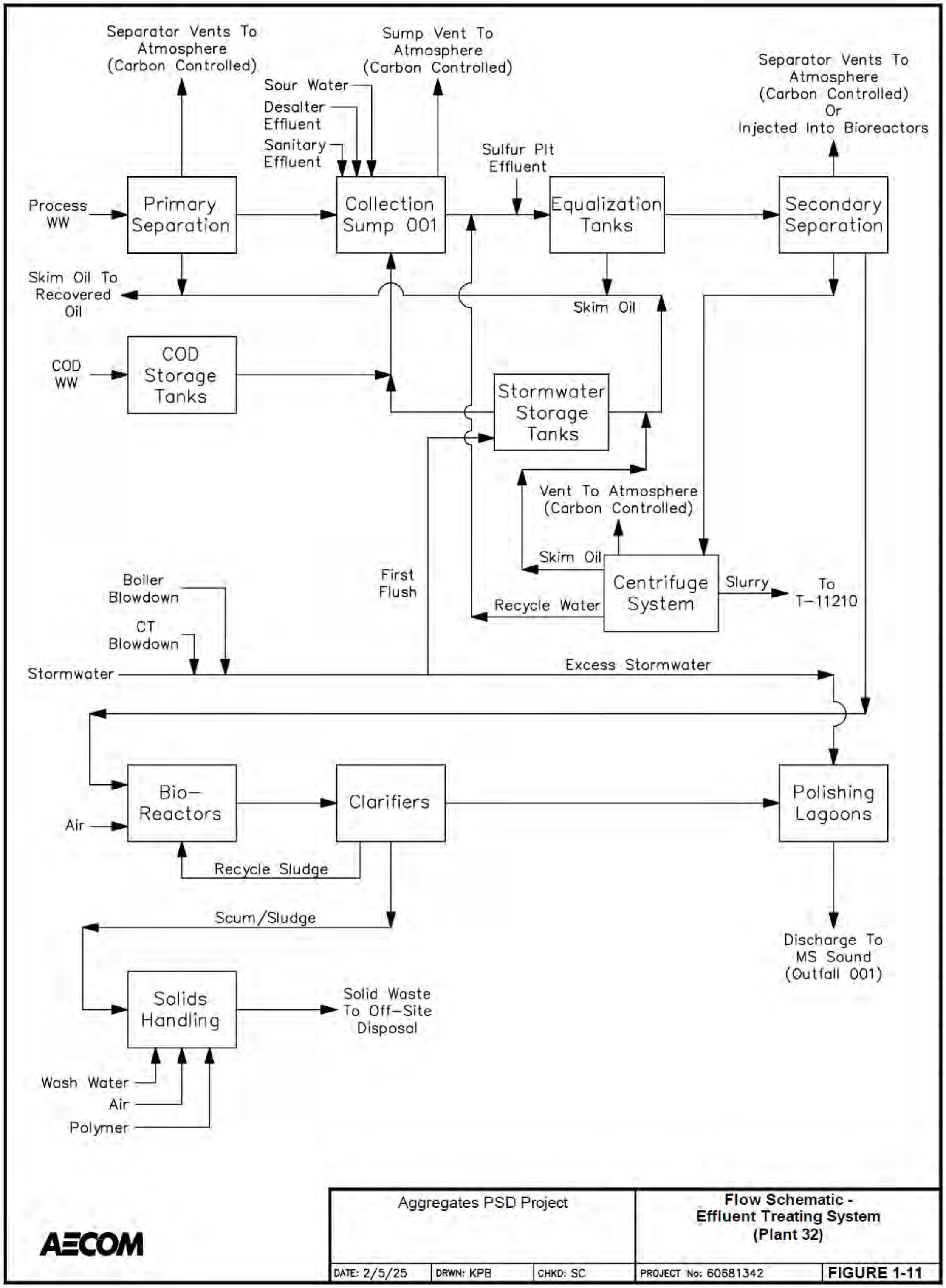


Figure 1-12 Flow Schematic – Coke Conveyor and Storage (Plant 33)

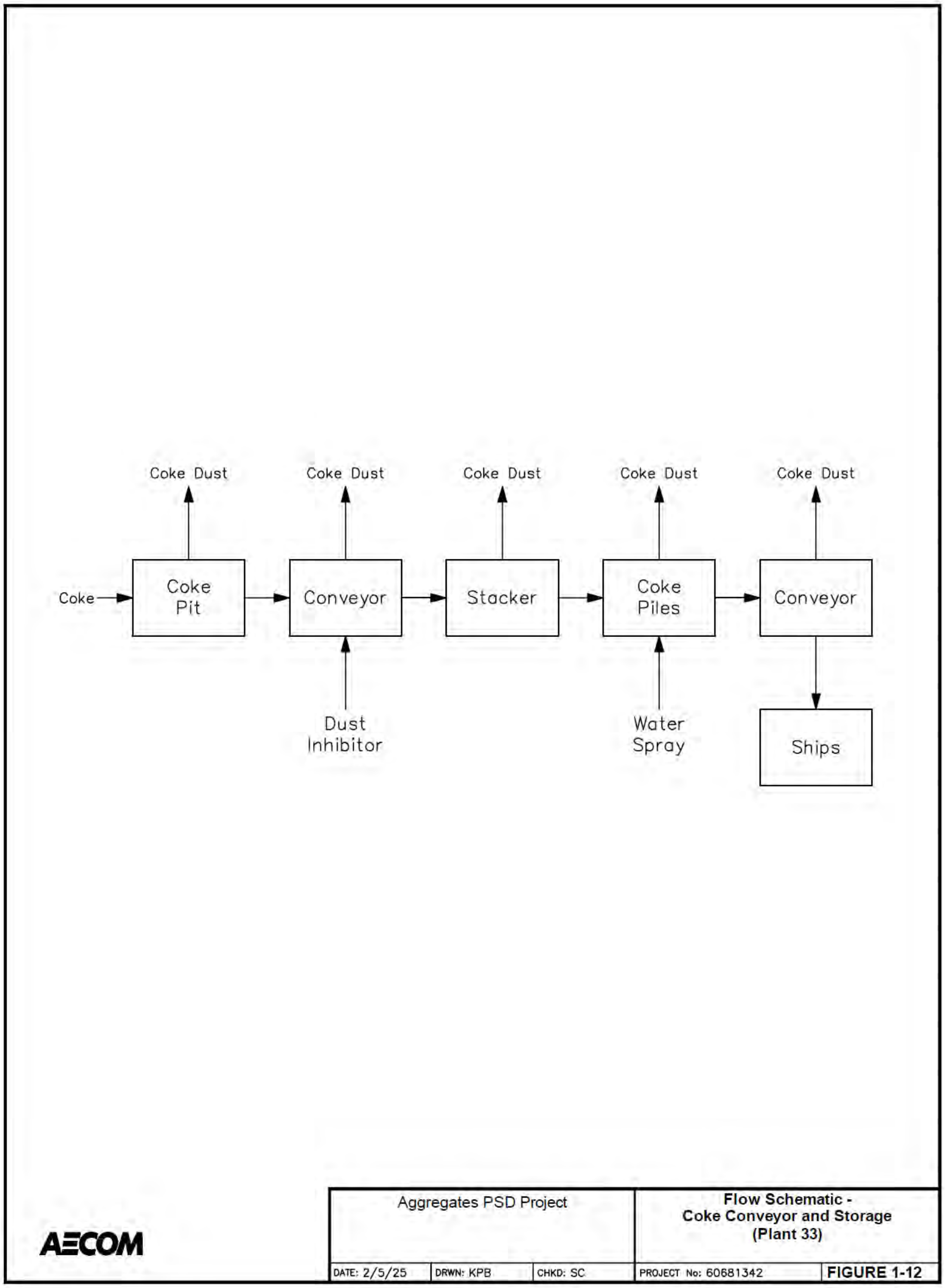


Figure 1-13 Flow Schematic – Storage and Blending Area (Plant 34)

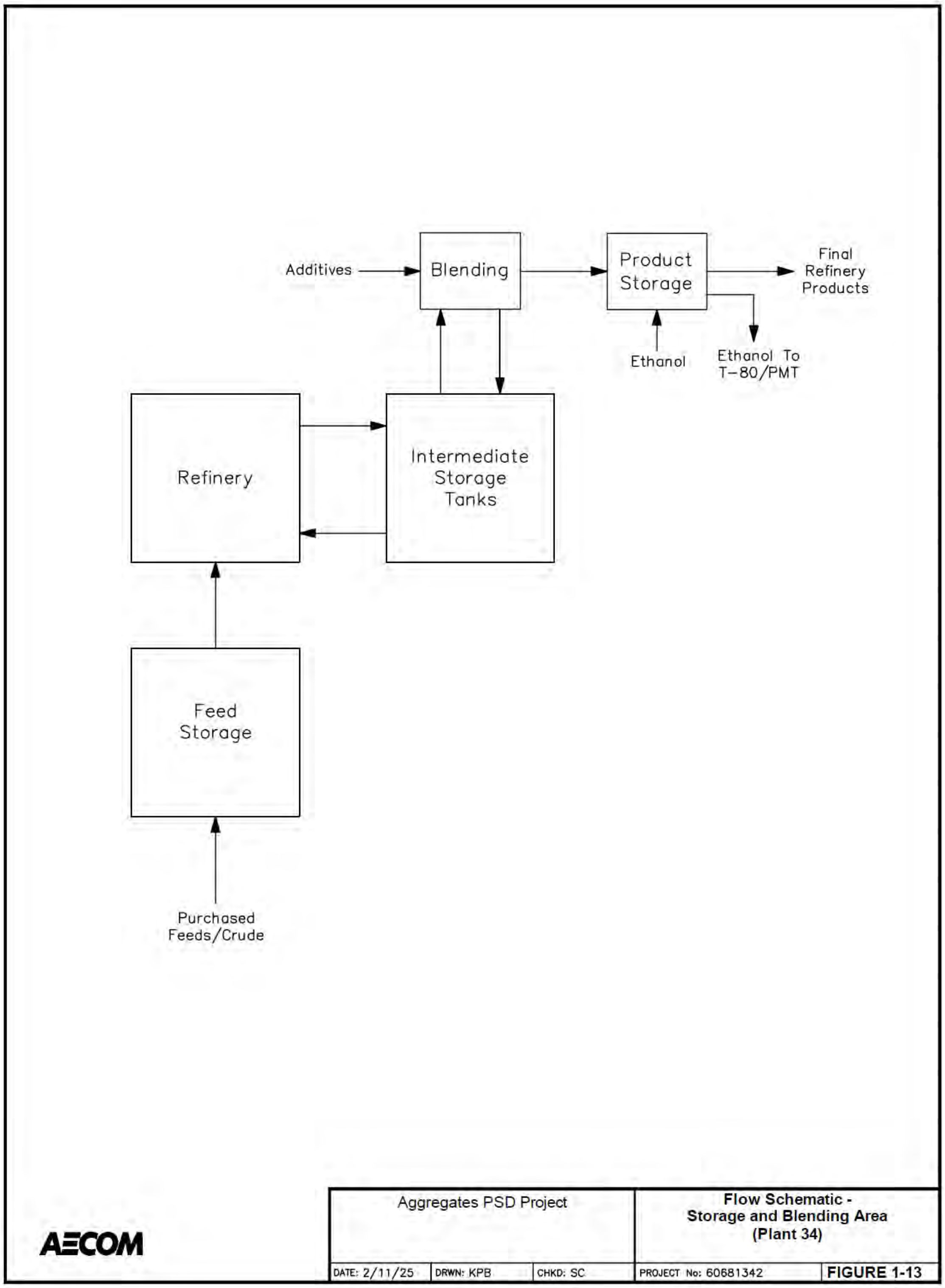


Figure 1-14 Flow Schematic – Acid & Marketing Areas (Plant 37)

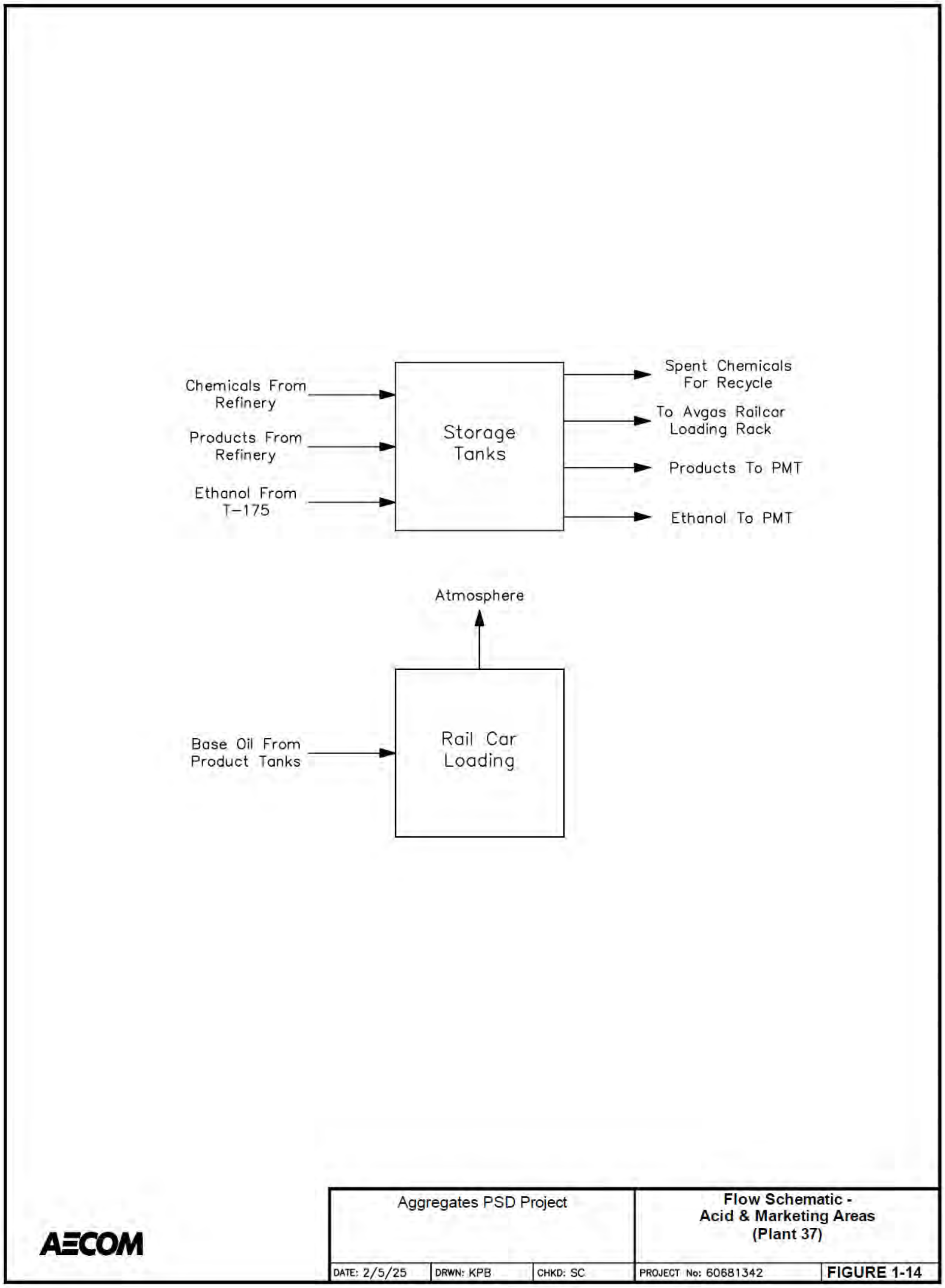


Figure 1-15 Flow Schematic – Light Ends Recovery II (Plant 40)

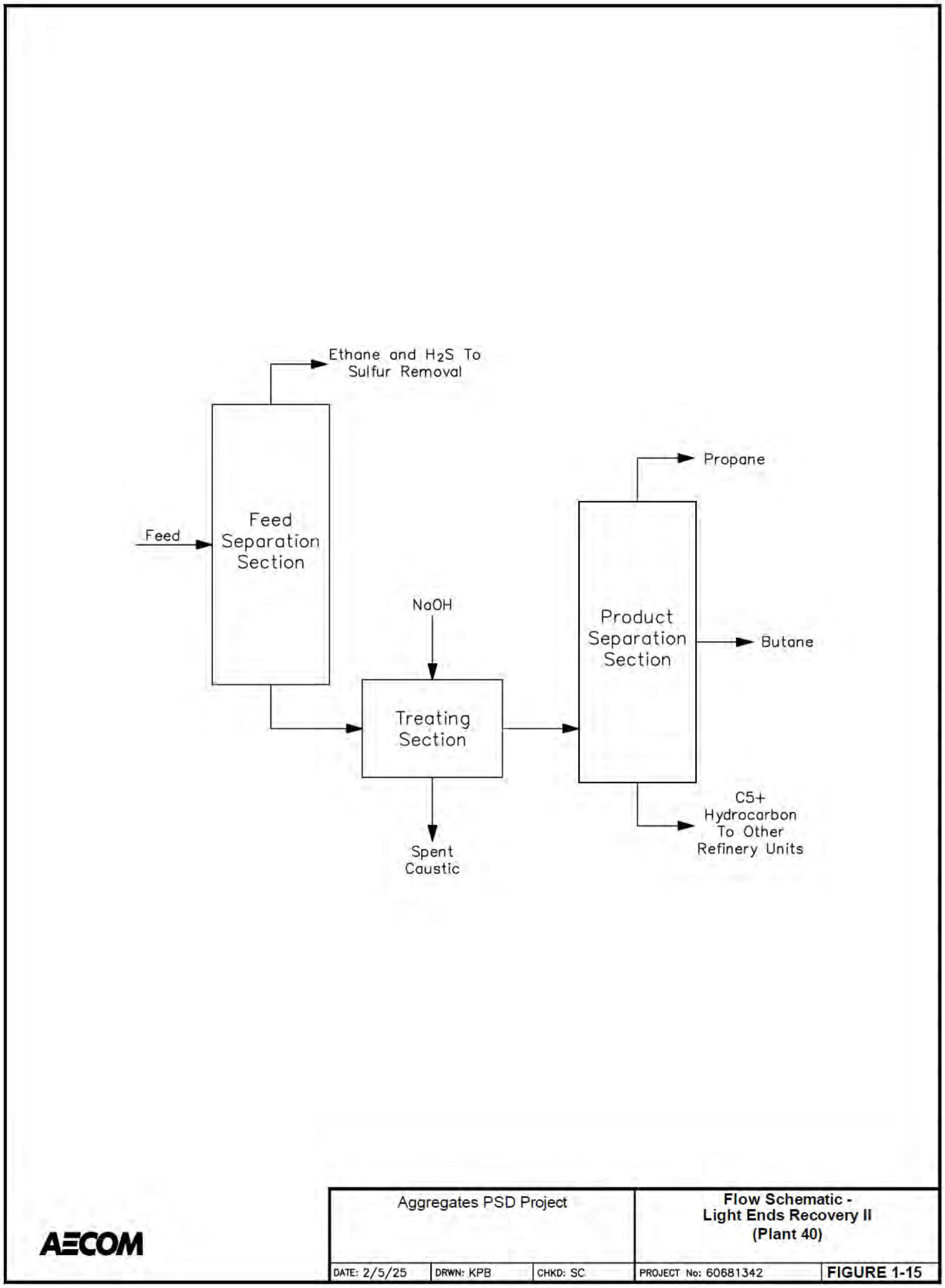


Figure 1-16 Flow Schematic – Shipping (Plant 45)

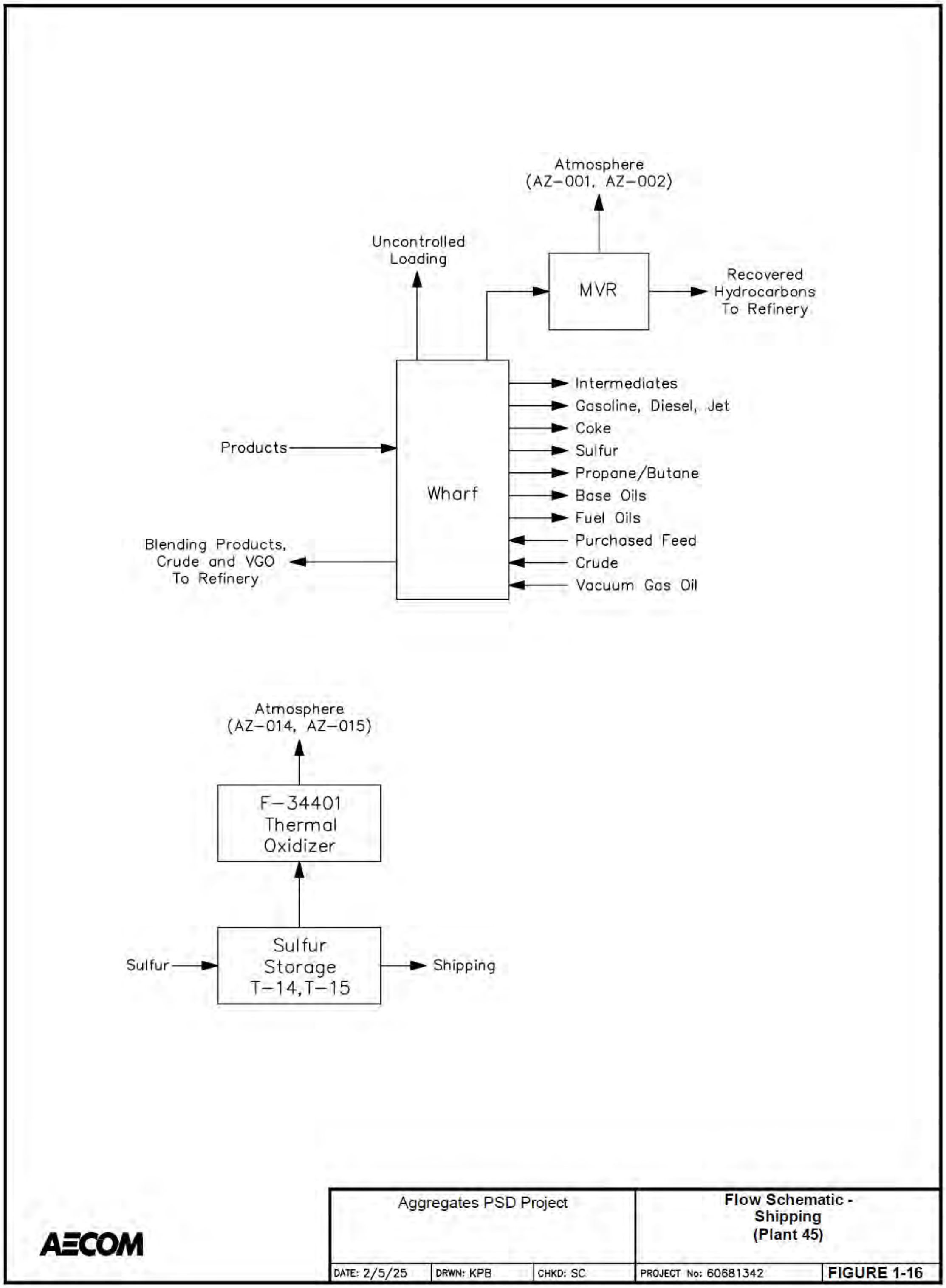


Figure 1-17 Flow Schematic – Sour Gas Treating (Plant 59)

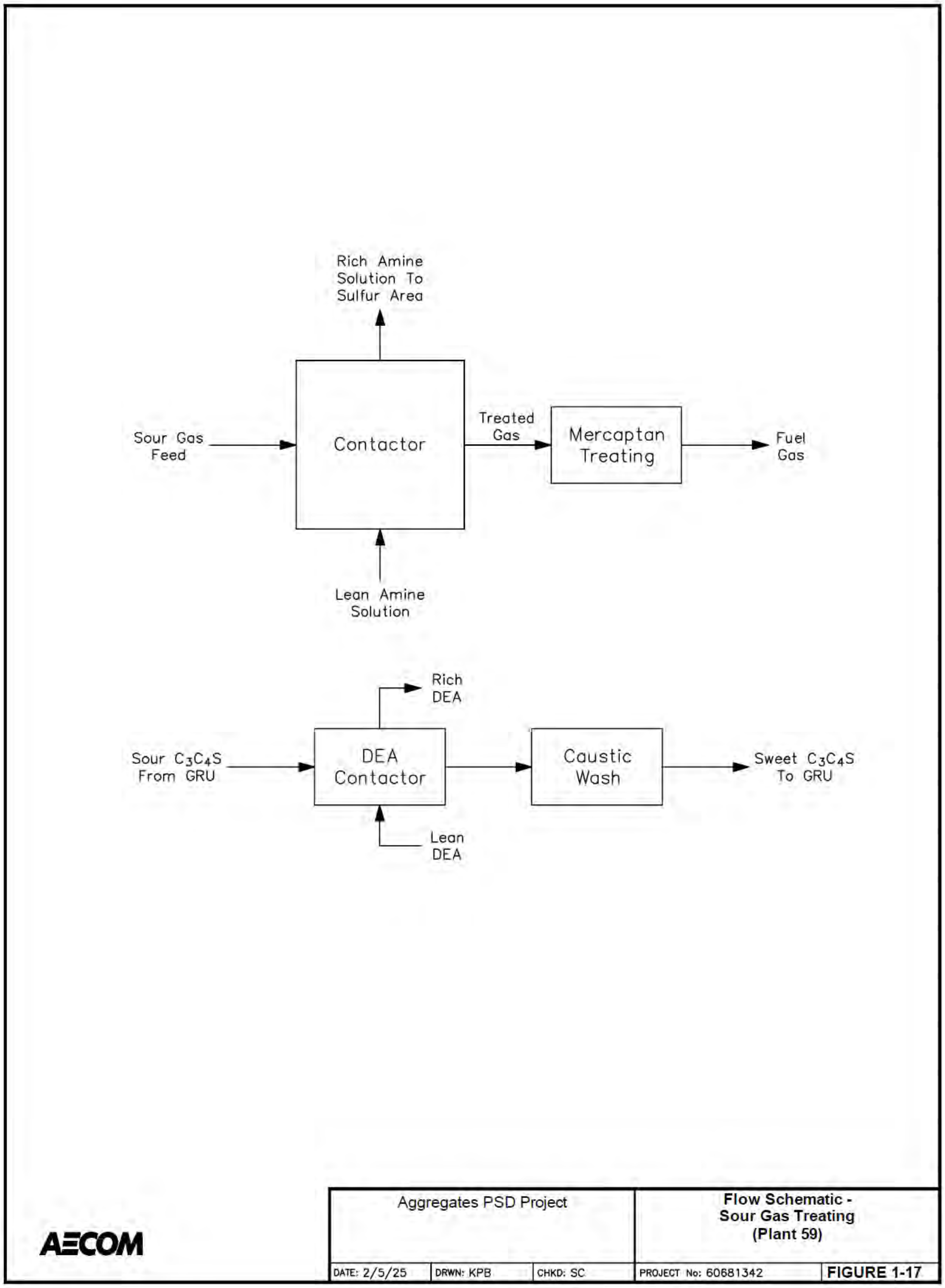


Figure 1-18 Flow Schematic – Crude II Unit (Plant 61)

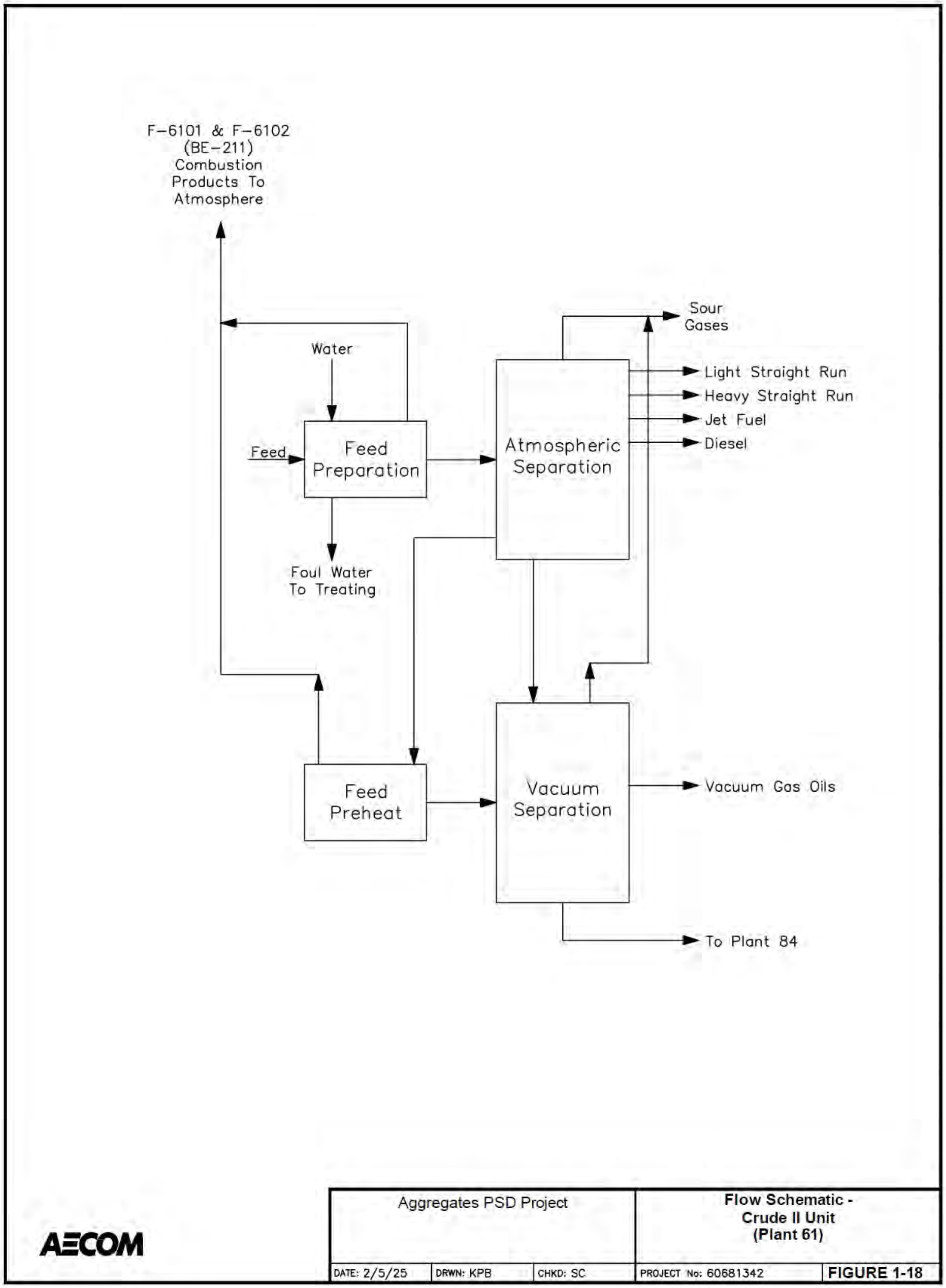


Figure 1-19 Flow Schematic – Hydrogen II (Plant 64)

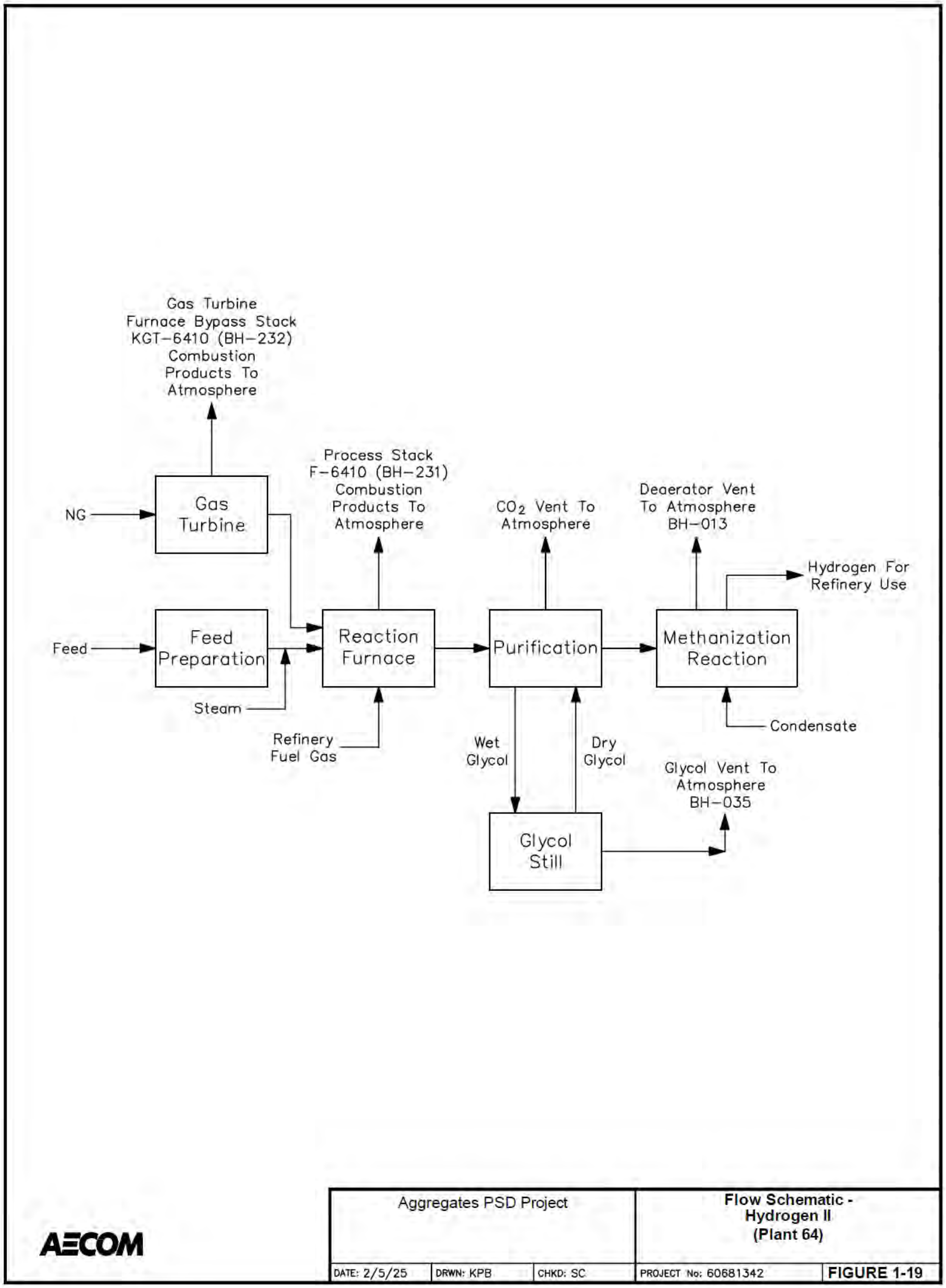


Figure 1-20 Flow Schematic – Treaters II Unit (Plant 68)

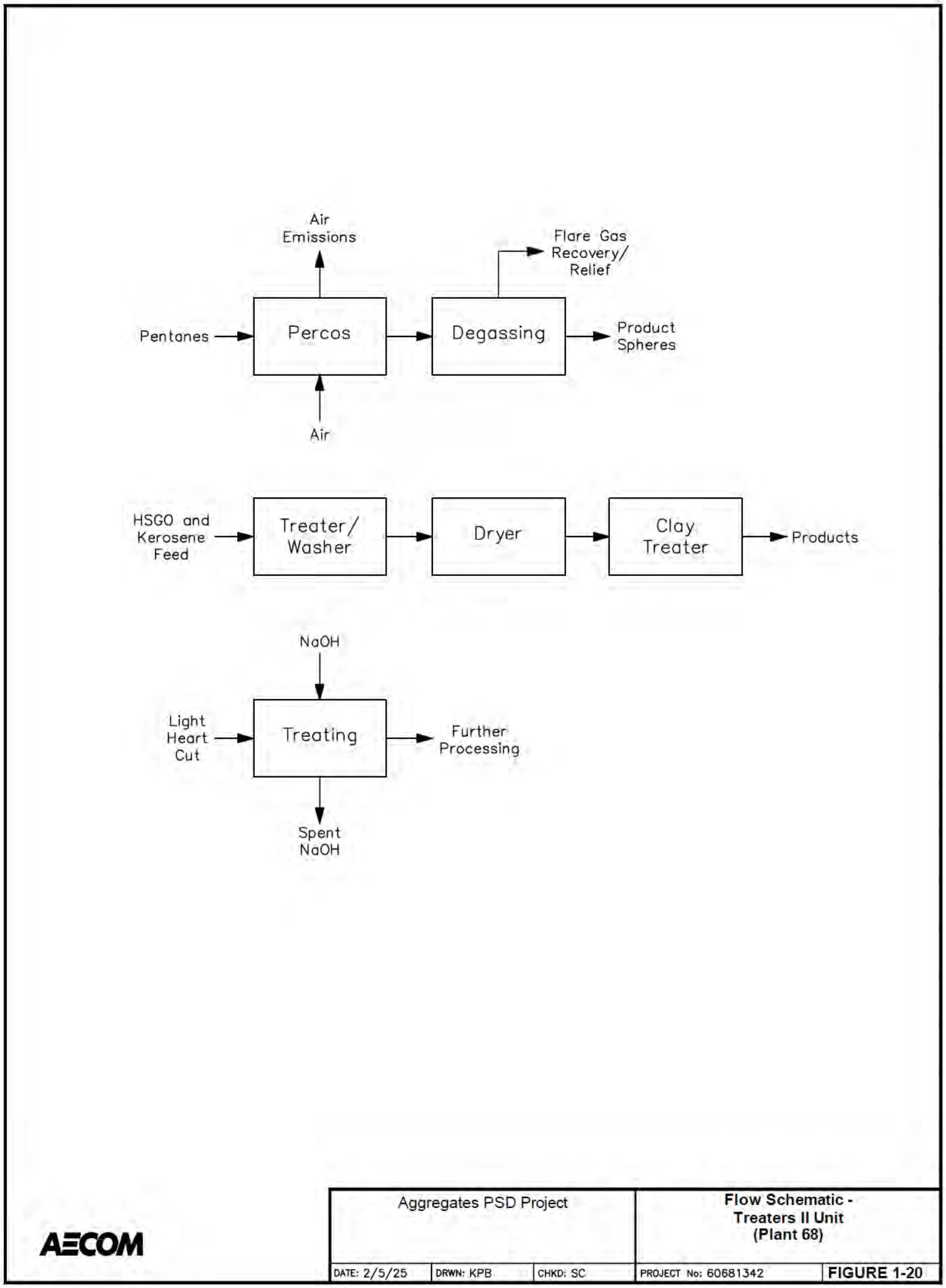


Figure 1-21 Flow Schematic – Residuum Desulfurization Unit Module A (Plant 81)

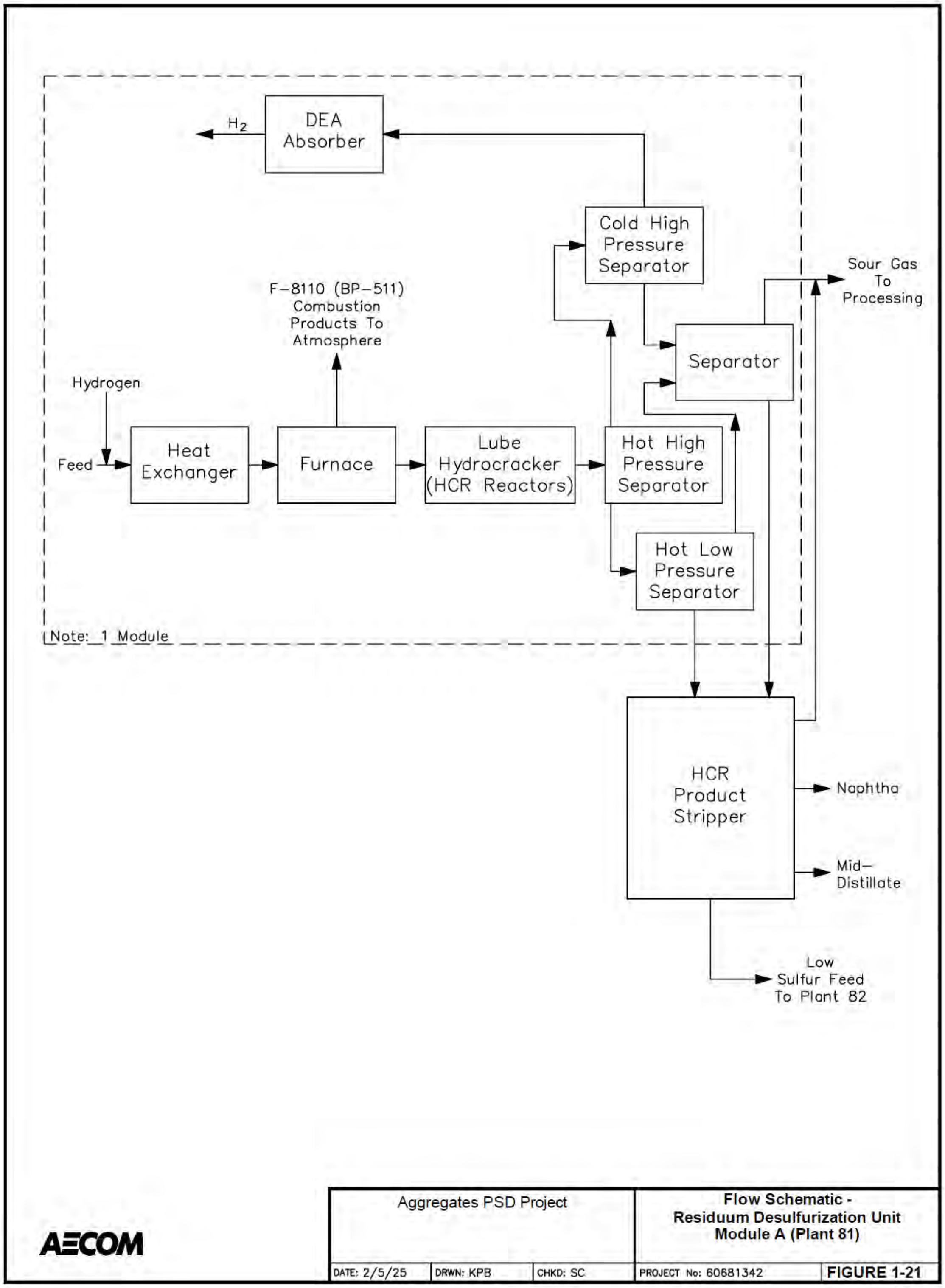


Figure 1-22 Flow Schematic – Base Oil IDW/HDF Plant (Plant 82)

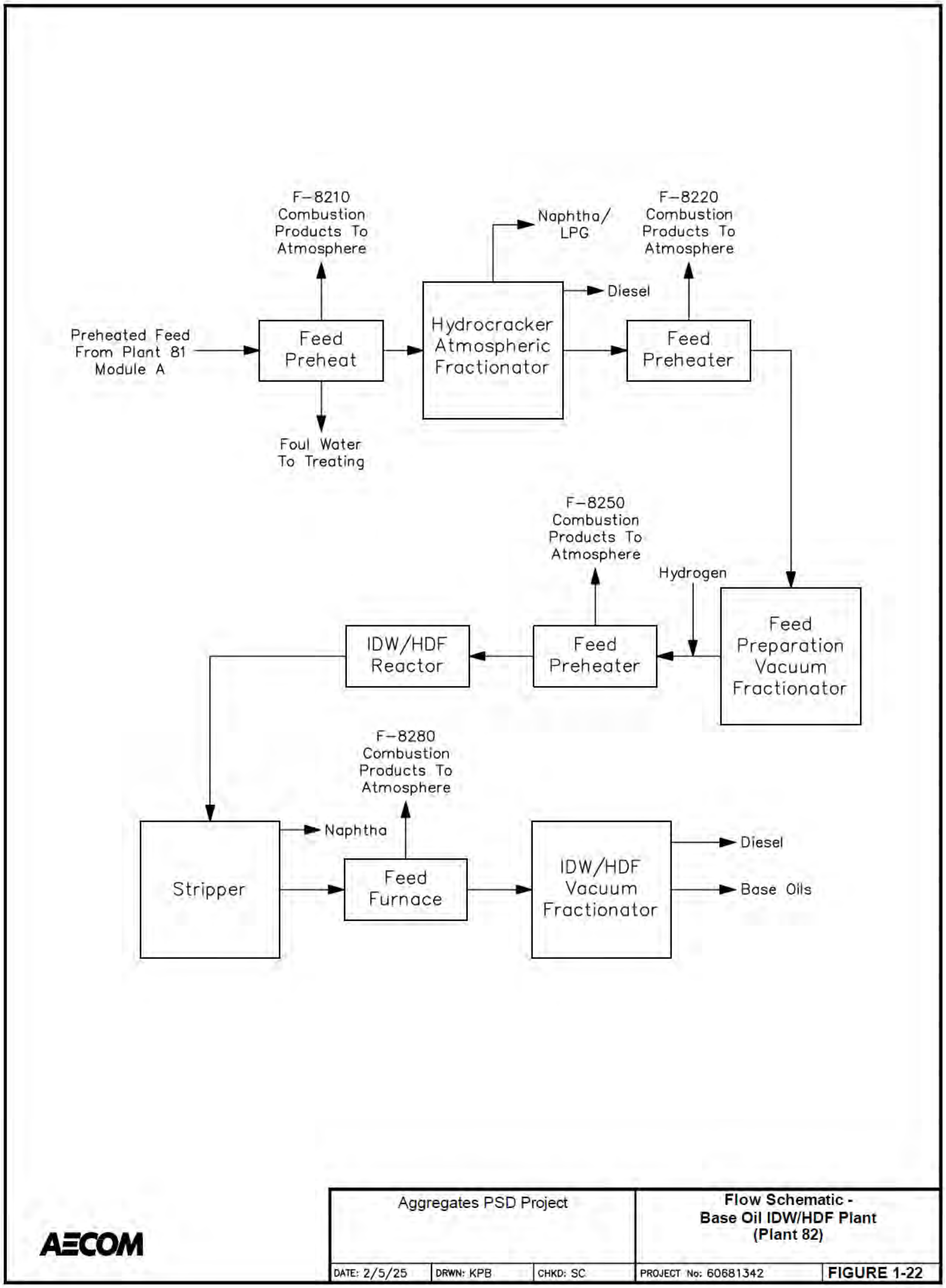


Figure 1-23 Flow Schematic – Delayed Coker Unit (Plant 83)

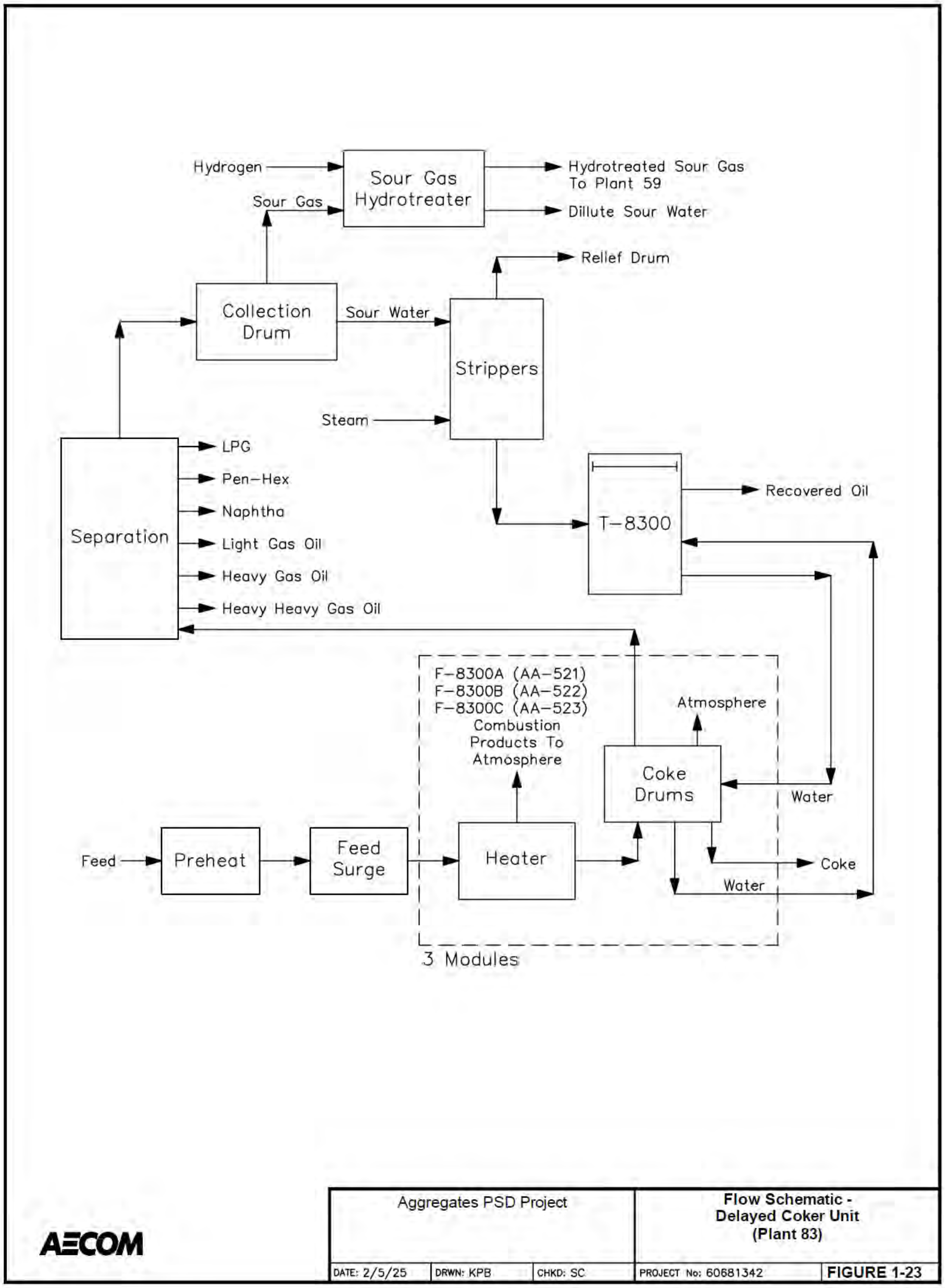


Figure 1-24 Flow Schematic – SRU IV-VI (Plants 90, 91 & 92)

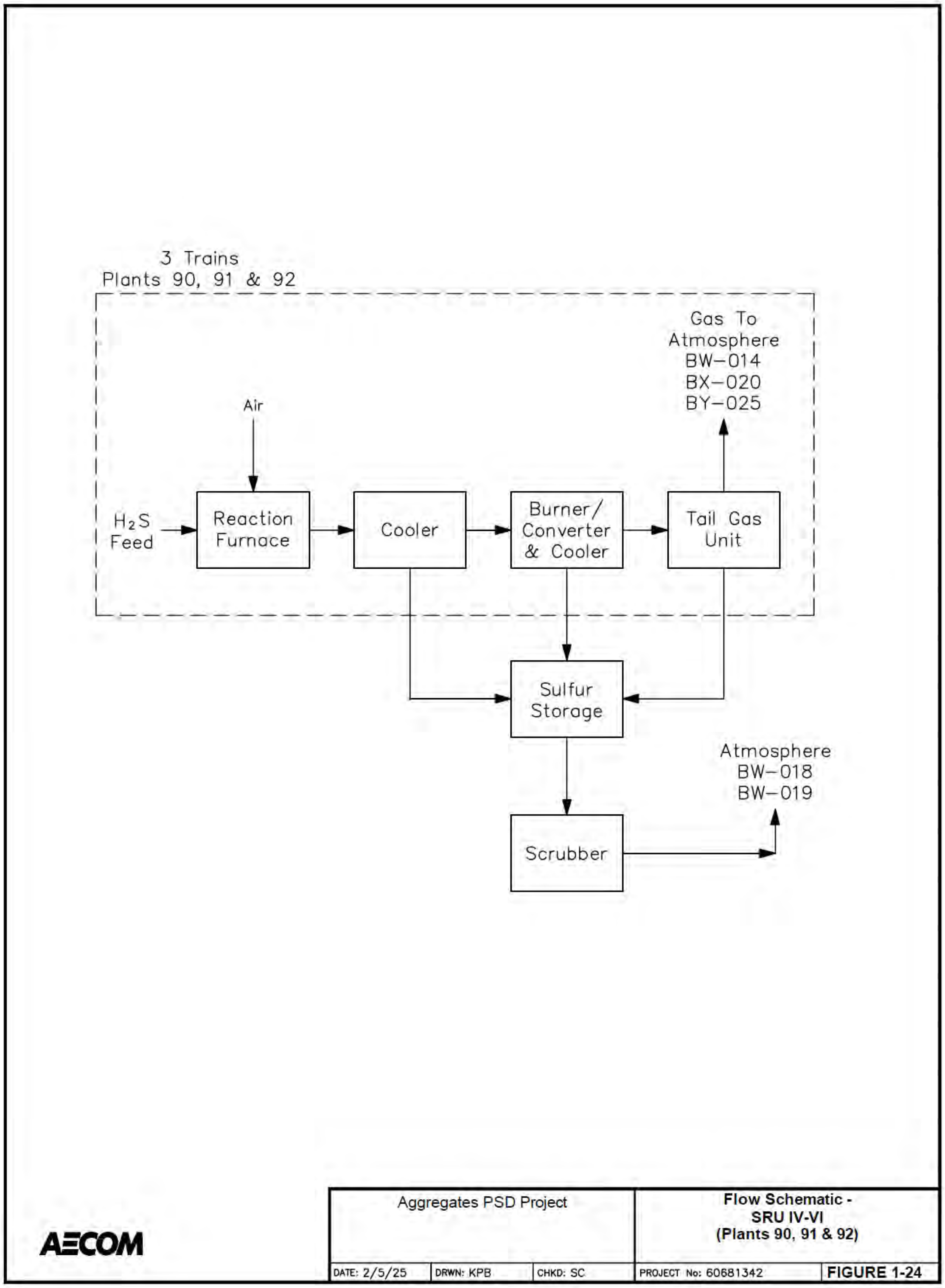


Figure 1-25 Flow Schematic – Diethanolamine Regeneration Unit (Plant 94)

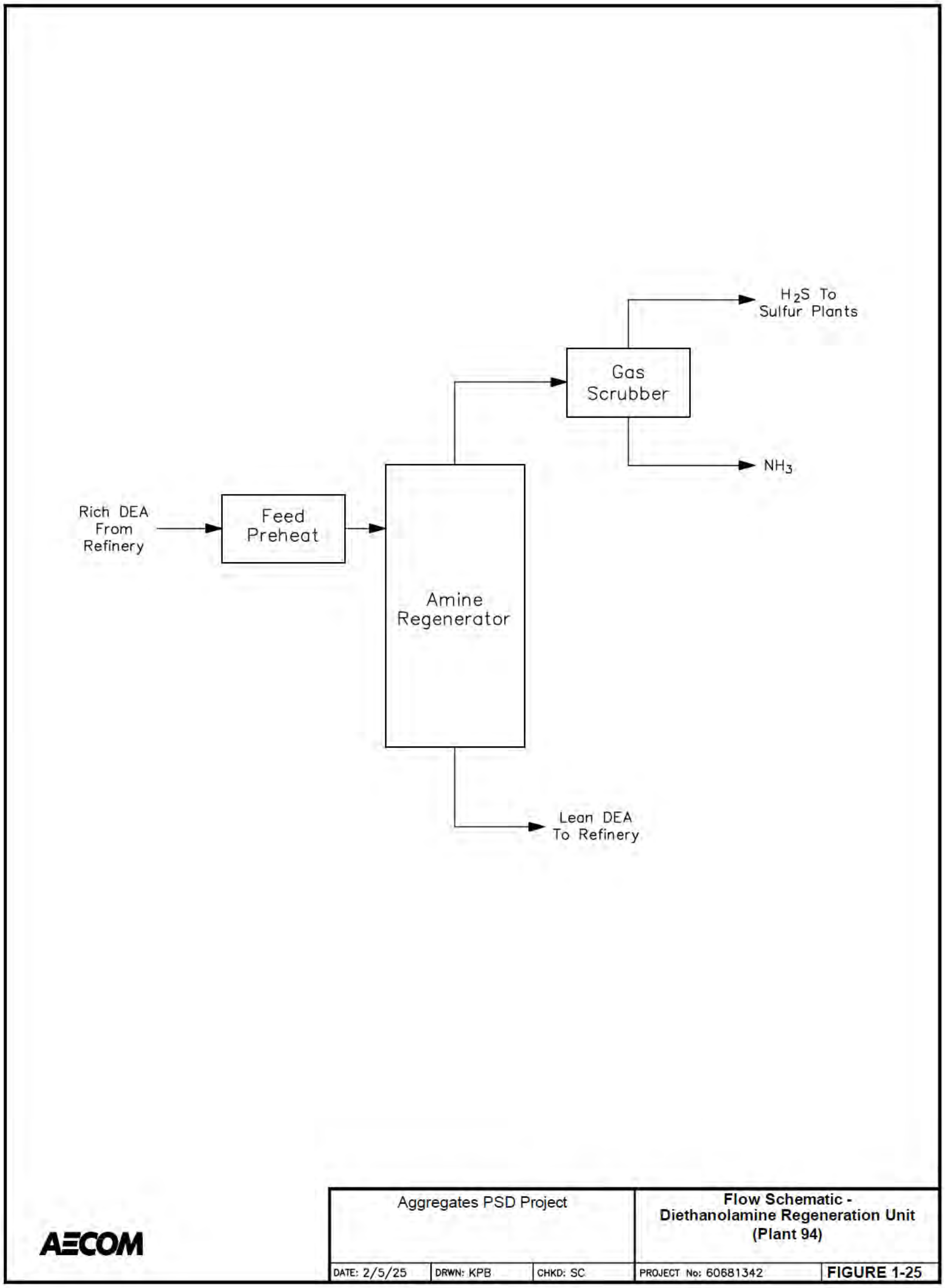


Figure 1-26 Flow Schematic – Wastewater Treater (Plant 95)

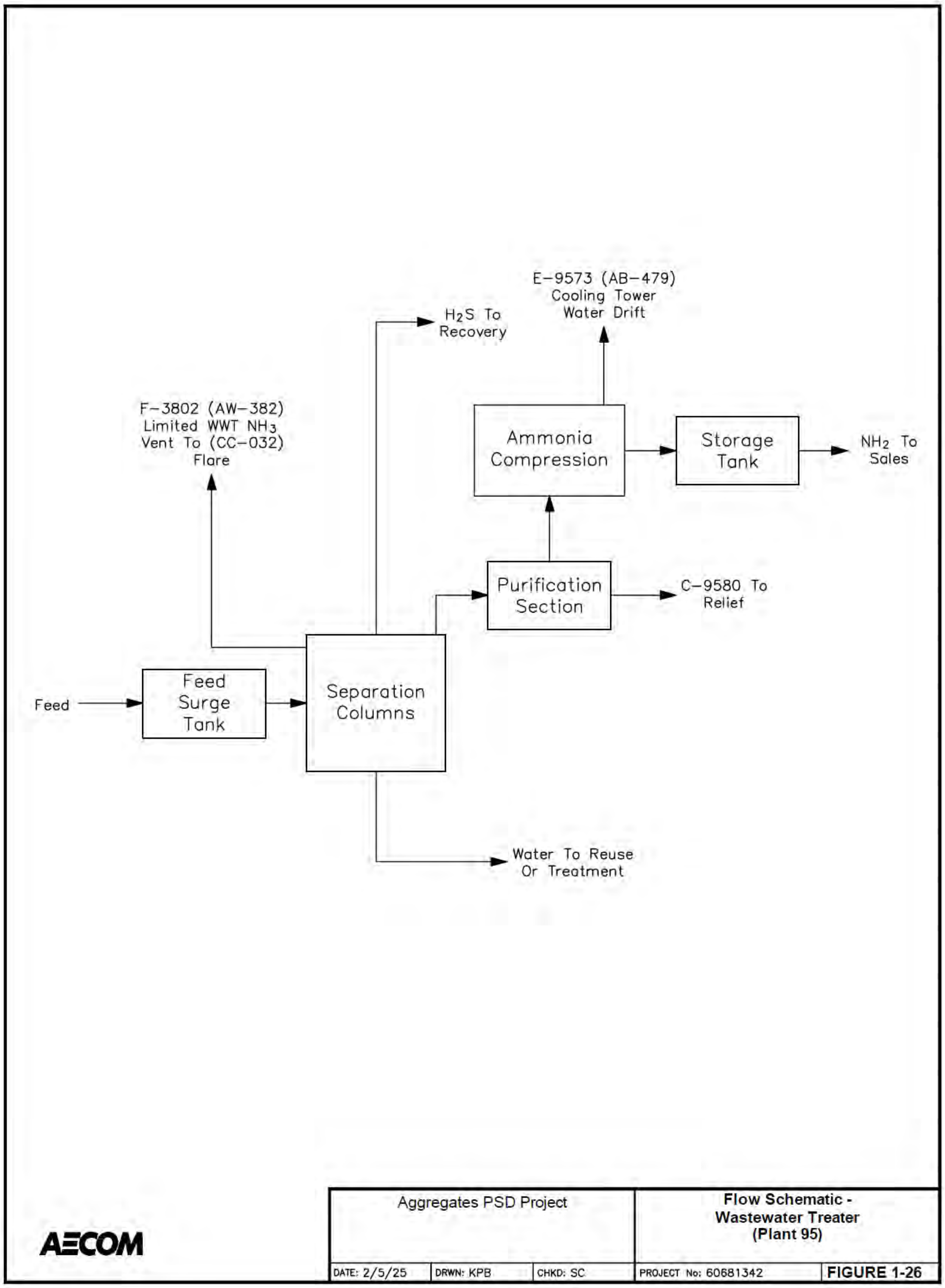
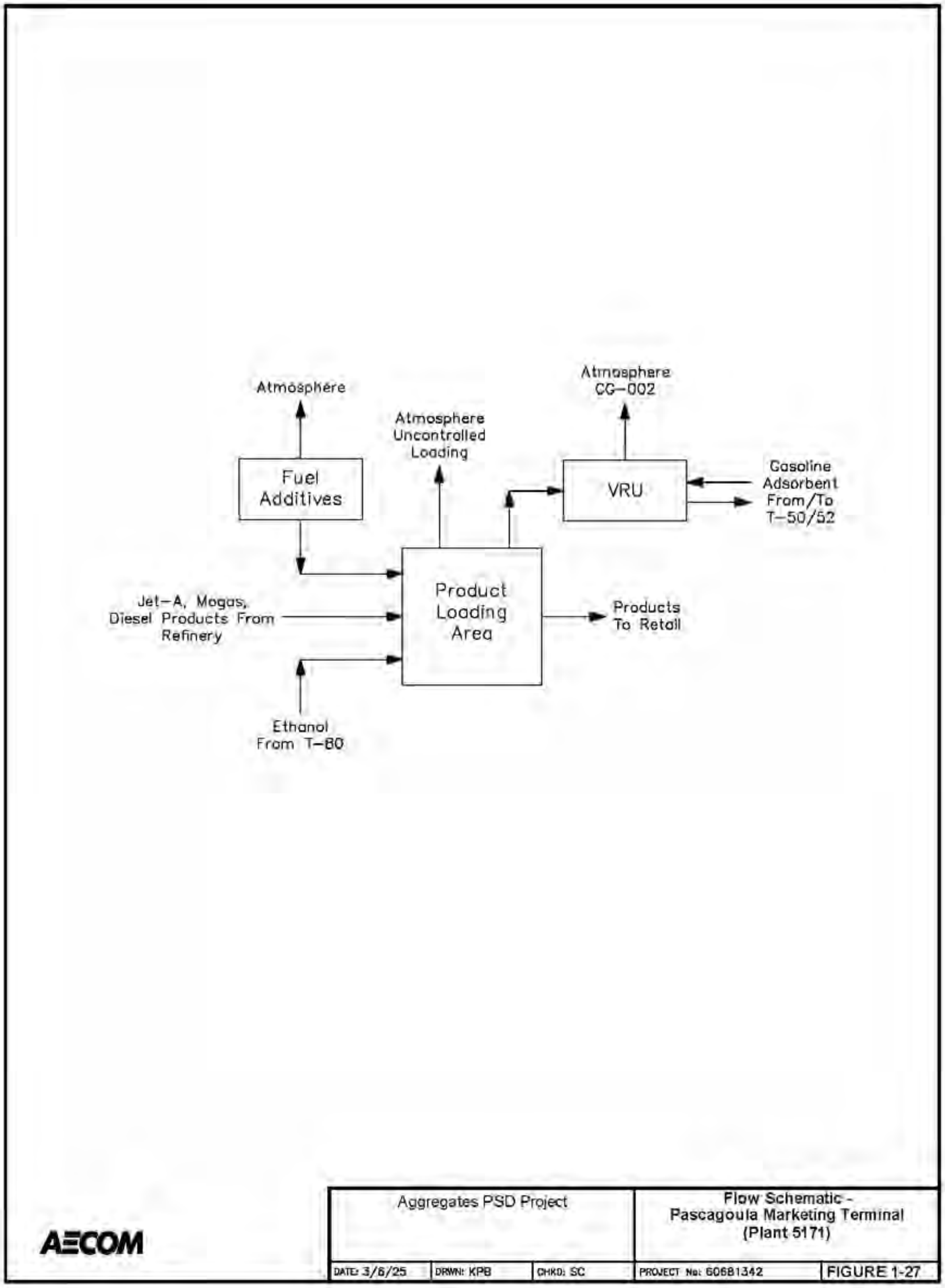


Figure 1-27 Flow Schematic – Pascagoula Marketing Terminal (Plant 5171)



2. MDEQ Application Forms

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Facility (Agency Interest) Information — Section A

1. Name, Address, and Location of Facility

A. Owner/Company Name: Chevron U.S.A Products Company

B. Facility Name *(if different than A. above)*: Pascagoula Refinery

C. Facility Air Permit No. *(if known)*: 1280-00058

D. Agency Interest No. *(if known)*: 2299

E. Physical Address
1. Street Address: 250 Industrial Road
2. City: Pascagoula
3. State: Mississippi
4. County: Jackson
5. Zip Code: 39581
6. Telephone No.: (228) 938-4600
7. Fax No.:

F. Mailing Address *(if different from physical address)*
1. Street Address or P.O. Box:
2. City:
3. State:
4. Zip Code:

G. Latitude/Longitude Data
1. Collection Point *(check one)*:
   ☒ Plant Entrance ☐ Other:
2. Method of Collection *(check one)*:
   ☒ GPS Specify coordinate system (NAD 83, etc.) NAD 27
   ☐ Map Interpolation (Google Earth, etc.) ☐ Other:
3. Latitude *(degrees/minutes/seconds)*: 30/29/39
4. Longitude *(degrees/minutes/seconds)*: 88/29/37
5. Elevation: 6 feet

H. SIC/NAICS Codes *(primary code listed first)*

SIC:	2911	2819	2865	5171
NAICS:	324110	325998	325110	424710

(NAICS Code should correspond with the SIC Code directly above.)

2. Name and Address of Facility Contact

A. Name: Tim Potter Title: Director-Pascagoula Refinery

B. Mailing Address
1. Street Address or P.O. Box: 250 Industrial Road
2. City: Pascagoula
3. State: Mississippi
4. Zip Code: 39581
5. Email: tapo@chevron.com
6. Telephone No.: (228) 938-4216
7. Fax No.: (228) 938-4682

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Facility (Agency Interest) Information — **Section A**

3. Name and Address of Air Contact *(if different from Facility Contact)*

A. Name: Weston Beck   Title: Environmental Air Lead

B. Mailing Address
1. Street Address or P.O. Box: 250 Industrial Road
2. City: Pascagoula   3. State: Mississippi
4. Zip Code: 39581   5. Email: wcbe@chevron.com
6. Telephone No.: (228) 938-4600   7. Fax No.: (228) 938-4682

4. Name and Address of the Responsible Official for the Facility

The Responsible Official is defined as one of the following:

a. For a corporation: a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and the facilities employ more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated in accordance with corporate procedures.

b. For a partnership or sole proprietorship: a general partner or the proprietor, respectively.

c. For a municipality, state, federal, or other public agency: either a principal executive officer or ranking elected official. For purposes of these regulations, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of EPA). A principal executive officer of a military facility includes the facility commander, chief executive officer, or any other similar person who performs similar policy or decision-making functions for the institution.

A. Name: Tim Potter   Title: Director-Pascagoula Refinery

B. Mailing Address
1. Street Address or P.O. Box: 250 Industrial Road
2. City: Pascagoula   3. State: Mississippi
4. Zip Code: 39581   5. Email: tapo@chevron.com
6. Telephone No.: (228) 938-4216   7. Fax No.: (228) 938-4682

C. Is the person above a duly authorized representative and not a corporate officer? ☒ Yes ☐ No

If yes, has written notification of such authorization been submitted to MDEQ?
☒ Yes ☐ No ☐ Request for authorization is attached

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Facility (Agency Interest) Information — Section A

5. Type of Permit Application *(Check all that apply)*

State Permit to Construct (i.e., non-PSD or PSD avoidance)

☐ Initial Application ☐ Modification

New Source Review (NSR) Permit to Construct (includes both Prevention of Significant Deterioration (PSD) and Nonattainment)

☐ Initial Application ☒ Modification

Title V Operating Permit

☐ Initial Application

☐ Re-issuance: *Are any modifications to the permit/facility being requested?* ☐ Yes ☐ No

(If yes, provide a separate sheet identifying the modification(s) and resulting change to emissions.)

☐ Modification (*Specify type):* ☐ Significant ☐ Minor ☐ Administrative

Synthetic Minor Operating Permit *(Appendix B must be completed and attached.)*

☐ Initial Application

☐ Re-issuance: *Are any modifications to the permit/facility being requested? If yes, address such on a separate sheet.* ☐ Yes ☐ No

☐ Modification

State Permit to Operate a Significant Minor Source *(defined in 11 Miss. Admin. Code Pt. 2, R.2.1.C(25).)*

☐ Initial Application

☐ Re-issuance: *Are any modifications to the permit/facility being requested? If yes, address such on a separate sheet.* ☐ Yes ☐ No

☐ Modification

True Minor Determination

☐ Uncontrolled potential to emit air pollutants is below the Title V thresholds

6. Process/Product Details

A. List Significant Raw Materials *(if applicable)*:
394,000 barrels per day throughput of crude oil

B. List All Products *(if applicable)*: Motor gasoline, jet fuel, diesel fuel, LPG, petroleum coke, ammonia, sulfur, aviation gasoline, and benzene.

C. Brief Description of Principal Process(es):
Petroleum refining

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Facility (Agency Interest) Information — **Section A**

6. Process/Product Details (continued)

D. Maximum Throughput for Raw Material(s) *(if applicable)*:

Raw Material	Throughput	Units
Crude Oil	394	MBPD

E. Maximum Throughput for Principal Product(s) *(if applicable)*:

Product	Throughput	Units
Gasoline	8.1	MMgal/day
Diesel	4.5	MMgal/day
Jet Fuel	4.6	MMgal/day
Base Oil	1.2	MMgal/day
Benzene	0.3	MMgal/day

7. Facility Operating Information

A. Number of employees at the facility: 1,593

	Average Actual	Maximum Potential
B. Hours per day the facility will operate:	24	24
C. Days per week the facility will operate:	7	7
D. Weeks per year the facility will operate:	52	52
E. Months the facility will operate:	12	12

8. Maps

A. Attach a topographical map of the area extending to at least ½ mile beyond the property boundaries. The map must show the outline of the property boundaries.

B. Attach a site map/diagram showing the outline of the property, an outline of all buildings and roadways on the site, and the location of each significant air emission source.

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Facility (Agency Interest) Information — Section A

9. Zoning

A. Is the facility (either existing or proposed) located in accordance with any applicable city and/or county zoning ordinances? If no, please explain.
Yes

B. Is the facility (either existing or proposed) required to obtain any zoning variance to locate/expand the facility at this site? If yes, please explain.
No

10. Risk Management Plan

A. Is the facility required to develop and register a risk management plan pursuant to Section 112(r), regulated under 40 CFR Part 68? ☒ Yes ☐ No

B. If yes, to whom was the plan submitted? RMP Reporting Center; RMP* eSubmit
Date submitted: 6/17/99 (original); last updated in 2024

11. *Is confidential information being submitted with this application?* ☐ Yes ☒ No

If so, please follow the procedures outlined in the Mississippi Code Ann. Sections 49-17-39 and 17-17-27(6), as outlined in MCEQ-2 – "Regulation regarding the review and reproduction of public records".

12. MS Secretary of State Registration / Certificate of Good Standing

No permit will be issued to a company that is not authorized to conduct business in Mississippi. If the company applying for the permit is a corporation, limited liability company, a partnership or a business trust, the application package should include proof of registration with the Mississippi Secretary of State and/or a copy of the company's Certificate of Good Standing. The name listed on the permit will include the company name as it is registered with the Mississippi Secretary of State.

It should be noted that for an application submitted in accordance with 11 Miss. Admin. Code Pt. 2, R. 2.8.B. to renew a State Permit to Operate or in accordance with 11 Miss. Admin. Code Pt. 2, R. 6.2.A(1)(c). to renew a Title V Permit to be considered timely and complete, the applicant shall be registered and in good standing with the Mississippi Secretary of State to conduct business in Mississippi.

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Facility (Agency Interest) Information | **Section A**

13. Certification

Note: If approved by MDEQ, a duly authorized representative (DAR) may sign the air permit application. The DAR must be listed in Section 4 of this application.

I certify that to the best of my knowledge and belief formed after reasonable inquiry, the statements and information in this application are true, complete, and accurate, and that as a responsible official, my signature shall constitute an agreement that the applicant assumes the responsibility for any alteration, additions, or changes in operation that may be necessary to achieve and maintain compliance with all applicable Rules and Regulations. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

[signature]	9/11/25
Signature of Responsible Official/DAR	**Date**
Tim Potter	**Director – Pascagoula Refinery**
Printed Name	**Title**

Section B.0: Emission Point Descriptions & Status

This form should list all the of the Emission Points and descriptions as proposed or as otherwise identified in an existing permit. This worksheet should be updated to reflect changes to the Status of the emission points over time. Emission Point ID's should match those assigned in the current MDEQ permit. Facility ID is optional. For proposed emission points, the facility should leave the Emission Point ID blank but may complete the Facility ID (if any). Under "Status," for Emission Points that are proposed or under construction but not yet operating, indicate their status as "Proposed." For emissions points already operating or for which construction has been certified complete, indicate their status as "Operating." Include all control devices for each emission point and the pollutant(s) the device controls. Control devices may be specified in general terms (e.g., baghouse, catalytic oxidizer, fabric filter, wet ESP, etc.). When an Emission Point is removed, indicate so by changing the "Status" to "Removed." Remove the emissions on the subsequent worksheets or indicate they are removed with a "-" for all pollutants.

Emission Point ID	Facility ID	Description	Status	Control Device	Controlled Pollutant(s)	Control Device	Controlled Pollutant(s)	Control Device	Controlled Pollutant(s)
AE-013	F-1101/1102	Vacuum/Atmospheric Furnaces	Operating						
AG-043	F-1501/1502/1503	Rhen I Furnace	Operating						
AL-104	F-2101	Boiler 1	Operating	ULNB	NOx				
AM-111	F-2201	Process Heater	Operating						
BE-211	F-6101/6102	Atm. Col. And Vac. Col. Heaters	Operating	ULNB	NOx				
BH-231/232	F-6410/KGT-6410	Reformer Furnace/Gas Turbine	Operating						
BP-511	F-8110	RDS Feed Furnace 1	Operating						
CK-003	F-8210	HCR Feed Heater	Operating	ULNB	NOx				
CK-004	F-8220	FPU Vac. Col. Feed Heater	Operating	ULNB	NOx				
CK-005	F-8250	IDW/HDF Reactor Feed Heater	Operating	ULNB	NOx				
CK-006	F-8280	IDW/HDF Vac. Feed Heater	Operating	ULNB	NOx				
BQ-521	F-8300A	Coker Furnace No. 1	Operating						
BQ-522	F-8300B	Coker Furnace No. 2	Operating						
BQ-523	F-8300C	Coker Furnace No. 3	Operating						
AO-004	F-2745	Sulfur Recovery Unit II	Operating	Thermal Oxidizer	Sulfur compounds				
AO-005	F-2765	Sulfur Recovery Unit III	Operating	Thermal Oxidizer	Sulfur compounds				
AZ-571	F-34401	Sulfur Shipping - T-14/T-15 Sulfur Tanks	Operating	Thermal Oxidizer	Sulfur compounds				
BW-020	C-9090	Sulfur Shipping - T-18/T-19	Operating	Scrubber	Sulfur constituents				
N/A	N/A	Sulfur Shipping - Wharf/Railcar	Operating						
BW-014	C-9080	Sulfur Recovery Unit IV	Operating	Scrubber	Sulfur constituents				
BX-020	C-9180	Sulfur Recovery Unit V	Operating	Scrubber	Sulfur constituents				
BY-025	C-9280	Sulfur Recovery Unit VI	Operating	Scrubber	Sulfur constituents				
N/A	N/A	Purchased Feeds (Barges and Ships)	Operating						
CG-002	CG-002	Product Shipping (Truck+Railcar)	Operating						
AZ-001/AZ-002	AZ-001/AZ-002	Product Shipping (Wharf)	Operating						
CG-004	CG-004	Truck Traffic at Marketing Terminal	Operating						
AR-002/003	AR-002/003	Coke Handling & Storage; Coke Trucking	Operating						
N/A	See Appendix A	Tanks Emissions	Operating						
AE-001	AE-001	Plant 11 Fugitive Equipment Leaks	Operating						
AM-001	AM-001	Plant 22 Fugitive Equipment Leaks	Operating						
BE-001	BE-001	Plant 61 Fugitive Equipment Leaks	Operating						

Section B.1: Maximum Uncontrolled Emissions (under normal operating conditions)

Maximum Uncontrolled Emissions are the emissions at maximum capacity and prior to (in the absence of) pollution control, emission-reducing process equipment, or any other emission reduction. Calculate the hourly emissions using the worst case hourly emissions for each pollutant. For each pollutant, calculate the annual emissions as if the facility were operating at maximum plant capacity without pollution controls for 8760 hours per year, unless operating capacity and/or hours of operation are specifically limited in an enforceable permit. (Existing limits on operating conditions, not emissions or use of a control device, may be used when determining uncontrolled emissions.) Emission Point numbering must be consistent throughout the application package and, for existing emission points, should match any MDEQ ID's in the current permit. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Emissions ≥ 0.01 ton/yr from a specific emission unit must be included. Please do not change the column widths on this table.

Emission Point ID	TSP[1] (PM)		PM-10[1]		PM-2.5[1]		SO_2[(b)]		NOx		CO[(b)]		VOC		TRS[2,(b)]		Lead		Total HAPs	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
AE-013	5.70	19.96	5.70	19.96	5.70	19.96	37.59	41.71	74.92	262.52	106.56	3.51	4.95	14.47			0.0030	0.01	0.24	1.06
AG-043	4.43	14.43	4.43	14.43	4.43	14.43	30.30	17.47	76.91	280.71	57.90	4.07	3.99	11.66			0.0024	0.01	0.20	0.86
AL-104	2.37	7.34	2.37	7.34	2.37	7.34	16.29	9.57	13.25	46.43	28.70	12.31	1.43	4.18			0.0013	0.01	0.11	0.46
AM-111	0.44	1.27	0.44	1.27	0.44	1.27	2.95	3.06	8.40	29.43	5.90	20.80	0.39	1.14			0.0002	0.00	0.02	0.08
AZ-571	0.02	0.11	0.02	0.11	0.02	0.11	7.22	31.62	0.32	1.42	0.27	1.19	0.02	0.08	0.10	0.44	0.0000	0.00	0.01	0.03
BE-211	4.95	19.71	4.95	19.71	4.95	19.71	33.54	36.12	39.60	157.68	375.00	6.09	4.86	14.19			0.0029	0.01	0.24	1.04
BH-231/232	8.88	21.80	8.88	21.80	8.88	21.80	58.20	44.64	105.02	460.00	102.56	8.66	2.04	5.96			0.0037	0.02	0.69	3.03
BP-511	0.61	2.14	0.61	2.14	0.61	2.14	4.00	3.48	9.00	31.32	8.00	15.39	0.53	1.54			0.0003	0.001	0.03	0.11
CK-003	0.48	1.22	0.48	1.22	0.48	1.22	3.17	1.79	1.94	6.78	2.86	0.09	0.42	1.22			0.0003	0.001	0.02	0.09
CK-004	0.81	2.50	0.81	2.50	0.81	2.50	5.29	3.79	3.23	11.30	19.06	0.33	0.70	2.03			0.0004	0.002	0.03	0.15
CK-005	0.41	1.03	0.41	1.03	0.41	1.03	2.70	1.50	1.65	5.78	2.44	0.40	0.36	1.04			0.0002	0.001	0.02	0.08
CK-006	0.66	1.91	0.66	1.91	0.66	1.91	4.31	2.77	2.63	9.22	3.89	0.34	0.57	1.66			0.0003	0.002	0.03	0.12
BQ-521	1.90	6.64	1.90	6.64	1.90	6.64	12.51	13.88	24.93	87.35	55.10	15.54	1.65	4.81			0.0010	0.004	0.08	0.35
BQ-522	1.90	6.64	1.90	6.64	1.90	6.64	12.51	13.88	24.93	87.35	55.10	15.32	1.65	4.81			0.0010	0.004	0.08	0.35
BQ-523	1.90	6.64	1.90	6.64	1.90	6.64	12.51	13.88	27.92	87.35	55.10	18.47	1.65	4.81			0.0010	0.004	0.08	0.35
Sulfur Recovery Units II and III	0.69	2.01	0.69	2.01	0.69	2.01	9.67	42.35	12.92	37.71	8.46	24.70	0.50	1.45	0.31	1.36	0.03	0.13	7.20	31.53
Sulfur Shipping	0.02	0.11	0.02	0.11	0.02	0.11	7.22	31.62	0.32	1.42	0.27	1.19	0.02	0.08	0.23	1.03	0.0000	0.00	0.01	0.03
Sulfur Recovery Units IV-VI[(a)]															0.61	2.68				
Purchased Feeds (Barges and Ships)[(a)]	0.17	0.76	0.16	0.69	0.12	0.52	1.13	4.94	4.93	21.60	0.55	2.41	0.12	0.53			0.00	0.0002	0.02	0.07
Product Shipping (Truck+Railcar)[(a)]													2.60	11.40					0.18	0.77
Product Shipping (Wharf)[(a)]													4.58	20.07					0.38	1.64
Truck Traffic at Marketing Terminal[(a)]	-2.19	-9.59	-0.44	-1.92	-0.107	-0.47														
Coke Handling[(a)]	-0.71	-3.10	-0.25	-1.08	-0.006	-0.03							0.10	0.44						
Tanks Emissions[(a)]													12.63	55.30	0.000010	0.000046			6.01	26.34
Fugitive Equipment Leaks[(a)]													3.15	13.80					0.25	1.10
Totals	33.42	103.52	35.62	113.14	36.16	115.47	261.10	318.07	432.81	1,625.38	887.71	150.81	48.90	176.67	1.26	5.51	0.05	0.21	15.90	69.65

(a) Emissions represent actual incremental emissions change as a result of this project.

[1] **Condensables:** Include condensable particulate matter emissions in particulate matter calculations for PM-10 and PM-2.5, but not for TSP (PM).

[2] **TRS:** Total reduced sulfur (TRS) is the sum of the sulfur compounds hydrogen sulfide (H_2S), methyl mercaptan (CH_4S), dimethyl sulfide (C_2H_6S), and dimethyl disulfide ($C_2H_6S_2$).

Section B.2: Proposed Allowable Emissions

Proposed Allowable Emissions (Potential to Emit) are those emissions the facility is currently permitted to emit as limited by a specific permit requirement or federal/state standard (e.g., a MACT standard); or the emission rate at which the facility proposes to emit considering emissions control devices, restrictions to operating rates/hours, or other requested permit limits that reduce the maximum emission rates. Emission Point numbering must be consistent throughout the application package and, for existing emission points, should match any MDEQ ID's in the current permit. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Emissions ≥ 0.01 ton/yr from a specific emission unit must be included. Additional columns may be added if there are regulated pollutants (other than HAPs and GHGs) emitted at the facility. List HAPs in Section B.3 and GHGs in Section B.4 (if applicable).

Emission Point ID	TSP[1]		PM10[1]		PM2.5[1]		SO_2 (b)		NOx		CO (b)		VOC		TRS[2,(b)]		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
AE-013	5.70	19.96	5.70	19.96	5.70	19.96	37.59	41.71	74.92	262.52	106.56	3.51	4.95	14.47			0.00	0.01
AG-043	4.43	14.43	4.43	14.43	4.43	14.43	30.30	17.47	76.91	280.71	57.90	4.07	3.99	11.66			0.00	0.01
AL-104	2.37	7.34	2.37	7.34	2.37	7.34	16.29	9.57	13.25	46.43	28.70	12.31	1.43	4.18			0.00	0.01
AM-111	0.44	1.27	0.44	1.27	0.44	1.27	2.95	3.06	8.40	29.43	5.90	20.80	0.39	1.14			0.00	0.00
AZ-571	0.02	0.11	0.02	0.11	0.02	0.11	7.22	31.62	0.32	1.42	0.27	1.19	0.02	0.08	0.10	0.44	0.00	0.00
BE-211	4.95	19.71	4.95	19.71	4.95	19.71	33.54	36.12	39.60	157.68	375.00	6.09	4.86	14.19			0.00	0.01
BH-231/232	8.88	21.80	8.88	21.80	8.88	21.80	58.20	44.64	105.02	460.00	102.56	8.66	2.04	5.96			0.00	0.02
BP-511	0.61	2.14	0.61	2.14	0.61	2.14	4.00	3.48	9.00	31.32	8.00	15.39	0.53	1.54			0.00	0.00
CK-003	0.48	1.22	0.48	1.22	0.48	1.22	3.17	1.79	1.94	6.78	2.86	0.09	0.42	1.22			0.00	0.00
CK-004	0.81	2.50	0.81	2.50	0.81	2.50	5.29	3.79	3.23	11.30	19.06	0.33	0.70	2.03			0.00	0.00
CK-005	0.41	1.03	0.41	1.03	0.41	1.03	2.70	1.50	1.65	5.78	2.44	0.40	0.36	1.04			0.00	0.00
CK-006	0.66	1.91	0.66	1.91	0.66	1.91	4.31	2.77	2.63	9.22	3.89	0.34	0.57	1.66			0.00	0.00
BQ-521	1.90	6.64	1.90	6.64	1.90	6.64	12.51	13.88	24.93	87.35	55.10	15.54	1.65	4.81			0.00	0.00
BQ-522	1.90	6.64	1.90	6.64	1.90	6.64	12.51	13.88	24.93	87.35	55.10	15.32	1.65	4.81			0.00	0.00
BQ-523	1.90	6.64	1.90	6.64	1.90	6.64	12.51	13.88	27.92	87.35	55.10	18.47	1.65	4.81			0.00	0.00
Sulfur Recovery Units II and III	0.69	2.01	0.69	2.01	0.69	2.01	9.67	42.35	12.92	37.71	8.46	24.70	0.50	1.45	0.31	1.36	0.03	0.13
Sulfur Shipping	0.02	0.11	0.02	0.11	0.02	0.11	7.22	31.62	0.32	1.42	0.27	1.19	0.02	0.08	0.23	1.03	0.00	0.00
Sulfur Recovery Units IV-VI(a)															0.61	2.68		
Purchased Feeds (Barges and Ships)(a)	0.17	0.76	0.16	0.69	0.12	0.52	1.13	4.94	4.93	21.60	0.55	2.41	0.12	0.53			0.00	0.00
Product Shipping (Truck+Railcar)(a)													2.60	11.40				
Product Shipping (Wharf)(a)													4.58	20.07				
Truck Traffic at Marketing Terminal(a)	-2.19	-9.59	-0.44	-1.92	-0.11	-0.47												
Coke Handling(a)	-0.71	-3.10	-0.25	-1.08	-0.01	-0.03							0.10	0.44				
Tanks Emissions(a)													12.63	55.30	0.00	0.00		
Fugitive Equipment Leaks(a)													3.15	13.80				
Totals	**33.42**	**103.52**	**35.62**	**113.14**	**36.16**	**115.47**	**261.10**	**318.07**	**432.81**	**1,625.38**	**887.71**	**150.81**	**48.90**	**176.67**	**1.26**	**5.51**	**0.05**	**0.21**

(a) Emissions represent actual incremental emissions change as a result of this project.

[1] **Condensables:** Include condensable particulate matter emissions in particulate matter calculations for PM-10 and PM-2.5, but not for TSP (PM).

[2] **TRS:** Total reduced sulfur (TRS) is the sum of the sulfur compounds hydrogen sulfide (H_2S), methyl mercaptan (CH_4S), dimethyl sulfide (C_2H_6S), and dimethyl disulfide ($C_2H_6S_2$).

Section B.3: Proposed Allowable Hazardous Air Pollutants (HAPs)

Proposed Allowable HAPs (Potential to Emit) are those emissions the facility is currently permitted to emit as limited by a specific permit requirement or federal/state standard (e.g., a MACT standard); or the emission rate at which the facility proposes to emit considering emissions control devices, restrictions to operating rates/hours, or other requested permit limits that reduce the maximum emission rates. Select an inidividual HAP from the dropdown list provided. **Emissions ≥ 0.01 ton/yr of an indiviudal HAP from a specific emission unit must be provided.** Emission Point numbering must be consistent throughout the application package and, for existing emission points, should match any MDEQ ID's in the current permit. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected or are below the reporting threshold. Select the appropriate HAP from the drop down menu in the header cell of the given column in the table below. Additional columns may be added as necessary to address each HAP.

Emission Point ID	Total HAPs		Choose Pollutant Name from Drop Down Menu		Choose Pollutant Name from Drop Down Menu		Choose Pollutant Name from Drop Down Menu		Choose Pollutant Name from Drop Down Menu		Choose Pollutant Name from Drop Down Menu		Choose Pollutant Name from Drop Down Menu		Choose Pollutant Name from Drop Down Menu		Choose Pollutant Name from Drop Down Menu	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
AE-013	0.24	1.06	For detailed emissions data for individual HAPs, please see Appendix A.															
AG-043	0.20	0.86																
AL-104	0.11	0.46																
AM-111	0.02	0.08																
AZ-571	0.01	0.03																
BE-211	0.24	1.04																
BH-231/232	0.69	3.03																
BP-511	0.03	0.11																
CK-003	0.02	0.09																
CK-004	0.03	0.15																
CK-005	0.02	0.08																
CK-006	0.03	0.12																
BQ-521	0.08	0.35																
BQ-522	0.08	0.35																
BQ-523	0.08	0.35																
Sulfur Recovery Units II and III	7.20	31.53																
Purchased Feeds (Barges and Ships)[(a)]	0.02	0.07																
Product Shipping (Truck+Railcar)[(a)]	0.18	0.77																
Product Shipping (Wharf)[(a)]	0.38	1.64																
Tanks Emissions[(a)]	6.01	26.34																
Fugitive Equipment Leaks[(a)]	0.25	1.10																
Totals:	15.90	69.65																

(a) Emissions represent actual incremental emissions change as a result of this project.

Section B.4: Greenhouse Gas (GHG) Emissions

This form is required for facilities that have or will require a Title V Operating Permit and for all industries in the energy and oil and gas sectors (i.e., SIC codes beginning with 13, 29, 46, and 49). Proposed Allowable GHGs (Potential to Emit) are those emissions the facility is currently permitted to emit as limited by a specific permit requirement or federal/state standard; or the emission rate at which the facility proposes to emit considering emissions control devices, restrictions to operating rates/hours, or other requested permit limits that reduce the maximum emission rates. Applicants must report potential emission rates in SHORT TONS per year, as opposed to metric tons required by Part 98. Emission Point numbering must be consistent throughout the application package and, for existing emission points, should match any MDEQ ID's in the current permit. Only those emission points with emissions of greenhouse gases are required to be provided on this form.

		CO_2 (non-biogenic) ton/yr	CO_2 (biogenic)[2] ton/yr	N_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC[3] ton/yr				Total GHG Mass Basis ton/yr[5]	Total CO_2e ton/yr[6]
Emission Point ID	**GWPs [1]**	**1**	**1**	**265**	**28**	**22,800**	**footnote 4**					
AE-013	mass GHG	348,440		4	18						348,461	
	CO_2e	348,440		939	496							349,875
AG-043	mass GHG	280,871		3	14						280,888	
	CO_2e	280,871		757	400							282,028
AL-104	mass GHG	150,975		2	8						150,985	
	CO_2e	150,975		407	215							151,597
AM-111	mass GHG	27,346		0	1						27,348	
	CO_2e	27,346		74	39							27,459
AZ-571	mass GHG	1,691		0	0						1,691	
	CO_2e	1,691		1	1							1,693
BE-211	mass GHG	341,831		3	17						341,852	
	CO_2e	341,831		921	487							343,239
BH-231/232	mass GHG	527,077		4	23						527,104	
	CO_2e	527,077		1176	651							528,904
BP-511	mass GHG	37,032		0	2						37,034	
	CO_2e	37,032		100	53							37,184
CK-003	mass GHG	29,415		0	1						29,416	
	CO_2e	29,415		79	42							29,536
CK-004	mass GHG	48,996		0	2						48,999	
	CO_2e	48,996		132	70							49,198
CK-005	mass GHG	25,068		0	1						25,069	
	CO_2e	25,068		68	36							25,171
CK-006	mass GHG	39,954		0	2						39,957	
	CO_2e	39,954		108	57							40,119
BQ-521	mass GHG	144,922		1	7						144,931	
	CO_2e	144,922		391	206							145,519
BQ-522	mass GHG	144,922		1	7						144,931	
	CO_2e	144,922		391	206							145,519
BQ-523	mass GHG	144,922		1	7						144,931	
	CO_2e	144,922		391	206							145,519
Sulfur Recovery	mass GHG	31,510		0.1	0.6						31,511	
Units II and III	CO_2e	31,510		16	17							31,543
FACILITY	mass GHG	2,324,972		22	114						2,325,109	
TOTAL	CO_2e	2,324,972		5,949	3,181							2,334,102

[1] **GWP** (Global Warming Potential): Applicants must use the most current GWPs codified in Table A-1 of 40 CFR part 98. GWPs are subject to change, therefore, applicants need to check 40 CFR 98 to confirm GWP values.

[2] Biogenic CO2 is defined as carbon dioxide emissions resulting from the combustion or decomposition of non-fossilized and biodegradable organic material originating from plants, animals, or micro-organisms.

[3] For **HFCs** or **PFCs** describe the specific HFC or PFC compound and use a separate column for each individual compound.

[4] For each new compound, enter the appropriate GWP for each HFC or PFC compound from Table A-1 in 40 CFR 98.

[5] Greenhouse gas emissions on a **mass basis** is the ton per year greenhouse gas emission before adjustment with its GWP. Include both biogenic and non-biogenic GHG in this total.

[6] **CO_2e** means Carbon Dioxide Equivalent and is calculated by multiplying the ton/yr mass emissions of the greenhouse gas by its GWP. Include both biogenic and non-biogenic CO_2e in this total.

Section B.5: Stack Parameters and Exit Conditions

Emission Point numbering must be consistent throughout the application package and, for existing emission points, should match any MDEQ ID's in the current permit.

Emission Point ID	Orientation (H-Horizontal V=Vertical)	Rain Caps (Yes or No)	Height Above Ground (ft)	Base Elevation (ft)	Exit Temp. (°F)	Inside Diameter or Dimensions (ft)	Velocity (ft/sec)	Moisture by Volume (%)	Geographic Position (degrees/minutes/seconds)	
									Latitude	Longitude
AE-013	V	No	160.00	6.56	495	10.20	40.49		30.342	-88.490
AE-013	V	No	149.00	6.56	695	8.70	34.89		30.342	-88.490
AG-043	V	No	152.20	6.56	400	10.42	41.90		30.343	-88.487
AL-104	V	No	80.00	6.56	330	5.45	80.00		30.343	-88.490
AM-111	V	No	110.00	6.56	885	4.75	27.63		30.342	-88.491
AZ-571	V	No	48.67	10.00	1600	2.00	23.40		30.341	-88.506
BE-211	V	No	162.00	6.56	320	12.25	42.00		30.342	-88.486
BH-231	V	No	101.00	6.56	550	6.00	105.00		30.343	-88.486
BH-231	V	No	101.00	6.56	550	6.00	105.00		30.343	-88.486
BH-231	V	No	101.00	6.56	550	6.00	105.00		30.343	-88.486
BH-232	V	No	100.00	6.56	900	6.68	58.77		30.342	-88.486
BP-511	V	No	150.00	3.28	440	3.50	45.00		30.344	-88.484
CK-003	V	No	184.20	3.28	480	2.65	67.20		30.346	-88.484
CK-004	V	No	199.00	3.28	550	4.10	41.30		30.346	-88.485
CK-005	V	No	129.40	3.28	515	2.98	45.40		30.346	-88.485
CK-006	V	No	143.80	3.28	545	3.92	41.10		30.346	-88.485
BQ-521	V	No	246.16	3.28	460	10.17	21.50		30.340	-88.482
BQ-522	V	No	246.16	3.28	440	10.17	21.50		30.340	-88.482
BQ-523	V	No	246.16	3.28	470	10.17	21.50		30.340	-88.482

[1] A WAAS-capable GPS receiver should be used and in the WGS84 or NAD83 coordinate system.

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Fuel Burning Equipment – External Combustion Sources — Section C

1. Emission Point Description

A. Emission Point Designation (Ref. No.): AE-013

B. Equipment Description: Vacuum/Atmospheric Furnaces Vented through Two Common Stacks

C. Manufacturer: Foster Wheeler D. Model Yr. and No.: 1962

E. Maximum Heat Input (higher heating value): 611.6 MMBtu/hr F. Nominal Heat Input Capacity: 489.28 MMBtu/hr

G. For units subject to NSPS Db, is the heat release rate > 70,000 Btu/hr-ft^3? ☐ Yes ☒ No

H. Use: ☐ Electrical Generation ☐ Steam ☒ Process Heat

☐ Space Heat ☐ Standby/Emergency ☐ Other (describe): ____________

I. Heat Mechanism: ☐ Direct ☒ Indirect

J. Burner Type (e.g., pulverized coal, forced draft, atomizing oil, low-NO_x, etc.): Multi Port Gas

K. Additional Design Controls (e.g., FGR, etc.): ____________

L. Status: ☒ Operating ☐ Proposed ☐ Under Construction

M. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: 1983

2. Fuel Type

Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE[1]	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	MAXIMUM YEARLY USAGE
C1102 Overhead Vent	500-2000 Btu/scf (HHV)	0-2000 ppmv	N/A	26.76 Mscf/hr	156.30 MMscf/yr
RFG	400-1600 Btu/scf (HHV)	0-250 ppmv	N/A	899.42 Mscf/hr	5,252.56 MMscf/yr

Please list any fuel components that are hazardous air pollutants and the percentage in the fuel:
Benzene, 1,3 Butadiene, Carbon Monoxide, Ethylbenzene, Hexane, Iso-Octane, Toluene, Xylenes

[1] Boilers burning solid waste may be considered "solid waste incinerators" for purposes of complying with federal regulations. However, you are only required to complete Section C, not I, of this application as long as the wastes combusted are indicated in the table above.

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Fuel Burning Equipment – External Combustion Sources — Section C

1. Emission Point Description

A. Emission Point Designation (Ref. No.): AG-043

B. Equipment Description: Rhen I Furnace

C. Manufacturer: Foster Wheeler D. Model Yr. and No.: 1963

E. Maximum Heat Input (higher heating value): 493 MMBtu/hr F. Nominal Heat Input Capacity: 394.4 MMBtu/hr

G. For units subject to NSPS Db, is the heat release rate > 70,000 Btu/hr-ft^3? ☐ Yes ☒ No

H. Use: ☐ Electrical Generation ☐ Steam ☒ Process Heat

☐ Space Heat ☐ Standby/Emergency ☐ Other (describe): ____________

I. Heat Mechanism: ☐ Direct ☒ Indirect

J. Burner Type (e.g., pulverized coal, forced draft, atomizing oil, low-NO_x, etc.): Multi Port Gas

K. Additional Design Controls (e.g., FGR, etc.): ____________

L. Status: ☒ Operating ☐ Proposed ☐ Under Construction

M. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: 1998

2. Fuel Type

Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE[1]	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	MAXIMUM YEARLY USAGE
RFG	400-1600 Btu/scf (HHV)	0-250 ppmv	N/A	801.47 Mscf/hr	4,680.59 MMscf/yr

Please list any fuel components that are hazardous air pollutants and the percentage in the fuel:
Benzene, 1,3 Butadiene, Carbon Monoxide, Ethylbenzene, Hexane, Iso-Octane, Toluene, Xylenes

[1] Boilers burning solid waste may be considered "solid waste incinerators" for purposes of complying with federal regulations. However, you are only required to complete Section C, not I, of this application as long as the wastes combusted are indicated in the table above.

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Fuel Burning Equipment – External Combustion Sources — Section C

1. Emission Point Description

A. Emission Point Designation (Ref. No.): AL-104

B. Equipment Description: Boiler

C. Manufacturer: Wickes Boiler Company D. Model Yr. and No.: 1963

E. Maximum Heat Input (higher heating value): 265 MMBtu/hr F. Nominal Heat Input Capacity: 212 MMBtu/hr

G. For units subject to NSPS Db, is the heat release rate > 70,000 Btu/hr-ft^3? ☐ Yes ☒ No

H. Use: ☐ Electrical Generation ☒ Steam ☐ Process Heat

☐ Space Heat ☐ Standby/Emergency ☐ Other (describe): ______

I. Heat Mechanism: ☐ Direct ☒ Indirect

J. Burner Type (e.g., pulverized coal, forced draft, atomizing oil, low-NO_x, etc.): Forced Draft Gas

K. Additional Design Controls (e.g., FGR, etc.): ULNB

L. Status: ☒ Operating ☐ Proposed ☐ Under Construction

M. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: 2011

2. Fuel Type

Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE[1]	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	MAXIMUM YEARLY USAGE
Natural Gas	900-1000 Btu/scf (HHV)	0-150 ppmv	N/A	405.50 Mscf/hr	2,368.00 MMscf/yr
RFG	400-1600 Btu/scf (HHV)	0-250 ppmv	N/A	405.50 Mscf/hr	2,368.00 MMscf/yr

Please list any fuel components that are hazardous air pollutants and the percentage in the fuel:
Benzene, 1,3 Butadiene, Carbon Monoxide, Ethylbenzene, Hexane, Iso-Octane, Toluene, Xylenes

[1] Boilers burning solid waste may be considered "solid waste incinerators" for purposes of complying with federal regulations. However, you are only required to complete Section C, not I, of this application as long as the wastes combusted are indicated in the table above.

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Fuel Burning Equipment – External Combustion Sources — Section C

1. Emission Point Description

A. Emission Point Designation (Ref. No.): AM-111

B. Equipment Description: Process Heater

C. Manufacturer: Born Engineeering Company

D. Model Yr. and No.: 1973

E. Maximum Heat Input (higher heating value): 48 MMBtu/hr

F. Nominal Heat Input Capacity: 38.4 MMBtu/hr

G. For units subject to NSPS Db, is the heat release rate > 70,000 Btu/hr-ft^3? ☐ Yes ☒ No

H. Use: ☐ Electrical Generation ☐ Steam ☒ Process Heat

☐ Space Heat ☐ Standby/Emergency ☐ Other (describe): ____________

I. Heat Mechanism: ☐ Direct ☒ Indirect

J. Burner Type (e.g., pulverized coal, forced draft, atomizing oil, low-NO_x, etc.): Multi Port Gas

K. Additional Design Controls (e.g., FGR, etc.): ____________

L. Status: ☒ Operating ☐ Proposed ☐ Under Construction

M. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: 1973

2. Fuel Type

Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE[1]	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	MAXIMUM YEARLY USAGE
RFG	400-1600 Btu/scf (HHV)	0-250 ppmv	N/A	70.59 Mscf/hr	412.24 MMscf/yr

Please list any fuel components that are hazardous air pollutants and the percentage in the fuel:
Benzene, 1,3 Butadiene, Carbon Monoxide, Ethylbenzene, Hexane, Iso-Octane, Toluene, Xylenes

[1] Boilers burning solid waste may be considered "solid waste incinerators" for purposes of complying with federal regulations. However, you are only required to complete Section C, not I, of this application as long as the wastes combusted are indicated in the table above.

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Fuel Burning Equipment – External Combustion Sources — Section C

1. Emission Point Description

A. Emission Point Designation (Ref. No.): BE-211

B. Equipment Description: Atm. Col. And Vac. Col. Heaters

C. Manufacturer: Born Engineering Company D. Model Yr. and No.: 1970

E. Maximum Heat Input (higher heating value): 600 MMBtu/hr F. Nominal Heat Input Capacity: 480 MMBtu/hr

G. For units subject to NSPS Db, is the heat release rate > 70,000 Btu/hr-ft^3? ☐ Yes ☒ No

H. Use: ☐ Electrical Generation ☐ Steam ☒ Process Heat

☐ Space Heat ☐ Standby/Emergency ☐ Other (describe): ______

I. Heat Mechanism: ☐ Direct ☒ Indirect

J. Burner Type (e.g., pulverized coal, forced draft, atomizing oil, low-NO_x, etc.): Forced Air with ULNB

K. Additional Design Controls (e.g., FGR, etc.): ______

L. Status: ☒ Operating ☐ Proposed ☐ Under Construction

M. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: 1971

2. Fuel Type

Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE[1]	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	MAXIMUM YEARLY USAGE
RFG	400-1600 Btu/scf (HHV)	0-250 ppmv	N/A	865.00 Mscf/hr	4,778.00 MMscf/yr
Sweet Process Offgas	500-2000 Btu/scf (HHV)	0-250 ppmv	N/A	6.69 Mscf/hr	39.06 MMscf/yr

Please list any fuel components that are hazardous air pollutants and the percentage in the fuel: Benzene, 1,3 Butadiene, Carbon Monoxide, Ethylbenzene, Hexane, Iso-Octane, Toluene, Xylenes

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FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Fuel Burning Equipment – External Combustion Sources — Section C

1. Emission Point Description

A. Emission Point Designation (Ref. No.): BH-231

B. Equipment Description: Reformer Furnace with exhaust routed to three stacks

C. Manufacturer: Foster Wheeler D. Model Yr. and No.: 1970

E. Maximum Heat Input (higher heating value): 730 MMBtu/hr F. Nominal Heat Input Capacity: 584 MMBtu/hr

G. For units subject to NSPS Db, is the heat release rate > 70,000 Btu/hr-ft^3? ☐ Yes ☒ No

H. Use: ☐ Electrical Generation ☐ Steam ☒ Process Heat

☐ Space Heat ☐ Standby/Emergency ☐ Other (describe): ______

I. Heat Mechanism: ☐ Direct ☒ Indirect

J. Burner Type (e.g., pulverized coal, forced draft, atomizing oil, low-NO_x, etc.): Forced Draft Gas

K. Additional Design Controls (e.g., FGR, etc.): ______

L. Status: ☒ Operating ☐ Proposed ☐ Under Construction

M. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: 1991

2. Fuel Type

Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE[1]	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	MAXIMUM YEARLY USAGE
RFG	400-1600 Btu/scf (HHV)	0-250 ppmv	N/A	1,073.53 Mscf/hr	6,269.41 MMscf/yr

Please list any fuel components that are hazardous air pollutants and the percentage in the fuel:
Benzene, 1,3 Butadiene, Carbon Monoxide, Ethylbenzene, Hexane, Iso-Octane, Toluene, Xylenes

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FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Fuel Burning Equipment – External Combustion Sources — Section C

1. Emission Point Description

A. Emission Point Designation (Ref. No.): BP-511

B. Equipment Description: RDS Feed Furnace 1

C. Manufacturer: Foster Wheeler D. Model Yr. and No.: 1981

E. Maximum Heat Input (higher heating value): 65 MMBtu/hr F. Nominal Heat Input Capacity: 52 MMBtu/hr

G. For units subject to NSPS Db, is the heat release rate > 70,000 Btu/hr-ft^3? ☐ Yes ☒ No

H. Use: ☐ Electrical Generation ☐ Steam ☒ Process Heat
☐ Space Heat ☐ Standby/Emergency ☐ Other (describe): ______

I. Heat Mechanism: ☐ Direct ☒ Indirect

J. Burner Type (e.g., pulverized coal, forced draft, atomizing oil, low-NO_x, etc.): Multi Port Gas

K. Additional Design Controls (e.g., FGR, etc.): ______

L. Status: ☒ Operating ☐ Proposed ☐ Under Construction

M. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: 1981

2. Fuel Type

Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE[1]	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	MAXIMUM YEARLY USAGE
RFG	400-1600 Btu/scf (HHV)	0-250 ppmv	N/A	95.59 Mscf/hr	558.24 MMscf/yr

Please list any fuel components that are hazardous air pollutants and the percentage in the fuel:
Benzene, 1,3 Butadiene, Carbon Monoxide, Ethylbenzene, Hexane, Iso-Octane, Toluene, Xylenes

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FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Fuel Burning Equipment – External Combustion Sources — Section C

1. Emission Point Description

A. Emission Point Designation (Ref. No.): CK-003

B. Equipment Description: HCR Feed Heater (F-8210)

C. Manufacturer: ____________ D. Model Yr. and No.: ____________

E. Maximum Heat Input (higher heating value): 51.63 MMBtu/hr

F. Nominal Heat Input Capacity: 41.304 MMBtu/hr

G. For units subject to NSPS Db, is the heat release rate > 70,000 Btu/hr-ft^3? ☐ Yes ☒ No

H. Use: ☐ Electrical Generation ☐ Steam ☒ Process Heat
☐ Space Heat ☐ Standby/Emergency ☐ Other (describe): ____________

I. Heat Mechanism: ☐ Direct ☒ Indirect

J. Burner Type (e.g., pulverized coal, forced draft, atomizing oil, low-NO_x, etc.): Multi Port Gas

K. Additional Design Controls (e.g., FGR, etc.): ULNB

L. Status: ☒ Operating ☐ Proposed ☐ Under Construction

M. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: ____________

2. Fuel Type

Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE[1]	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	MAXIMUM YEARLY USAGE
RFG	400-1600 Btu/scf (HHV)	0-250 ppmv	N/A	50.62 Mscf/hr	50.62 Mscf/yr

Please list any fuel components that are hazardous air pollutants and the percentage in the fuel:
Benzene, 1,3 Butadiene, Carbon Monoxide, Ethylbenzene, Hexane, Iso-Octane, Toluene, Xylenes

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FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Fuel Burning Equipment – External Combustion Sources — Section C

1. Emission Point Description

A. Emission Point Designation (Ref. No.): CK-004

B. Equipment Description: FPU Vac. Col. Feed Heater (F-8220)

C. Manufacturer: ____________ D. Model Yr. and No.: ____________

E. Maximum Heat Input (higher heating value): 86 MMBtu/hr

F. Nominal Heat Input Capacity: 68.8 MMBtu/hr

G. For units subject to NSPS Db, is the heat release rate > 70,000 Btu/hr-ft^3? ☐ Yes ☒ No

H. Use: ☐ Electrical Generation ☐ Steam ☒ Process Heat

☐ Space Heat ☐ Standby/Emergency ☐ Other (describe): ____________

I. Heat Mechanism: ☐ Direct ☒ Indirect

J. Burner Type (e.g., pulverized coal, forced draft, atomizing oil, low-NO_x, etc.): Multi Port Gas

K. Additional Design Controls (e.g., FGR, etc.): ULNB

L. Status: ☒ Operating ☐ Proposed ☐ Under Construction

M. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: ____________

2. Fuel Type

Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE[1]	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	MAXIMUM YEARLY USAGE
RFG	400-1600 Btu/scf (HHV)	0-250 ppmv	N/A	84.13 Mscf/hr	84.13 Mscf/yr

Please list any fuel components that are hazardous air pollutants and the percentage in the fuel:
Benzene, 1,3 Butadiene, Carbon Monoxide, Ethylbenzene, Hexane, Iso-Octane, Toluene, Xylenes

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FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Fuel Burning Equipment – External Combustion Sources — Section C

1. Emission Point Description

A. Emission Point Designation (Ref. No.): CK-005

B. Equipment Description: IDW/HDF Reactor Feed Heater (F-8250)

C. Manufacturer: ______________________ D. Model Yr. and No.: ______________________

E. Maximum Heat Input (higher heating value): 44 MMBtu/hr

F. Nominal Heat Input Capacity: 35.2 MMBtu/hr

G. For units subject to NSPS Db, is the heat release rate > 70,000 Btu/hr-ft^3? ☐ Yes ☒ No

H. Use: ☐ Electrical Generation ☐ Steam ☒ Process Heat

☐ Space Heat ☐ Standby/Emergency ☐ Other (describe): ______________________

I. Heat Mechanism: ☐ Direct ☒ Indirect

J. Burner Type (e.g., pulverized coal, forced draft, atomizing oil, low-NO_x, etc.): Multi Port Gas

K. Additional Design Controls (e.g., FGR, etc.): ULNB

L. Status: ☒ Operating ☐ Proposed ☐ Under Construction

M. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: ______________________

2. Fuel Type

Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE[1]	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	MAXIMUM YEARLY USAGE
RFG	400-1600 Btu/scf (HHV)	0-250 ppmv	N/A	43.14 Mscf/hr	43.14 Mscf/yr

Please list any fuel components that are hazardous air pollutants and the percentage in the fuel:
Benzene, 1,3 Butadiene, Carbon Monoxide, Ethylbenzene, Hexane, Iso-Octane, Toluene, Xylenes

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FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Fuel Burning Equipment – External Combustion Sources — Section C

1. Emission Point Description

A. Emission Point Designation (Ref. No.): CK-006

B. Equipment Description: IDW/HDF Vac. Feed Heater (F-8280)

C. Manufacturer: ____________ D. Model Yr. and No.: ____________

E. Maximum Heat Input (higher heating value): 70.13 MMBtu/hr

F. Nominal Heat Input Capacity: 56.104 MMBtu/hr

G. For units subject to NSPS Db, is the heat release rate > 70,000 Btu/hr-ft^3? ☐ Yes ☒ No

H. Use: ☐ Electrical Generation ☐ Steam ☒ Process Heat ☐ Space Heat ☐ Standby/Emergency ☐ Other (describe): ____________

I. Heat Mechanism: ☐ Direct ☒ Indirect

J. Burner Type (e.g., pulverized coal, forced draft, atomizing oil, low-NO_x, etc.): Multi Port Gas

K. Additional Design Controls (e.g., FGR, etc.): ULNB

L. Status: ☒ Operating ☐ Proposed ☐ Under Construction

M. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: ____________

2. Fuel Type

Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE[1]	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	MAXIMUM YEARLY USAGE
RFG	400-1600 Btu/scf (HHV)	0-250 ppmv	N/A	68.75 Mscf/hr	68.75 Mscf/yr

Please list any fuel components that are hazardous air pollutants and the percentage in the fuel: Benzene, 1,3 Butadiene, Carbon Monoxide, Ethylbenzene, Hexane, Iso-Octane, Toluene, Xylenes

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FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Fuel Burning Equipment – External Combustion Sources — Section C

1. Emission Point Description

A. Emission Point Designation (Ref. No.): BQ-521

B. Equipment Description: Coker Furnace No. 1

C. Manufacturer: Foster Wheeler D. Model Yr. and No.: 1980

E. Maximum Heat Input (higher heating value): 203.5 MMBtu/hr F. Nominal Heat Input Capacity: 162.8 MMBtu/hr

G. For units subject to NSPS Db, is the heat release rate > 70,000 Btu/hr-ft^3? ☐ Yes ☒ No

H. Use: ☐ Electrical Generation ☐ Steam ☒ Process Heat

☐ Space Heat ☐ Standby/Emergency ☐ Other (describe): ______

I. Heat Mechanism: ☐ Direct ☒ Indirect

J. Burner Type (e.g., pulverized coal, forced draft, atomizing oil, low-NO_x, etc.): Multi Port Gas

K. Additional Design Controls (e.g., FGR, etc.): ______

L. Status: ☒ Operating ☐ Proposed ☐ Under Construction

M. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: 1983

2. Fuel Type

Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE[1]	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	MAXIMUM YEARLY USAGE
RFG	400-1600 Btu/scf (HHV)	0-250 ppmv	N/A	299.33 Mscf/hr	1,748.08 MMscf/yr

Please list any fuel components that are hazardous air pollutants and the percentage in the fuel:
Benzene, 1,3 Butadiene, Carbon Monoxide, Ethylbenzene, Hexane, Iso-Octane, Toluene, Xylenes

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FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Fuel Burning Equipment – External Combustion Sources — Section C

1. Emission Point Description

A. Emission Point Designation (Ref. No.): BQ-522

B. Equipment Description: Coker Furnace No. 2

C. Manufacturer: Foster Wheeler   D. Model Yr. and No.: 1980

E. Maximum Heat Input (higher heating value): 203.5 MMBtu/hr   F. Nominal Heat Input Capacity: 162.8 MMBtu/hr

G. For units subject to NSPS Db, is the heat release rate > 70,000 Btu/hr-ft^3? ☐ Yes ☒ No

H. Use: ☐ Electrical Generation ☐ Steam ☒ Process Heat ☐ Space Heat ☐ Standby/Emergency ☐ Other (describe): ______

I. Heat Mechanism: ☐ Direct ☒ Indirect

J. Burner Type (e.g., pulverized coal, forced draft, atomizing oil, low-NO_x, etc.): Multi Port Gas

K. Additional Design Controls (e.g., FGR, etc.): ______

L. Status: ☒ Operating ☐ Proposed ☐ Under Construction

M. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: 1983

2. Fuel Type

Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE[1]	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	MAXIMUM YEARLY USAGE
RFG	400-1600 Btu/scf (HHV)	0-250 ppmv	N/A	299.33 Mscf/hr	1,748.08 MMscf/yr

Please list any fuel components that are hazardous air pollutants and the percentage in the fuel:
Benzene, 1,3 Butadiene, Carbon Monoxide, Ethylbenzene, Hexane, Iso-Octane, Toluene, Xylenes

[1] Boilers burning solid waste may be considered "solid waste incinerators" for purposes of complying with federal regulations. However, you are only required to complete Section C, not I, of this application as long as the wastes combusted are indicated in the table above.

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Fuel Burning Equipment – External Combustion Sources — Section C

1. Emission Point Description

A. Emission Point Designation (Ref. No.): BQ-523

B. Equipment Description: Coker Furnace No. 3

C. Manufacturer: Foster Wheeler D. Model Yr. and No.: 1980

E. Maximum Heat Input (higher heating value): 203.5 MMBtu/hr F. Nominal Heat Input Capacity: 162.8 MMBtu/hr

G. For units subject to NSPS Db, is the heat release rate > 70,000 Btu/hr-ft^3? ☐ Yes ☒ No

H. Use: ☐ Electrical Generation ☐ Steam ☒ Process Heat

☐ Space Heat ☐ Standby/Emergency ☐ Other (describe): ________

I. Heat Mechanism: ☐ Direct ☒ Indirect

J. Burner Type (e.g., pulverized coal, forced draft, atomizing oil, low-NO_x, etc.): Multi Port Gas

K. Additional Design Controls (e.g., FGR, etc.): ________

L. Status: ☒ Operating ☐ Proposed ☐ Under Construction

M. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: 1983

2. Fuel Type

Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE[1]	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	MAXIMUM YEARLY USAGE
RFG	400-1600 Btu/scf (HHV)	0-250 ppmv	N/A	299.33 Mscf/hr	1,748.08 MMscf/yr

Please list any fuel components that are hazardous air pollutants and the percentage in the fuel:
Benzene, 1,3 Butadiene, Carbon Monoxide, Ethylbenzene, Hexane, Iso-Octane, Toluene, Xylenes

[1] Boilers burning solid waste may be considered "solid waste incinerators" for purposes of complying with federal regulations. However, you are only required to complete Section C, not I, of this application as long as the wastes combusted are indicated in the table above.

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Fuel Burning Equipment – External Combustion Sources — Section C

1. Emission Point Description

A. Emission Point Designation (Ref. No.): AZ-571 (F-34401)

B. Equipment Description: T-14 & T-15 Sulfur Storage Tanks Vent Thermal Oxidizer

C. Manufacturer: Zeeco D. Model Yr. and No.: 2022

E. Maximum Heat Input (higher heating value): 3.3 MMBtu/hr F. Nominal Heat Input Capacity: 3.3 MMBtu/hr

G. For units subject to NSPS Db, is the heat release rate > 70,000 Btu/hr-ft^3? ☐ Yes ☒ No

H. Use: ☐ Electrical Generation ☐ Steam ☐ Process Heat
☐ Space Heat ☐ Standby/Emergency ☒ Other (describe): Thermal Oxidizer

I. Heat Mechanism: ☒ Direct ☐ Indirect

J. Burner Type (e.g., pulverized coal, forced draft, atomizing oil, low-NO_x, etc.): Afterburner

K. Additional Design Controls (e.g., FGR, etc.): ______

L. Status: ☐ Operating ☐ Proposed ☒ Under Construction

M. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: 2025

2. Fuel Type

Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE[1]	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	MAXIMUM YEARLY USAGE
NG	900-1000 Btu/scf (HHV)	N/A	N/A	3.2 Mscf/hr	28.03 MMscf/yr

Please list any fuel components that are hazardous air pollutants and the percentage in the fuel:

______

[1] Boilers burning solid waste may be considered “solid waste incinerators” for purposes of complying with federal regulations. However, you are only required to complete Section C, not I, of this application as long as the wastes combusted are indicated in the table above.

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Fuel Burning Equipment – Internal Combustion Sources — Section D

1. Emission Point Description

A. Emission Point Designation (Ref. No.): BH-232

B. Equipment Description: Gas Turbine

C. Manufacturer: General Electrical Co. D. Model Yr. and No.: 7L5A1MM5-1

E. Maximum Heat Input (higher heating value): 217.0 MMBtu/hr

F. Rated Power: 21710 hp 16189.14 kW

G. Use: ☒ Non-emergency ☐ Emergency

Complete H through Q for Reciprocating (Piston) Internal Combustion Engines

H. Displacement per cylinder: ☐ < 10 Liters ☐ 10 to <30 Liters ☐ ≥ 30 Liters

I. Engine Ignition Type: ☐ Spark Ignition ☐ Compression Ignition

J. Engine Burn Type: ☐ 4-stroke ☐ 2-stroke ☐ Rich Burn ☐ Lean Burn
(J. should be answered for Compression Ignition only)

K. Design Controls (e.g., catalytic converter, diesel particulate filter, SCR, etc.) ______________

L. Status: ☐ Operating ☐ Proposed ☐ Under Construction

M. Engine manufactured or reconstructed date: ______________ N. Engine order date: ______________

O. Is the engine certified by EPA to meet the applicable emissions standards? ☐ Yes ☐ No

P. If an emergency engine, can your engine be operated for Emergency Demand Response per the NERC Reliability Standard? ☐ Yes ☐ No

Q. If an emergency engine, is it used for peak shaving or non-emergency demand response? ☐ Yes ☐ No

Complete R through T for Stationary Gas Turbines

R. Turbine Type: ☒ Simple Cycle ☐ Regenerative Cycle ☐ Combined Cycle
☐ Combined Heat and Power (Cogeneration)

S. Controls: ☐ Water-Steam Injection ☐ Lean Premix
☒ Other Controls (SCR, oxidation catalyst, etc.): Tristen Control System

T. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: 1992

2. Fuel Type

Complete the following table, identifying each type of fuel and the amount used. Specify units of measurement.

FUEL TYPE	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	MAXIMUM YEARLY USAGE
Natural Gas	900-1000 Btu/scf (HHV)	0-150 ppmv	N/A	239.10 Mscf/hr	2,094.70 MMscf/yr

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Manufacturing Processes — Section E

1. Emission Point Description

A. Emission Point Designation (Ref.: No.): AE-001

B. Process Description: Crude I - Plant 11 Process Equipment Fugitives

C. Manufacturer: ____________ D. Model: ____________

E. Max. Design Capacity (specify units): ____________
Equivalent to: ____________ tons/hr

F. Status: ☒ Operating ☐ Proposed ☐ Under Construction

G. Operating Schedule (Actual): 24 hrs/day 7 days/week 52 weeks/yr

H. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: ____________

2. Raw Material Input

MATERIAL	QUANTITY/HR AVERAGE	QUANITITY/HR MAXIMUM	QUANTITY/YEAR MAXIMUM

3. Product Output

MATERIAL	QUANTITY/HR AVERAGE	QUANITITY/HR MAXIMUM	QUANTITY/YEAR MAXIMUM

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Manufacturing Processes — Section E

1. Emission Point Description

A. Emission Point Designation (Ref.: No.): AM-001

B. Process Description: Hydrofiner - Plant 22 Process Equipment Fugitives

C. Manufacturer: ____________ D. Model: ____________

E. Max. Design Capacity (specify units): ____________
Equivalent to: ____________ tons/hr

F. Status: ☒ Operating ☐ Proposed ☐ Under Construction

G. Operating Schedule (Actual): 24 hrs/day 7 days/week 52 weeks/yr

H. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: ____________

2. Raw Material Input

MATERIAL	QUANTITY/HR AVERAGE	QUANITITY/HR MAXIMUM	QUANTITY/YEAR MAXIMUM

3. Product Output

MATERIAL	QUANTITY/HR AVERAGE	QUANITITY/HR MAXIMUM	QUANTITY/YEAR MAXIMUM

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Manufacturing Processes — Section E

1. Emission Point Description

A. Emission Point Designation (Ref.: No.): BE-001

B. Process Description: Crude II - Plant 61 Process Equipment Fugitives

C. Manufacturer: ____________ D. Model: ____________

E. Max. Design Capacity (specify units): ____________
Equivalent to: ____________ tons/hr

F. Status: ☒ Operating ☐ Proposed ☐ Under Construction

G. Operating Schedule (Actual): 24 hrs/day 7 days/week 52 weeks/yr

H. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: ____________

2. Raw Material Input

MATERIAL	QUANTITY/HR AVERAGE	QUANITITY/HR MAXIMUM	QUANTITY/YEAR MAXIMUM

3. Product Output

MATERIAL	QUANTITY/HR AVERAGE	QUANITITY/HR MAXIMUM	QUANTITY/YEAR MAXIMUM

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Tank Summary — Section H

1. Emission Point Description

Note: Sections 3-7 below do not have to be completed if all of the required information is provided elsewhere, such as in a report generated by EPA's TANKS software, and attached to the application.

A. Emission Point Designation (Ref. No.): AV-063

B. Product(s) Stored: Supreme Unleaded Gasoline

C. Status: ☒ Operating ☐ Proposed ☐ Under Construction

D. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: 2025 (reconstructed)

2. Tank Data

A. Tank Specifications:

1. Design capacity 249,350 gallons
2. True vapor pressure at storage temperature: ______ psia @ ______ ºF
3. Maximum true vapor pressure (as defined in §60.111b) ______ psia @ ______ ºF
4. Reid vapor pressure at storage temperature: 10 psia @ ______ ºF
5. Density of product at storage temperature: 5.6 lb/gal
6. Molecular weight of product vapor at storage temp. 66 lb/lbmol

B. Tank Orientation: ☒ Vertical ☐ Horizontal

C. Type of Tank:

☐ Fixed Roof ☒ External Floating Roof ☐ Internal Floating Roof

☐ Pressure ☐ Variable Vapor Space ☐ Other: ______

D. Is the tank equipped with a Vapor Recovery System? ☐ Yes ☒ No
If yes, describe below and include the efficiency.
______

E. Closest City:
☒ Jackson, MS ☐ Meridian, MS ☐ Tupelo, MS ☐ Mobile, AL

☐ New Orleans, LA ☐ Memphis, TN ☐ Baton Rouge, LA

F. Is an EPA TANKS report included for this tank in the application? ☐ Yes ☒ No

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Tank Summary — Section H

3. Horizontal Fixed Roof Tank

A. Shell Length: ________________ feet
B. Shell Diameter: ________________ feet
C. Working Volume: ________________ gal
D. Maximum Throughput: ________________ gal/yr
E. Is the tank heated? ☐ Yes ☐ No
F. Is the tank underground? ☐ Yes ☐ No
G. Shell Color/Shade:
☐ ☐ Aluminum/Specular ☐ Aluminum/Diffuse
☐ Gray/Light ☐ Gray/Medium ☐ Red/Primer

H. Shell Condition: ☐ Good ☐ Poor

4. Vertical Fixed Roof Tank

A. Dimensions:
1. Shell Height: ________________ feet
2. Shell Diameter: ________________ feet
3. Maximum Liquid Height: ________________ feet
4. Average Liquid Height: ________________ feet
5. Working Volume: ________________ gal
6. Turnovers per year: ________________
7. Maximum throughput: ________________ gal/yr
8. Is the tank heated? ☐ Yes ☐ No

B. Shell Characteristics:
1. Shell Color/Shade:
☐ White/White ☐ Aluminum/Specular ☐ Aluminum/Diffuse
☐ Gray/Light ☐ Gray/Medium ☐ Red/Primer
2. Shell Condition: ☐ Good ☐ Poor

C. Roof Characteristics:
1. Roof Color/Shade:
☐ White/White ☐ Aluminum/Specular ☐ Aluminum/Diffuse
☐ Gray/Light ☐ Gray/Medium ☐ Red/Primer
2. Roof Condition: ☐ Good ☐ Poor
3. Type: ☐ Cone ☐ Dome
4. Height: ______________ feet

5. Internal Floating Roof Tank

A. Tank Characteristics:
1. Diameter: ____________ feet
2. Tank Volume: ____________ gal
3. Turnovers per year: ____________
4. Maximum Throughput: ____________ gal/yr
5. Number of Columns: ____________
6. Self-Supporting Roof? ☐ Yes ☐ No
7. Effective Column Diameter:
   ☐ 9”x7” Built-up Column ☐ 8” Diameter Pipe ☐ Unknown
8. Internal Shell Condition:
   ☐ Light Rust ☐ Dense Rust ☐ Gunite Lining
9. External Shell Color/Shade:
   ☐ White/White ☐ Aluminum/Specular ☐ Aluminum/Diffuse
   ☐ Gray/Light ☐ Gray/Medium ☐ Red/Primer
10. External Shell Condition: ☐ Good ☐ Poor
11. Roof Color/Shade:
   ☐ White/White ☐ Aluminum/Specular ☐ Aluminum/Diffuse
   ☐ Gray/Light ☐ Gray/Medium ☐ Red/Primer
12. Roof Condition: ☐ Good ☐ Poor

B. Rim Seal System:
1. Primary Seal: ☐ Mechanical Shoe ☐ Liquid-mounted ☐ Vapor-mounted
2. Secondary Seal: ☐ Shoe-mounted ☐ Rim-mounted ☐ None

C. Deck Characteristics:
1. Deck Type: ☐ Bolted ☐ Welded
2. Deck Fitting Category: ☐ Typical ☐ Detail

6. External Floating Roof Tank

A. Tank Characteristics
1. Diameter: 38 feet
2. Tank Volume: 325,000 gal
3. Turnovers per year: ____________
4. Maximum Throughput: 375,000,000 gal/yr
5. Internal Shell Condition:
   ☒ Light Rust ☐ Dense Rust ☐ Gunite Lining

6. External Floating Roof Tank (continued)

A. Tank Characteristics (continued):

6. Paint Color/Shade:

☐ White/White ☐ Aluminum/Specular ☐ Aluminum/Diffuse

☐ Gray/Light ☒ Gray/Medium ☐ Red/Primer

7. Paint Condition: ☐ Good ☐ Poor

B. Roof Characteristics

1. Roof Type: ☒ Pontoon ☐ Double Deck

2. Roof Fitting Category: ☒ Typical ☐ Detail

C. Tank Construction and Rim-Seal System:

1. Tank Construction: ☒ Welded ☐ Riveted

2. Primary Seal:

☐ Mechanical Shoe ☒ Liquid-mounted ☐ Vapor-mounted

3. Secondary Seal

☐ None ☐ Shoe-mounted ☒ Rim-mounted ☐ Weather shield

7. Pollutant Emissions

A. Fixed Roof Emissions:

Pollutant[1]	Working Loss (tons/yr)	Breathing Loss (tons/yr)	Total Emissions (tons/yr)

B. Floating Roof Emissions:

Pollutant[1]	Rim Seal Loss (tons/yr)	Withdrawal Loss (tons/yr)	Deck Fitting Loss (tons/yr)	Deck Seam Loss (tons/yr)	Landing Loss[2] (tons/yr)	Total Emissions (tons/yr)
VOC						See App. A

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed in accordance with the Permit Application Instructions. A list of regulated air pollutants and hazardous air pollutants is provided in the Application Instructions.
2. Landing losses should be determined according to the procedures in *Organic Liquid Storage Tanks* chapter of EPA's AP-42 emission factors. If the roof is not landed at least once/yr, enter "NA".

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Tank Summary — Section H

1. Emission Point Description

Note: Sections 3-7 below do not have to be completed if all of the required information is provided elsewhere, such as in a report generated by EPA's TANKS software, and attached to the application.

A. Emission Point Designation (Ref. No.): AS-501

B. Product(s) Stored: Coker Naphtha

C. Status: ☒ Operating ☐ Proposed ☐ Under Construction

D. Date of construction, reconstruction, or most recent modification (for existing sources) or date of anticipated construction: 2025 (reconstructed)

2. Tank Data

A. Tank Specifications:

1.	Design capacity	5,063,700	gallons		
2.	True vapor pressure at storage temperature:	3.02	psia @	90	ºF
3.	Maximum true vapor pressure (as defined in §60.111b)		psia @		ºF
4.	Reid vapor pressure at storage temperature:		psia @		ºF
5.	Density of product at storage temperature:	7.1	lb/gal		
6.	Molecular weight of product vapor at storage temp.	98.68	lb/lbmol		

B. Tank Orientation: ☒ Vertical ☐ Horizontal

C. Type of Tank:

☐ Fixed Roof ☒ External Floating Roof ☐ Internal Floating Roof

☐ Pressure ☐ Variable Vapor Space ☐ Other: ______

D. Is the tank equipped with a Vapor Recovery System? ☐ Yes ☒ No

If yes, describe below and include the efficiency.

______

E. Closest City:

☒ Jackson, MS ☐ Meridian, MS ☐ Tupelo, MS ☐ Mobile, AL

☐ New Orleans, LA ☐ Memphis, TN ☐ Baton Rouge, LA

F. Is an EPA TANKS report included for this tank in the application? ☐ Yes ☒ No

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Tank Summary — Section H

3. Horizontal Fixed Roof Tank

A. Shell Length: ________________ feet
B. Shell Diameter: ________________ feet
C. Working Volume: ________________ gal
D. Maximum Throughput: ________________ gal/yr
E. Is the tank heated? ☐ Yes ☐ No
F. Is the tank underground? ☐ Yes ☐ No
G. Shell Color/Shade:
☐ ☐ Aluminum/Specular ☐ Aluminum/Diffuse
☐ Gray/Light ☐ Gray/Medium ☐ Red/Primer

H. Shell Condition: ☐ Good ☐ Poor

4. Vertical Fixed Roof Tank

A. Dimensions:
1. Shell Height: ________________ feet
2. Shell Diameter: ________________ feet
3. Maximum Liquid Height: ________________ feet
4. Average Liquid Height: ________________ feet
5. Working Volume: ________________ gal
6. Turnovers per year: ________________
7. Maximum throughput: ________________ gal/yr
8. Is the tank heated? ☐ Yes ☐ No

B. Shell Characteristics:
1. Shell Color/Shade:
☐ White/White ☐ Aluminum/Specular ☐ Aluminum/Diffuse
☐ Gray/Light ☐ Gray/Medium ☐ Red/Primer
2. Shell Condition: ☐ Good ☐ Poor

C. Roof Characteristics:
1. Roof Color/Shade:
☐ White/White ☐ Aluminum/Specular ☐ Aluminum/Diffuse
☐ Gray/Light ☐ Gray/Medium ☐ Red/Primer
2. Roof Condition: ☐ Good ☐ Poor
3. Type: ☐ Cone ☐ Dome
4. Height: ______________ feet

Tank Summary — Section H

5. Internal Floating Roof Tank

A. Tank Characteristics:
1. Diameter: ________ feet
2. Tank Volume: ________ gal
3. Turnovers per year: ________
4. Maximum Throughput: ________ gal/yr
5. Number of Columns: ________
6. Self-Supporting Roof? ☐ Yes ☐ No
7. Effective Column Diameter:
   ☐ 9"x7" Built-up Column ☐ 8" Diameter Pipe ☐ Unknown
8. Internal Shell Condition:
   ☐ Light Rust ☐ Dense Rust ☐ Gunite Lining
9. External Shell Color/Shade:
   ☐ White/White ☐ Aluminum/Specular ☐ Aluminum/Diffuse
   ☐ Gray/Light ☐ Gray/Medium ☐ Red/Primer
10. External Shell Condition: ☐ Good ☐ Poor
11. Roof Color/Shade:
   ☐ White/White ☐ Aluminum/Specular ☐ Aluminum/Diffuse
   ☐ Gray/Light ☐ Gray/Medium ☐ Red/Primer
12. Roof Condition: ☐ Good ☐ Poor

B. Rim Seal System:
1. Primary Seal: ☐ Mechanical Shoe ☐ Liquid-mounted ☐ Vapor-mounted
2. Secondary Seal: ☐ Shoe-mounted ☐ Rim-mounted ☐ None

C. Deck Characteristics:
1. Deck Type: ☐ Bolted ☐ Welded
2. Deck Fitting Category: ☐ Typical ☐ Detail

6. External Floating Roof Tank

A. Tank Characteristics
1. Diameter: 134 feet
2. Tank Volume: 4,700,000 gal
3. Turnovers per year: ________
4. Maximum Throughput: 28,805,000 gal/yr
5. Internal Shell Condition:
   ☒ Light Rust ☐ Dense Rust ☐ Gunite Lining

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Tank Summary **Section H**

6. External Floating Roof Tank (continued)

A. Tank Characteristics (continued):

6. Paint Color/Shade:
   - ☐ White/White ☐ Aluminum/Specular ☐ Aluminum/Diffuse
   - ☐ Gray/Light ☒ Gray/Medium ☐ Red/Primer
7. Paint Condition: ☐ Good ☐ Poor

B. Roof Characteristics

1. Roof Type: ☒ Pontoon ☐ Double Deck
2. Roof Fitting Category: ☒ Typical ☐ Detail

C. Tank Construction and Rim-Seal System:

1. Tank Construction: ☒ Welded ☐ Riveted
2. Primary Seal:
   - ☐ Mechanical Shoe ☒ Liquid-mounted ☐ Vapor-mounted
3. Secondary Seal
   - ☐ None ☐ Shoe-mounted ☒ Rim-mounted ☐ Weather shield

7. Pollutant Emissions

A. Fixed Roof Emissions:

Pollutant[1]	Working Loss (tons/yr)	Breathing Loss (tons/yr)	Total Emissions (tons/yr)

B. Floating Roof Emissions:

Pollutant[1]	Rim Seal Loss (tons/yr)	Withdrawal Loss (tons/yr)	Deck Fitting Loss (tons/yr)	Deck Seam Loss (tons/yr)	Landing Loss[2] (tons/yr)	Total Emissions (tons/yr)
VOC						See App. A

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed in accordance with the Permit Application Instructions. A list of regulated air pollutants and hazardous air pollutants is provided in the Application Instructions.
2. Landing losses should be determined according to the procedures in *Organic Liquid Storage Tanks* chapter of EPA's AP-42 emission factors. If the roof is not landed at least once/yr, enter "NA".

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Oxidation Systems — Section L4

1. Oxidation Equipment Description

A. Emission Point Designation (Ref. No.): AO-004

B. Equipment Description (include the process(es) that oxidation system controls emissions from): SRU II Tail Gas Vent Stack. Oxidizes sulfur species from tail gas from SRU II.

C. Manufacturer: John Zinc

D. Model: John Zinc

E. Status: ☒ Operating ☐ Proposed ☐ Under Construction

2. Oxidation System Data

A. Type of Oxidation Process:

☒ Afterburner
☐ Flare
☐ Recuperative Thermal Oxidizer
☐ Recuperative Catalytic Oxidizer
☐ Regenerative Thermal Oxidizer
☐ Regenerative Catalytic Oxidizer
☐ Other: ____________

B. Efficiency: 99 % Controlling the following pollutant(s): Sulfur compounds

Efficiency: ____ % Controlling the following pollutant(s): ____

C. Inlet air flow rate: 38,040 acfm

D. Combustion chamber temperature: Minimum: 1100 °F Maximum: 1500 °F

E. Maximum burner rating: 30.75 MMBtu/hr

F. Fuel type: Natural Gas and Flash Gas

G. Fuel usage rate (specify units): 133 Mscf/hr

H. Sulfur in Fuel: N/A wt %

I. Residence time: 1.90 seconds

J. Percent excess air: ____ %

K. Combustion chamber volume: ____ ft^3

L. VOC Concentration: Inlet: ____ ppmv Outlet: ____ ppmv

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Oxidation Systems	Section L4

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Oxidation Systems — Section L4

2. Oxidation System Data (continued)

M. Catalyst Data (if applicable):

1. Catalyst type: ______________________________

2. Catalyst volume: ____________ ft^3

3. How is spent catalyst disposed of? ______________________________

N. Flare Data (if applicable):

1. Flare type: ☐ Non-assisted ☐ Steam-assisted ☐ Air-assisted ☐ Other: ______________________________

2. Net heating value of combusted gas: __________ Btu/scf

3. Design exit velocity: __________ ft/sec

4. Is the presence of a flare pilot flame monitored? ☐ Yes ☐ No

   If yes, please describe the monitoring: ______________________________

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Oxidation Systems — Section L4

1. Oxidation Equipment Description

A. Emission Point Designation (Ref. No.): AO-005

B. Equipment Description (include the process(es) that oxidation system controls emissions from): SRU III Tail Gas Vent Stack. Oxidizes sulfur species from tail gas from SRU III.

C. Manufacturer: John Zinc D. Model: John Zinc

E. Status: ☒ Operating ☐ Proposed ☐ Under Construction

2. Oxidation System Data

A. Type of Oxidation Process:

- ☒ Afterburner
- ☐ Recuperative Thermal Oxidizer
- ☐ Regenerative Thermal Oxidizer
- ☐ Other: ______
- ☐ Flare
- ☐ Recuperative Catalytic Oxidizer
- ☐ Regenerative Catalytic Oxidizer

B. Efficiency: 99 % Controlling the following pollutant(s): Sulfur compounds

Efficiency: ______ % Controlling the following pollutant(s): ______

C. Inlet air flow rate: 38,040 acfm

D. Combustion chamber temperature: Minimum: 1100 ºF Maximum: 1500 ºF

E. Maximum burner rating: 30.75 MMBtu/hr F. Fuel type: Natural Gas and Flash Gas

G. Fuel usage rate (specify units): 133 Mscf/hr H. Sulfur in Fuel: N/A wt %

I. Residence time: 1.90 seconds J. Percent excess air: ______ %

K. Combustion chamber volume: ______ ft^3

L. VOC Concentration: Inlet: ______ ppmv Outlet: ______ ppmv

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Oxidation Systems	Section L4

Oxidation Systems — Section L4

2. Oxidation System Data (continued)

M. Catalyst Data (if applicable):

1. Catalyst type: ______________________________

2. Catalyst volume: ____________ ft^3

3. How is spent catalyst disposed of? ____

N. Flare Data (if applicable):

1. Flare type: ☐ Non-assisted ☐ Steam-assisted ☐ Air-assisted ☐ Other: ______________________________

2. Net heating value of combusted gas: __________ Btu/scf

3. Design exit velocity: __________ ft/sec

4. Is the presence of a flare pilot flame monitored? ☐ Yes ☐ No

   If yes, please describe the monitoring: ______________________________________

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Oxidation Systems — Section L4

1. Oxidation Equipment Description

A. Emission Point Designation (Ref. No.): AZ-571 (F-34401)

B. Equipment Description (include the process(es) that oxidation system controls emissions from): T-14 & T-15 Sulfur Storage Tanks Vent Thermal Oxidizer

C. Manufacturer: Zeeco D. Model: ______

E. Status: ☐ Operating ☐ Proposed ☒ Under Construction

2. Oxidation System Data

A. Type of Oxidation Process:

- ☒ Afterburner
- ☐ Recuperative Thermal Oxidizer
- ☐ Regenerative Thermal Oxidizer
- ☐ Other: ______
- ☐ Flare
- ☐ Recuperative Catalytic Oxidizer
- ☐ Regenerative Catalytic Oxidizer

B. Efficiency: 99 % Controlling the following pollutant(s): H2S
Efficiency: ____ % Controlling the following pollutant(s): ______

C. Inlet air flow rate: 415 acfm

D. Combustion chamber temperature: Minimum: 1600 °F Maximum: 1700 °F

E. Maximum burner rating: 3.3 MMBtu/hr F. Fuel type: Natural Gas

G. Fuel usage rate (specify units): 3.2 Mscf/hr H. Sulfur in Fuel: N/A wt %

I. Residence time: 3.65 seconds J. Percent excess air: 40 %

K. Combustion chamber volume: 140 ft^3

L. VOC Concentration: Inlet: - ppmv Outlet: - ppmv

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Oxidation Systems **Section L4**

2. Oxidation System Data (continued)

M. Catalyst Data (if applicable):

1. Catalyst type: ______________________________

2. Catalyst volume: ____________ ft^3

3. How is spent catalyst disposed of? ____

N. Flare Data (if applicable):

1. Flare type: ☐ Non-assisted ☐ Steam-assisted ☐ Air-assisted ☐ Other: ______________________________

2. Net heating value of combusted gas: __________ Btu/scf

3. Design exit velocity: __________ ft/sec

4. Is the presence of a flare pilot flame monitored? ☐ Yes ☐ No

   If yes, please describe the monitoring: ____________________________________

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Scrubbers — Section L5

1. Scrubber Description

A. Emission Point Designation (Ref. No.): BW-014

B. Equipment Description (include the process(es) that the scrubber(s) controls emissions from):
Tail Gas Vent Controlled by Scrubber C-9080. Absorbs H2S from Plant 90 Tailgas Vent.

C. Manufacturer: Croll-Reynolds Company - Model: 30X30   D. Model: Croll-Reynolds Company - Model: 30X30

E. Status: ☒ Operating ☐ Proposed ☐ Under Construction

2. Scrubber Data

A. Scrubber Type:
- ☐ Spray Tower
- ☒ Packed Bed
- ☐ Venturi
- ☐ Tray/Plate Tower
- ☐ Orifice
- ☐ Cyclonic
- ☐ Condensation Growth
- ☐ Other: ____________

B. Scrubber Efficiency: 99.5% % Controlling the following pollutant(s): Sulfur Constituents

C. Pressure Drop: 39.20 in. of H_2O

Pressure measurement device? ☒ Yes ☐ No

D. Gas Conditions:
1. Inlet flow rate: 7,701.00 acfm
2. Inlet temperature: 100 ºF
3. Outlet temperature: ________ ºF
4. Flow direction: ☒ Counter-current ☐ Cross-current ☐ Concurrent

E. Scrubbing Liquid:
1. Liquid injection rate: Minimum: ________ gpm Maximum: 2729 gpm
2. Percent recirculated: ________ %
3. Make-up rate: ________ gpm
4. Liquid scrubbing medium: Stretford Solution
5. Normal liquid pH: ________ s.u.

6. Are extra nozzles readily available? ☐ Yes ☐ No
7. How is the scrubbing liquid disposed of? Regenerated On-site

2. Scrubber Data (continued)

F. Venturi Data:
1. Venturi throat type: ☐ Fixed ☒ Variable
2. Inlet area: 4.91 ft^2
3. Throat area: Variable ft^2
4. Throat velocity: 27.00 ft//sec

G. Packed Tower Data:
1. Packing type (rings, saddles, etc.): Structured
2. Surface area: 15.71 ft^2
3. Packing depth: 20.00 ft

H. Tray Tower Data:
1. No. of trays: ___________
2. Type of trays: ___________

I. Mist Eliminator Data (if applicable):
1. Mist eliminator type:
   - ☐ Chevrons
   - ☒ Mesh or Woven Pads
   - ☐ Tube Banks
   - ☐ Cyclone
   - ☐ Other: ___________
2. Filter area: ___________ ft^2
3. Efficiency: ___________ % ___________
4. Controlling the following pollutant(s): ___________

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Scrubbers — Section L5

1. Scrubber Description

A. Emission Point Designation (Ref. No.): BW-020

B. Equipment Description (include the process(es) that the scrubber(s) controls emissions from):
Vent Gas Scrubber. Scrubs vapors from sulfur storage tanks, T-18 and T-19.

C. Manufacturer: Modwel 60" x 20" x 15'9" D. Model: Modwel 60" x 20" x 15'9"

E. Status: ☒ Operating ☐ Proposed ☐ Under Construction

2. Scrubber Data

A. Scrubber Type:
- ☐ Spray Tower
- ☐ Packed Bed
- ☐ Venturi
- ☒ Tray/Plate Tower
- ☐ Orifice
- ☐ Cyclonic
- ☐ Condensation Growth
- ☐ Other: ____________

B. Scrubber Efficiency: 99.9% % Controlling the following pollutant(s): Sulfur Constituents

C. Pressure Drop: ________ in. of H_2O

Pressure measurement device? ☐ Yes ☐ No

D. Gas Conditions:
1. Inlet flow rate: ____________ acfm
2. Inlet temperature: ____________ ºF
3. Outlet temperature: ____________ ºF
4. Flow direction: ☐ Counter-current ☐ Cross-current ☐ Concurrent

E. Scrubbing Liquid:
1. Liquid injection rate: Minimum: ________ gpm Maximum: 110 gpm
2. Percent recirculated: ________ %
3. Make-up rate: ____________ gpm
4. Liquid scrubbing medium: 25 Baume caustic (fresh)
5. Normal liquid pH: ________ s.u.
6. Are extra nozzles readily available? ☐ Yes ☐ No

Scrubbers	Section L5
7. How is the scrubbing liquid disposed of? Routed to storage for sale.	

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Scrubbers — Section L5

2. Scrubber Data (continued)

F. Venturi Data:
1. Venturi throat type: ☐ Fixed ☐ Variable
2. Inlet area: ______________ ft^2
3. Throat area: ______________ ft^2
4. Throat velocity: ___________ ft//sec

G. Packed Tower Data:
1. Packing type (rings, saddles, etc.): 0.00
2. Surface area: ___________ ft^2
3. Packing depth: ___________ ft

H. Tray Tower Data:
1. No. of trays: 10.00
2. Type of trays: ______________________________

I. Mist Eliminator Data (if applicable):
1. Mist eliminator type:
   - ☐ Chevrons
   - ☐ Mesh or Woven Pads
   - ☐ Tube Banks
   - ☐ Cyclone
   - ☐ Other: ______________________
2. Filter area: __________ ft^2
3. Efficiency: __________ % ______________________
4. Controlling the following pollutant(s): ______________________

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Scrubbers — Section L5

1. Scrubber Description

A. Emission Point Designation (Ref. No.): BX-020

B. Equipment Description (include the process(es) that the scrubber(s) controls emissions from):
Tail Gas Vent Controlled by Scrubber C-9180. Absorbs H2S from Plant 91 Tailgas Vent.

C. Manufacturer: Croll-Reynolds Company - Model: 30X30 D. Model: Croll-Reynolds Company - Model: 30X30

E. Status: ☒ Operating ☐ Proposed ☐ Under Construction

2. Scrubber Data

A. Scrubber Type:
- ☐ Spray Tower
- ☒ Packed Bed
- ☐ Venturi
- ☐ Tray/Plate Tower
- ☐ Orifice
- ☐ Cyclonic
- ☐ Condensation Growth
- ☐ Other: ____________

B. Scrubber Efficiency: 99.5% % Controlling the following pollutant(s): Sulfur Constituents

C. Pressure Drop: 39.20 in. of H_2O

Pressure measurement device? ☒ Yes ☐ No

D. Gas Conditions:
1. Inlet flow rate: 7,701.00 acfm
2. Inlet temperature: 100 ºF
3. Outlet temperature: ________ ºF
4. Flow direction: ☒ Counter-current ☐ Cross-current ☐ Concurrent

E. Scrubbing Liquid:
1. Liquid injection rate: Minimum: ________ gpm Maximum: 2729 gpm
2. Percent recirculated: ________ %
3. Make-up rate: ________ gpm
4. Liquid scrubbing medium: ________________
5. Normal liquid pH: ________ s.u.

6. Are extra nozzles readily available? ☐ Yes ☐ No
7. How is the scrubbing liquid disposed of?

2. Scrubber Data (continued)

F. Venturi Data:
1. Venturi throat type: ☐ Fixed ☒ Variable
2. Inlet area: 4.91 ft^2
3. Throat area: Variable ft^2
4. Throat velocity: 27.00 ft//sec

G. Packed Tower Data:
1. Packing type (rings, saddles, etc.): Structured
2. Surface area: 15.71 ft^2
3. Packing depth: 20.00 ft

H. Tray Tower Data:
1. No. of trays: ____
2. Type of trays: ____

I. Mist Eliminator Data (if applicable):
1. Mist eliminator type:
   - ☐ Chevrons
   - ☐ Mesh or Woven Pads
   - ☐ Tube Banks
   - ☐ Cyclone
   - ☐ Other: ____
2. Filter area: ____ ft^2
3. Efficiency: ____ % ____
4. Controlling the following pollutant(s): ____

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Scrubbers — Section L5

1. Scrubber Description

A. Emission Point Designation (Ref. No.): BY-025

B. Equipment Description (include the process(es) that the scrubber(s) controls emissions from):
Tail Gas Vent Controlled by Scrubber C-9280. Absorbs H2S from Plant 92 Tailgas Vent.

C. Manufacturer: Croll-Reynolds Company - Model: 30X30 D. Model: Croll-Reynolds Company - Model: 30X30

E. Status: ☒ Operating ☐ Proposed ☐ Under Construction

2. Scrubber Data

A. Scrubber Type:
- ☐ Spray Tower
- ☒ Packed Bed
- ☐ Venturi
- ☐ Tray/Plate Tower
- ☐ Orifice
- ☐ Cyclonic
- ☐ Condensation Growth
- ☐ Other: ____________

B. Scrubber Efficiency: 99.5% % Controlling the following pollutant(s): Sulfur Constituents

C. Pressure Drop: 39.20 in. of H_2O

Pressure measurement device? ☒ Yes ☐ No

D. Gas Conditions:
1. Inlet flow rate: 7,701.00 acfm
2. Inlet temperature: 100 ºF
3. Outlet temperature: ________ ºF
4. Flow direction: ☒ Counter-current ☐ Cross-current ☐ Concurrent

E. Scrubbing Liquid:
1. Liquid injection rate: Minimum: ________ gpm Maximum: 2729 gpm
2. Percent recirculated: ________ %
3. Make-up rate: ________ gpm
4. Liquid scrubbing medium: ____________
5. Normal liquid pH: ________ s.u.

6. Are extra nozzles readily available? ☐ Yes ☐ No
7. How is the scrubbing liquid disposed of?

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Scrubbers **Section L5**

2. Scrubber Data (continued)

F. Venturi Data:
1. Venturi throat type: ☐ Fixed ☒ Variable
2. Inlet area: 4.91 ft^2
3. Throat area: Variable ft^2
4. Throat velocity: 27.00 ft//sec

G. Packed Tower Data:
1. Packing type (rings, saddles, etc.): Structured
2. Surface area: 15.71 ft^2
3. Packing depth: 20.00 ft

H. Tray Tower Data:
1. No. of trays: ____________
2. Type of trays: ____________

I. Mist Eliminator Data (if applicable):
1. Mist eliminator type:
   - ☐ Chevrons
   - ☐ Mesh or Woven Pads
   - ☐ Tube Banks
   - ☐ Cyclone
   - ☐ Other: ____________
2. Filter area: ________ ft^2
3. Efficiency: ________ % ____________
4. Controlling the following pollutant(s): ____________

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Other Control Device | **Section L7**

1. Description

A. Emission Point Designation (Ref. No.): F-2101 (AL-104)

B. Equipment Description (include the process(es) that the equipment controls emissions from):
Ultra Low NOx Burner for the Boiler (F-2101)

C. Manufacturer: ____________ D. Model: ____________

E. Status: ☒ Operating ☐ Proposed ☐ Under Construction

2. Relevant Data

A. Efficiency: 63 % Controlling the following pollutant(s): NOx

B. Inlet air flow rate: _________ acfm

C. Pressure Drop: ___________ in. of H_2O

D. Inlet Temperature: _________ ºF E. Outlet Temperature: _________ ºF

F. How is any generated waste (e.g., dust, wastewater, etc.) collected, stored, handled, and disposed of?
_____

G. Provide any additional details regarding important design and operating parameters below:
The Ultra Low NOx Burner reduces NOx emissions by limiting the formation of NOx during combustion. The burner reduces NOx emissions by combusting fuel in stages. This results in a cooler flame temperature that reduces the amount of thermal NOx formed during combustion by an estimated 63%

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Other Control Device — Section L7

1. Description

A. Emission Point Designation (Ref. No.): F-6101/6102 (BE-211)

B. Equipment Description (include the process(es) that the equipment controls emissions from):
Ultra Low NOx Burners for the Atmospheric Column And Vacumn Column Heaters (F-6101 and F-6102)

C. Manufacturer: ____________ D. Model: ____________

E. Status: ☒ Operating ☐ Proposed ☐ Under Construction

2. Relevant Data

A. Efficiency: 63 % Controlling the following pollutant(s): NOx

B. Inlet air flow rate: ________ acfm

C. Pressure Drop: ________ in. of H_2O

D. Inlet Temperature: ________ ºF E. Outlet Temperature: ________ ºF

F. How is any generated waste (e.g., dust, wastewater, etc.) collected, stored, handled, and disposed of?
_____

G. Provide any additional details regarding important design and operating parameters below:
The Ultra Low NOx Burner reduces NOx emissions by limiting the formation of NOx during combustion. The burner reduces NOx emissions by combusting fuel in stages. This results in a cooler flame temperature that reduces the amount of thermal NOx formed during combustion by an estimated 63%

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Other Control Device — Section L7

1. Description

A. Emission Point Designation (Ref. No.): F-8210 (CK-003)

B. Equipment Description (include the process(es) that the equipment controls emissions from): Ultra Low NOx Burner for the HCR Feed Heater (F-8210)

C. Manufacturer: ____ D. Model: ____

E. Status: ☒ Operating ☐ Proposed ☐ Under Construction

2. Relevant Data

A. Efficiency: 63 % Controlling the following pollutant(s): NOx

B. Inlet air flow rate: ____ acfm

C. Pressure Drop: ____ in. of H_2O

D. Inlet Temperature: ____ ºF E. Outlet Temperature: ____ ºF

F. How is any generated waste (e.g., dust, wastewater, etc.) collected, stored, handled, and disposed of?

G. Provide any additional details regarding important design and operating parameters below: The Ultra Low NOx Burner reduces NOx emissions by limiting the formation of NOx during combustion. The burner reduces NOx emissions by combusting fuel in stages. This results in a cooler flame temperature that reduces the amount of thermal NOx formed during combustion by an estimated 63%

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Other Control Device — **Section L7**

1. Description

A. Emission Point Designation (Ref. No.): F-8220 (CK-004)

B. Equipment Description (include the process(es) that the equipment controls emissions from): Ultra Low NOx Burner for the FPU Vac. Col. Feed Heater (F-8220)

C. Manufacturer: ______ D. Model: ______

E. Status: ☒ Operating ☐ Proposed ☐ Under Construction

2. Relevant Data

A. Efficiency: 63 % Controlling the following pollutant(s): NOx

B. Inlet air flow rate: ______ acfm

C. Pressure Drop: ______ in. of H_2O

D. Inlet Temperature: ______ ºF E. Outlet Temperature: ______ ºF

F. How is any generated waste (e.g., dust, wastewater, etc.) collected, stored, handled, and disposed of?

G. Provide any additional details regarding important design and operating parameters below: The Ultra Low NOx Burner reduces NOx emissions by limiting the formation of NOx during combustion. The burner reduces NOx emissions by combusting fuel in stages. This results in a cooler flame temperature that reduces the amount of thermal NOx formed during combustion by an estimated 63%

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Other Control Device — Section L7

1. Description

A. Emission Point Designation (Ref. No.): F-8250 (CK-005)

B. Equipment Description (include the process(es) that the equipment controls emissions from):
Ultra Low NOx Burner for the IDW/HDF Reactor Feed Heater (F-8250)

C. Manufacturer: ____________ D. Model: ____________

E. Status: ☒ Operating ☐ Proposed ☐ Under Construction

2. Relevant Data

A. Efficiency: 63 % Controlling the following pollutant(s): NOx

B. Inlet air flow rate: ________ acfm

C. Pressure Drop: ________ in. of H_2O

D. Inlet Temperature: ________ ºF E. Outlet Temperature: ________ ºF

F. How is any generated waste (e.g., dust, wastewater, etc.) collected, stored, handled, and disposed of?

G. Provide any additional details regarding important design and operating parameters below:
The Ultra Low NOx Burner reduces NOx emissions by limiting the formation of NOx during combustion. The burner reduces NOx emissions by combusting fuel in stages. This results in a cooler flame temperature that reduces the amount of thermal NOx formed during combustion by an estimated 63%

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Other Control Device	Section L7

1. Description

A. Emission Point Designation (Ref. No.): F-8280 (CK-006)

B. Equipment Description (include the process(es) that the equipment controls emissions from):
Ultra Low NOx Burner for the IDW/HDF Vac. Feed Heater (F-8280)

C. Manufacturer: ____________ D. Model: ____________

E. Status: ☒ Operating ☐ Proposed ☐ Under Construction

2. Relevant Data

A. Efficiency: 63 % Controlling the following pollutant(s): NOx

B. Inlet air flow rate: ________ acfm

C. Pressure Drop: ________ in. of H_2O

D. Inlet Temperature: ________ ºF E. Outlet Temperature: ________ ºF

F. How is any generated waste (e.g., dust, wastewater, etc.) collected, stored, handled, and disposed of?
_____

G. Provide any additional details regarding important design and operating parameters below:
The Ultra Low NOx Burner reduces NOx emissions by limiting the formation of NOx during combustion. The burner reduces NOx emissions by combusting fuel in stages. This results in a cooler flame temperature that reduces the amount of thermal NOx formed during combustion by an estimated 63%

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Applicable Requirements and Status — Section N

1. Summary of Applicable Requirements

Provide a list of all applicable federal standards for which your facility is or will be subject to, as well as a list of all Construction Permits establishing limits or restrictions issued to your facility. The specific emission standards and limitations applicable to each emission point shall be provided on the following pages (Parts 2 and 3).

See Section 4.0 of the Technical Support Document for regulatory applicability details.

Federal Regulations:

40 CFR Part	Subpart
__________	__________
__________	__________
__________	__________
__________	__________
__________	__________
__________	__________
__________	__________
__________	__________
__________	__________
__________	__________
__________	__________
__________	__________
__________	__________
__________	__________
__________	__________

State Construction Permits[1]:

	MM/DD/YY[2]	PSD	PSD Avoidance[3]	Other
Permit to Construct issued:	__________	☐	☐	☐
	__________	☐	☐	☐
	__________	☐	☐	☐
	__________	☐	☐	☐
	__________	☐	☐	☐
	__________	☐	☐	☐
	__________	☐	☐	☐

[1] Any Construction Permits containing requirements that are currently applicable to the facility should be addressed in this section.
[2] If the permit has been modified, give the most recent modification date.
[3] Because permits are issued on a pollutant-by-pollutant basis, a PSD permit may be significant for one pollutant while also containing PSD avoidance limits for another pollutant. Therefore, you may check multiple boxes for each permit.

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Applicable Requirements and Status

Section N

2. Current Applicable Requirements

List all applicable state and federal requirements to the level of detail needed to identify each applicable emission standard and/or work practice standard and the applicable test methods or monitoring used to demonstrate compliance with each applicable requirement. Applicable provisions from any relevant Permit to Construct shall also be listed. Provide the compliance status as of the day the application is signed.

EMISSION POINT NO.	APPLICABLE REQUIREMENT (Regulatory citation)	POLLUTANT	LIMITS/ REQUIREMENTS	TEST METHOD/ COMPLIANCE MONITORING	COMPLIANCE STATUS (In/Out)[1,2]

[1] Per 11 Miss. Admin. Code Pt. 2, R. 6.2.C(8)(b)(1) for Title V sources, by specifying that the source is in compliance with the applicable requirement(s), I (the applicant) am certifying that I will continue to operate and maintain this source to assure compliance for the duration of the permit term.
[2] Per 11 Miss. Admin. Code Pt. 2, R. 6.2.C(8)(b)(3) for Title V sources, by specifying that the source is out of compliance with the applicable requirement(s), I (the applicant) am submitting a schedule, attached herein, which includes a description of the problems and proposed solutions in accordance with 11 Miss. Admin. Code Pt. 2, R. 6.2.C(8)(c).

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Applicable Requirements and Status — Section N

3. Future Applicable Requirements

List all future applicable state and federal requirements, including emission limits, operating restrictions, etc., and the applicable test methods or monitoring to be used to demonstrate compliance with each applicable requirement. Applicable provisions from any Permit to Construct for which certification of construction has not yet been submitted shall also be listed.

EMISSION POINT NO.	FUTURE APPLICABLE REQUIREMENT (Regulation citation)	POLLUTANT	LIMITS/ REQUIREMENTS	TEST METHOD/ COMPLIANCE MONITORING	COMPLIANCE DATE[1]

[1] Per 11 Miss. Admin. Code Pt. 2, R. 6.2.C(8)(b)(2). for Title V sources, I (the applicant) am certifying that I will meet future applicable requirements which will become effective during the permit term on a timely basis.

3. Emissions Estimation

Estimates of emissions from units affected by the proposed Project are based on equipment specifications, engineering calculations, readily available emission factors, and operational data. The following sections describe the assumptions and emission estimating techniques used to calculate emissions from the various emissions units affected by the Project. Detailed calculations are included in Appendix A.

Pre-Project Emissions

Historical emissions from sources affected by the Project have been calculated from representative historical data. The baseline actual emissions for the Project are based on the most representative operating data for a consecutive 24-month period during the previous 10 years. Chevron has chosen to use the operating data for the following 24-month periods to calculate the baseline actual emissions for all Project affected emissions units:

Pollutant	Baseline Period
NO_X	January 1, 2021 – December 31, 2022
SO_2/H_2SO_4	January 1, 2020 – December 31, 2021
$PM/PM_{10}/PM_{2.5}$	January 1, 2017 – December 31, 2018
VOC	January 1, 2017 – December 31, 2018
CO	January 1, 2016 – December 31, 2017
GHG	January 1, 2016 – December 31, 2017

Sources of Air Emissions

The purpose of the Project is primarily to increase crude processing capacity from 361,000 barrels (bbl) of crude oil per day to as much as 394,000 bbl/day. This increase in processing capacity will be accomplished through overhauling and making improvements to equipment in order to debottleneck operations. The Project will not include new emission units. However, a number of units may experience increased utilization due to the increased crude processing capacity. The piping modifications included in the Project will impact the Equipment Fugitive Leaks emissions source for a few process units. **Table 3-1** includes a list of the emission units affected by the Project.

Table 3-1 Pascagoula Aggregates Project Affected Sources

MDEQ Emission Point	Name
AE-013	F-1101/1102, Atmospheric Column Furnace (F-1101) & Vacuum Column Furnace (F-1102) vented through two common stacks
AG-043	F-1501/F1502/F-1503, 3 Rheniformer I Process Furnaces
AL-104	F-2101, Boiler with Ultra Low NO_X Burners
AM-111	F-2201, Process Heater
BE-211	F-6101/6102, Atmospheric & Vacuum Column Heaters
BH-231	F-6410, Reformer Furnace (3 stacks – Normal Operation)
BH-232	KGT-6410, Natural Gas Turbine and (1 stack)
BP-511	F-8110, Residuum Desulfurization Feed Furnace No. 1

MDEQ Emission Point	Name
CK-003	F-8210, HCR Feed Heater
CK-004	F-8220, FPU Vac. Col. Feed Heater
CK-005	F-8250, IDW/HDF Reactor Feed Heater
CK-006	F-8280, IDW/HDF Vac. Feed Heater
BQ-521	F-8300A, Coker Furnace No. 1
BQ-522	F-8300B, Coker Furnace No. 2
BQ-523	F-8300C, Coker Furnace No. 3
See Appendix A for the list of project-affected storage tanks	Storage Tanks Project Related Increases
AO-004/AO-005, BW-020, AZ-571, BW-014, BX-020, BY-025	Sulfur Production, Storage and Shipping Project Related Increases
N/A	Purchased Feed Barge Engine and Ship Boiler Unloading Project Related Increases
AZ-001, AZ-002, AZ-571, CG-002	Product Shipping Project Related Increases (Ship, Barge, Railcar, and Truck Loading); F-34401, Thermal Oxidizer for T-14 and T-15
CG-004	Marketing Terminal Paved Roads
N/A	Coker Trucking Paved Roads
AR-002, AR-003	Coke Handling and Storage
AE-001, AM-001, BE-001	Equipment Leaks, Plants 11, 22 and 61

Combustion Sources

A number of existing combustion sources may be affected units due to increased utilization, or increased steam and sulfur processing or hydrogen demand. The Project will affect the utilization of the combustion sources as listed in **Table 3-1**. All of these sources will continue to use refinery fuel gas (RFG), except the Hydrogen II gas turbine (KGT-6410), which will continue to use only natural gas as fuel. The Project does not include any new combustion sources.

For the affected heaters, boilers, and gas turbine, the baseline emissions of NO_X, CO, PM/PM_{10}/ $PM_{2.5}$, SO_2 and VOC are from the rolling monthly calculations used for reporting purposes, which were calculated using a combination of vendor guaranteed emission factors, factors from AP-42, Section 1.4, and/or results of periodic stack testing and fuel use. GHG emissions are based on fuel composition and fuel use. H_2SO_4 emissions were calculated assuming a 3% conversion to H_2SO_4. Future emissions are based on maximum post-project firing rates and post-project permitted emission limits.

For the barge diesel engines that will be used to unload purchased feeds, emissions of NO_X and PM/PM_{10}/ $PM_{2.5}$ are based on estimated fleet average emission factors assuming a median engine life of 17 years along with United States Uncontrolled, Tier 2 and Tier 3 marine diesel engine emission factors from Appendix H of the Ports Emissions Inventory Guidance, EPA-420-B-22-011, dated April 2022. Emissions of VOC, SO_2, H_2SO_4 and hazardous air pollutants (HAP) are calculated using emission factors from AP-42, Section 3.3. GHG emissions are based on default factors in EPA's GHG mandatory reporting rule (40 CFR 98 Table C-1 and C-2).

For the ship diesel boilers that will also be used to unload purchased feeds, emissions are calculated using emission factors from AP-42, Section 3.3. GHG emissions are based on default factors in EPA's GHG mandatory reporting rule (40 CFR 98 Table C-1 and C-2). Vacuum Gas Oil can be offloaded via ships or barges. The maximum emissions are determined from either offloading all Vacuum Gas Oil via barges or offloading all Vacuum Gas Oil via ships.

The supporting emission calculations are included in **Appendix A**.

Storage Tank Emissions

The Project will not include installation of any new storage tanks. However, existing storage tanks will be affected by increases in throughput of purchased feeds, intermediates, and products storage. In addition, Storage Tank 501 and Tank 63 are proposed to be rebuilt as part of this Project. The rebuilt tanks are intended to store the same materials as the existing tanks.

Baseline emission increases from tanks were based on emissions reported to the state for the January 1, 2017 through December 31, 2018 period. Post-project emissions were based on projected annual throughputs with the refinery at full capacity. Emission calculations for organic liquid storage tanks were developed using the Breeze TankESP program, which utilizes AP-42 Section 7.1 to estimate emissions. Calculations for the storage tanks are included in **Appendix A**.

Transfer Operations

The Project may result in an increase in sulfur production due to the increased sour gas production resulting from higher crude processing capacity. Sulfur is produced from H_2S in the sour gas processed by the SRUs. Molten sulfur is then sold and shipped off-site. Transfer of sulfur will result in an incremental increase in emissions of H_2S and SO_2. The emissions from these activities were based on a material balance methodology. The calculations for the additional product loading operations are presented in **Appendix A**.

Increased volumes of gasoline, Jet A, and diesel, which may result from the project can be shipped at the marketing terminal by tank trucks, by pipeline, or at the wharf in ships or barges. Increased volumes of Ethanol and base oils can be shipped by tank trucks or rail cars. Increased volumes of Aviation Gasoline can be shipped by railcar, ship or barge. Emission increases at the marketing terminal and wharf areas were based on the differences between baseline emissions and future projected emissions.

The VOC emissions from marine vessel transfer operations occur from displacing air while the vessels are being loaded. These emissions are estimated using AP-42 emission factors from Section 5.2, “Transportation and Marketing of Petroleum Liquids”. Loading losses for barges, before control, were estimated using this approach.

For the marine vessel loading operations of regulated stocks, such as gasoline, the displaced vapors from loading operations are captured by a marine vapor recovery system and are diverted to a lean oil absorber system to recover VOCs before the vapor is vented. The recovered VOCs are stripped from the rich oil, condensed, and recycled back into the refinery for reprocessing. This marine vapor recovery/lean oil system can effectively remove 95% of the VOCs from the vent stream.

Emissions from loading of gasoline, including ethanol, at the marketing terminal are also based on using AP-42 emission factors and are controlled by the existing VRU Carbon Adsorption System. The VRU system uses dual carbon vessels, one being regenerated while the other controls the vapors from loading tank trucks. The VRU System uses a vacuum pump to remove the VOC from the carbon and route it to a chilled gasoline absorber where the VOC is recovered and routed back to a product gasoline storage tank. The vapor exhaust is routed to the online carbon vessel to remove any remaining VOC prior to being vented to the atmosphere.

Emissions from the loading of diesel and Jet A are also calculated using the AP-42 emission factors and are assumed to be vented uncontrolled.

Emission increases are based on the difference between projected post-project emissions and baseline emissions for the 2017/2018 period.

The emissions calculations for the additional product loading are presented in **Appendix A**.

Equipment Leaks

The Project includes piping modifications which will alter the number of piping components in service.

Chevron is required by the NSR Consent Decree to evaluate new and replacement equipment for alternate technologies under Section V.M.83.f. For this group of projects, the Consent Decree applies to valves. The Refinery has a department which is focused on the reliability of all fixed and rotating equipment.

All of the physical equipment modifications have been determined using project estimates from the contracted engineering company, along with conservative estimates from plant engineers. These component estimates have been used along with fugitive emission factors to estimate pre-control fugitive emissions of VOC. Emission factors from “Protocol for Equipment Leak Emission Estimates” (November, 1995, Table 2-2, “Refinery Average Emission Factors”) have been used for all streams to estimate emissions before control.

Chevron employs a Leak Detection and Repair (LDAR) program on all streams in the refinery that are required by applicable regulations. The VOC emission control efficiencies were based Texas Commission on Environmental Quality guidance (“Air Permit Technical Guidance for Chemical Sources: Equipment Leak Fugitives”, June 2018).

Once the total VOC emissions were calculated, the HAPs and other pollutant emissions from each stream were speciated based on the composition of each stream.

The component counts and stream speciations are included in **Appendix A**.

Sulfur Recovery Units (SRUs)

The Project may result in an increase in sulfur production due to the increased crude processing capabilities. Emission increases are calculated for the SRU IV, V and VI Tail Gas Vent Scrubbers (C-9080, C-9180 and C-9280), SRU II and III Thermal Oxidizers (F-2745 and F-2765), Sulfur Complex Product Storage Tanks (T-18, T-19) and the wharf Sulfur Storage Tanks (T-14, T-15). Emission calculations are based on process data, stack tests, vendor data and AP-42 factors. H_2S emissions from the Unit Product Storage Tanks T-18 and T-19 are controlled by the caustic scrubber C-9090. The H_2S Emissions from the wharf Sulfur Storage Tanks T-14 and T-15 are controlled by the Thermal Oxidizer F-34401. For the purposes of estimating emissions for this application, it was assumed that all of the sulfur from Sulfur Complex Product Storage Tanks T-18 and T-19 would be routed to the wharf Sulfur Storage Tanks T-14 and T-15 then loaded onto barges, rather than being transferred directly via railcar, as transfer to T-14/T-15 then to barges would be the worst-case emissions basis. The emissions impacts from the increased sulfur production, storage and loading are presented in **Appendix A.**

Other Fugitive Emission Sources

Marketing Terminal Paved Roads

Increased product shipping at the marketing terminal will increase fugitive dust emissions from travel on paved roads. Emission estimates are based AP-42 Section 13.2.1 equations and measured silt loadings on the affected roads. Sweeping of the paved roads on a twice per week basis is expected to provide 80% control. Sweeping activities began in May 2017 (during the baseline period) and the affected roads were resurfaced after the baseline period. Emission calculations are presented in **Appendix A**.

Coke Transfer and Storage

Increased coke production in the delayed coking unit will increase emissions associated with coke transfer and storage activities. Offgassing of VOC emissions at the coke pit is estimated using coke composition information from sampling and a material balance.

Coke is transferred from the pit to the coke storage area at the wharf via a two-mile long enclosed conveyor. Stackers at the wharf distribute the coke into piles, where it remains until it is reconveyed aboard ships. Dust suppressants are applied throughout the transfer process to control fugitive dust emissions. Emissions of fugitive dust associated with coke conveyance and drop points are estimated using factors developed from AP-42 Section 13.2.4 and measured moisture content values.

The coke storage yard is also equipped with an aerial water suppressant system that aids in reducing the coke dust emissions. Fugitive dust emissions associated with wind erosion from the coke storage pile and associated with bulldozing to reclaim the coke from the pile to be conveyed onto ships are estimated using emission factors from AP-42 Section 13.2.5 and Section 11.9, respectively.

If the conveyor system from the coke pit to the storage area at the wharf is down, coke is transferred to the storage area via trucks. Therefore, the increase in coke production would potentially result in an increase in fugitive dust emissions from travel on paved roads. Emission estimates are based AP-42 Section 13.2.1 equations and measured silt loadings on the affected roads. Daily watering of the paved roads when coke trucking is expected to occur will be implemented to control fugitive emissions.

Emission calculations for coke transfer and storage are presented in **Appendix A**.

Hazardous Air Pollutants

The sources affected by the Project will have changes in HAP emissions. The speciated HAP emissions are typically calculated using the weight fraction of each HAP that is in a product or intermediate or is the result of combustion of a fuel. These emissions were aggregated by equipment type. Detailed HAP emission changes are included in **Appendix A** of this application.

4. Regulatory Applicability Analysis

This section presents a review of the air quality regulations that will govern construction and operation of the Pascagoula Aggregates Project. The Clean Air Act (CAA) of 1970, 42 USC §§ 7401 et seq., as amended in 1977 and 1990 (collectively the CAA Amendments), is the basic federal statute governing air quality in the United States. This statute applies to the Pascagoula Aggregates Project.

Key provisions of the CAA that are potentially relevant to the Pascagoula Aggregates Project include:

- National Ambient Air Quality Standards (NAAQS);
- New Source Review (NSR);
- Prevention of Significant Deterioration (PSD) Regulations;
- Good Engineering Practice (GEP) Stack Height Regulations;
- New Source Performance Standards (NSPS);
- National Emission Standards for Hazardous Air Pollutants (NESHAPs);
- Title V Operating Permit Program;
- Risk Management Program (RMP);
- Stratospheric ozone protection; and,
- Mandatory Greenhouse Gas Reporting.

The Federal regulatory programs, as administered by the EPA, have been developed under the authority of the CAA. The following subsections review the key elements of applicable federal regulatory programs and the impact they have on the permitting and operation of the Pascagoula Aggregates Project. Attention is placed on: NAAQS, found at 40 CFR Part 50; PSD, found at 40 CFR § 52.21; NSPS, found at 40 CFR Part 60; NESHAPS, found at 40 CFR Parts 61 & 63; Operating Permit Program, found at 40 CFR Parts 70 & 71; RMP regulations, found at 40 CFR Part 68; Stratospheric ozone protection regulations, found at 40 CFR Part 82; and Mandatory Greenhouse Gas Reporting regulations, found at 40 CFR Part 98.

The Code of Federal Regulations and the Mississippi State Regulations were reviewed to determine air quality regulations that are potentially applicable to the Pascagoula Aggregates Project.

National Ambient Air Quality Standards (NAAQS)

The CAA gives EPA the authority to establish the minimum level of air quality that all states are required to achieve. These were developed to protect the public health and welfare, through primary and secondary National Ambient Air Quality Standards, respectively. The federally promulgated NAAQS are given in **Table 4 1**. In the context of permitting for Pascagoula Aggregates Project, a compliance demonstration for the NAAQS is required for only those regulated pollutants for which the Project will cause a significant net emissions increase.

Table 4-1 National Ambient Air Quality Standards

Pollutant	Primary Standards		Secondary Standards	
	Level	**Averaging Time**	**Level**	**Averaging Time**
Carbon Monoxide	9 ppm (10 mg/m^3)	8-hour (1)	None	
	35 ppm (40 mg/m^3)	1-hour (1)		
Lead	0.15 mg/m^3 (2)	Rolling 3-Month Average	Same as Primary	
	1.5 µg/m^3	Quarterly Average	Same as Primary	
Nitrogen Dioxide (NO_2)	53 ppb (3)	Annual (Arithmetic Average)	Same as Primary	
	100 ppb	1-hour (4)	None	
Particulate Matter (PM_{10})	150 µg/m^3	24-hour (5)	Same as Primary	
Particulate Matter ($PM_{2.5}$)	9.0 µg/m^3	Annual (6) (Arithmetic Average)	15.0 µg/m^3	Annual (6) (Arithmetic Average)
	35 µg/m^3	24-hour (7)	Same as Primary	
Ozone	0.070 ppm	8-hour (8)	Same as Primary	
Sulfur Dioxide	75 ppb (9)	1-hour	None	
	None	Annual	10 ppb	Annual (Arithmetic Average) [averaged over 3 years]

(1) Not to be exceeded more than once per year.
(2) Final rule signed October 15, 2008.
(3) The official level of the annual NO_2 standard is 0.053 parts per million (ppm), equal to 53 parts per billion (ppb), which is shown here for the purpose of clearer comparison to the 1-hour standard
(4) To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb (effective January 22, 2010).
(5) Not to be exceeded more than once per year on average over 3 years.
(6) To attain this standard, the 3-year average of the weighted annual mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed 9 µg/m^3, or 15 µg/m^3 for secondary (effective May 6, 2024).
(7) To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m^3 (effective December 17, 2006).
(8) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.070 ppm. (effective December 28, 2015).
(9) Final rule signed June 2, 2010 and became effective on August 23, 2010. To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.

New Source Review – Prevention of Significant Deterioration (PSD)

The Pascagoula Refinery is located in Jackson County, which is currently designated as attainment or unclassified for all regulated New Source Review (NSR) pollutants. Therefore, the applicable major new source review regulation is the PSD program; non-attainment new source review (NNSR) does not apply. According to the Mississippi PSD regulations (11 Miss. Admin. Code Pt 2, Ch. 5), incorporating by reference 40 CFR 52.21), PSD review is required on a pollutant-specific basis for the modification of an existing major stationary source if it results in both a significant emissions increase and a significant net emissions increase of a NSR regulated pollutant. Because the Pascagoula Aggregates Project involves only existing affected emissions units, the Project-related emission increases for SO_2 and CO are determined using the actuals-to-projected actuals test described at 40 CFR § 52.21(a)(2)(iv)(c). Project-related emission increases for all other pollutants are determined used the actuals-to-potentials basis.

Table 4-2 compares the estimated Project-related emission increases to the PSD significance threshold rates for each pollutant. The Project-related emission increases of NO_X, PM/PM_{10}/$PM_{2.5}$, VOC, and GHGs exceed the PSD major modification significance threshold, while emission increases of CO, SO_2, H_2SO_4, H_2S, TRS, HF and Pb do not. Therefore, a PSD netting analysis that considers the contemporaneous emission increases and decreases that have occurred at the Refinery along with the Project related increases and decreases is required for the pollutants projected to have a significant emissions increase, namely NO_X, PM/PM_{10}/$PM_{2.5}$, VOC, and GHGs. If the net amount equals or exceeds the significance levels, then the Project triggers PSD review for those pollutants.

Table 4-2 Pascagoula Aggregates PSD Project Related Emission Increases

Pollutant	PSD Significance Threshold (tpy)	Project-Related Increase in Emissions (tpy)	Netting Analysis Required? (Yes/No)
NO_X	40	660.05	Yes
SO_2	40	30.69	No
PM	25	40.82	Yes
PM_{10}	15	50.44	Yes
$PM_{2.5}$	10	52.77	Yes
VOC	40	124.41	Yes
CO	100	57.85	No
H_2SO_4	7	2.97	No
H_2S	10	0.97	No
TRS	10	3.25	No
HF	3.0	0	No
Pb	0.6	0.02	No
GHGs (as CO_2e)	75,000	656,971	Yes

Net emission increases under PSD regulations are defined as the sum of the Project-related emission increases and decreases, as described above, and any other increases and decreases in actual emissions at the source that are contemporaneous with the particular change and are otherwise creditable.

Net Emissions Change = *Emission Increases from Proposed Project –*

Emission Decreases from Proposed Project +

Creditable Contemporaneous Emission Increases –

Creditable Contemporaneous Emission Decreases

Contemporaneous Period

The PSD regulations define the beginning of the contemporaneous period as the date “five years before construction of a particular change commences”. On-site construction for Project is expected to be initiated in September 2025. Therefore, the beginning of the PSD contemporaneous period for this Project is five years prior to September 2025, i.e., October 2020.

The PSD regulations define the ending date of the contemporaneous period as the date “that the increase from the particular change occurs.” The modified and affected equipment that are part of the Pascagoula Aggregates Project are proposed to begin operating in the third quarter of 2027.

Based on the above, the contemporaneous period for the proposed Pascagoula Aggregates Project is the period from October 2020 through third quarter 2027.

Creditable Contemporaneous Emission Changes

Emission changes resulting from physical or operational changes during the contemporaneous period described above were identified, quantified, and documented for all regulated NSR pollutants for which netting was triggered. After identifying each contemporaneous project, it was necessary to determine whether and to what extent each such change is creditable. Overall, determination of creditable changes considered the following factors:

1. Whether the change was previously relied upon in issuing a permit subject to PSD review.
2. Whether the change was a “correction” which merely quantified existing emissions that had not been accurately quantified in the past, or which updated permitted emissions to reflect more current emission calculation methodologies. “Corrections” were not considered to be creditable emission changes.
3. With respect to emissions decreases, whether the change from a contemporaneous project will be federally enforceable when actual construction begins.
4. Whether the change from projects which will change operation between start of construction and the end of the applicable contemporaneous period will actually occur prior to the date when the Pascagoula Aggregates Project becomes fully operational.
5. Whether the change was required by a consent decree.

Netting Analysis Results

Table 4-3 summarizes the emission changes that have occurred or are proposed during the contemporaneous period, including the Pascagoula Aggregates Project increases and decreases. The sum of the Project’s emission increases and the contemporaneous, creditable changes was compared to the corresponding significant emissions level specified in 40 CFR § 52.21(b)(23)(i). As shown in **Table 4-3**, the proposed Project emissions will not “net out” of PSD review for any of the pollutants associated with the Project and/or contemporaneous projects. Significant net emission increases are projected only for NO_X, PM, PM_{10}, $PM_{2.5}$, VOC and GHG and therefore, PSD review was limited to these emissions for the Project.

Table 4-3 Pascagoula Aggregates PSD Project - Contemporaneous Emissions Analysis

Project Description	Startup Date	NO_X (ton/yr)	SO_2 (ton/yr)	PM (ton/yr)	PM_{10} (ton/yr)	$PM_{2.5}$ (ton/yr)	VOC (ton/yr)	CO (ton/yr)	H_2SO_4 (ton/yr)	GHG as CO_{2e} (ton/yr)
T-76 Reconstruction	October 2020	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0
East Basin Portable Pump	September 2020	1.68	0.44	0.01	0.01	0.01	0.54	1.78	0.01	382
2020 Deminimis Piping Modifications	December 2020	0.00	0.00	0.00	0.00	0.00	1.80	0.00	0.00	0
Base Oil Tankfarm Project	February 2021	0.00	0.00	0.00	0.00	0.00	2.80	0.00	0.00	0
63 Plant Piping Modification	April 2021	0.88	0.59	0.16	0.16	0.16	0.12	1.80	0.00	2,563
34 Plant Chemical Additives	April 2021	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0
T-144 Reconstruction	June 2021	0.00	0.00	0.00	0.00	0.00	-0.08	0.00	0.00	0
T-406 Reconstruction	June 2021	0.00	0.00	0.00	0.00	0.00	0.69	0.00	0.00	0
17 Plant Portable Generator	July 2021	3.97	1.24	0.30	0.30	0.30	1.51	4.97	0.02	659
Wharf Flexibility Project	July 2021	0.00	0.00	0.00	0.00	0.00	3.08	0.00	0.00	0
Blending Chemical Additive	September 2021	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0
2021 Deminimis Piping Modifications	December 2021	0.00	0.00	0.00	0.00	0.00	37.10	0.00	0.00	0
84 Plant Chemical Additive	January 2022	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0
11 Plant Chemical Additives	March 2022	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0
Temporary #3 Cooling Tower	April 2022	0.00	0.00	1.00	0.90	0.70	16.60	0.00	0.00	0
T-120 Service Change	April 2022	0.00	0.00	0.00	0.00	0.00	1.99	0.00	0.00	0
84 Plant Temporary Cooling Tower	August 2022	0.00	0.00	0.03	0.03	0.02	2.37	0.00	0.00	0
2022 Deminimis Piping Modifications	December 2022	0.00	0.00	0.00	0.00	0.00	38.29	0.00	0.00	0
T-173 Service Change	February 2023	0.00	0.00	0.00	0.00	0.00	0.55	0.00	0.00	0
Temporary #1 CT System	March 2023	0.00	0.00	0.30	0.30	0.20	5.50	0.00	0.00	0
T-409 Reconstruction	May 2023	0.00	0.00	0.00	0.00	0.00	1.27	0.00	0.00	0
T-191 Reconstruction	May 2023	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0
VDU Temporary Cooling Tower	May 2023	0.00	0.00	0.03	0.03	0.02	2.41	0.00	0.00	0
T-12 Chiller System Portable Generator	May 2023	4.63	14.45	0.76	0.76	0.76	0.21	0.81	0.22	7,107
Additional Temporary #1 Cooling Tower Cells	July 2023	0.00	0.00	0.60	0.50	0.40	4.40	0.00	0.00	0
T-205 Reconstruction	July 2023	0.00	0.00	0.00	0.00	0.00	-3.28	0.00	0.00	0
F-34401 Replacement	July 2023	1.22	26.92	0.09	0.09	0.09	0.07	1.05	0.41	1,707
T-302 Reconstruction	July 2023	0.00	0.00	0.00	0.00	0.00	4.31	0.00	0.00	0

Project Description	Startup Date	NO_X (ton/yr)	SO_2 (ton/yr)	PM (ton/yr)	PM_{10} (ton/yr)	$PM_{2.5}$ (ton/yr)	VOC (ton/yr)	CO (ton/yr)	H_2SO_4 (ton/yr)	GHG as CO_{2e} (ton/yr)
F-1531 Replacement	October 2023	4.49	14.78	0.90	0.90	0.90	0.52	22.72	0.23	15,695
91 Plant Temporary Diesel Pump	November 2023	2.49	0.66	0.02	0.02	0.02	0.81	2.65	0.01	650
2023 Deminimis Piping Modifications	December 2023	0.00	0.00	0.00	0.00	0.00	15.42	0.00	0.00	0
Avgas Railcar Loading Project	January 2024	0.00	0.00	0.00	0.00	0.00	6.43	0.00	0.00	0
ETP (3) Diesel Pumps	January 2024	8.34	2.22	0.33	0.33	0.33	2.72	8.87	0.03	568
53 Plant Portable Generator	March 2024	13.18	4.22	0.68	0.68	0.68	5.15	11.82	0.06	2,259
Coker MACC Projects	April 2024	0.00	0.00	0.00	0.00	0.00	6.87	0.00	0.00	0
T-500 Reconstruction	May 2024	0.00	0.00	0.00	0.00	0.00	-0.31	0.00	0.00	0
24 Plant Temporary Chiller System Generators	June 2024	37.00	0.04	0.20	0.20	0.20	2.04	3.04	0.00	3,050
16 Plant Light Towers	June 2024	3.60	0.59	0.20	0.20	0.20	0.72	3.17	0.01	255
79 Plant Temporary Air Compressor	August 2024	1.72	5.39	0.09	0.09	0.09	6.57	15.09	0.08	2,288
CT #3 Diesel Engine Pumps	September 2024	28.19	10.40	1.41	1.41	1.41	12.69	29.08	0.16	509
ETP Portable Generator	October 2024	1.06	3.32	0.05	0.05	0.05	4.05	9.29	0.05	2,062
(4) Diesel Engine Pumps	October 2024	13.17	3.77	0.29	0.29	0.29	4.59	17.09	0.06	1,689
T-332 Reconstruction	October 2024	0.00	0.00	0.00	0.00	0.00	-4.11	0.00	0.00	0
24 Plant Debottleneck Project	November 2024	18.76	5.59	5.88	5.88	5.88	19.76	2.70	0.26	204,923
T-182 Reconstruction	December 2024	0.00	0.00	0.00	0.00	0.00	-0.94	0.00	0.00	0
2024 Deminimis Piping Modifications	December 2024	0.00	0.00	0.00	0.00	0.00	11.51	0.00	0.00	0
Naphtha Processing Project	January 2025	23.33	14.90	7.42	7.16	7.12	17.89	40.40	1.07	204,593
Diesel Pumps	March 2025	9.96	2.65	0.08	0.08	0.08	3.25	10.60	0.04	1,939
Contemporaneous Emission Changes		**177.67**	**112.17**	**20.83**	**20.37**	**19.91**	**238.81**	**186.93**	**2.73**	**452,898**
Project Increases		**660.05**	**47.97**	**53.51**	**53.43**	**53.27**	**124.41**	**57.85**	**3.23**	**656,971**
Project Decreases		**0.00**	**-17.28**	**-12.69**	**-2.99**	**-0.50**	**0.00**	**0.00**	**-0.26**	**0**
PSD Significance Threshold		**40**	**40**	**25**	**15**	**10**	**40**	**100**	**7**	**75,000**
PSD Review Required?		**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**No**	**Yes**

New Source Performance Standards (NSPS)

40 CFR 60, Subpart Db – NSPS for Industrial-Commercial-Institutional Steam Generating Units

NSPS Subpart Db applicability requirements are triggered for new Industrial-Commercial-Institutional Steam Generating Units with a heat capacity greater than 100 million British thermal units per hour (MMBtu/hr) in accordance with 40 CFR 60.40b. This Subpart contains requirements that address PM, NO_X, and SO_2 emissions. The Project does not involve construction, reconstruction or modification of any steam generating units (as defined under this Subpart). The three refinery boilers (F-2101, F-2102, F-2103) are currently subject to NSPS Db and will continue to comply with the requirements.

40 CFR 60, Subpart Dc – NSPS for Industrial-Commercial-Institutional Steam Generating Units

NSPS Subpart Dc applicability requirements are triggered for new Industrial-Commercial-Institutional Steam Generating Units with a heat capacity less than 100 MMBtu/hr and greater than 10 MMBtu/hr in accordance with 40 CFR 60.40c. This Subpart contains requirements that address PM and SO_2 emissions. The Project does not involve construction, reconstruction or modification of any steam generating units (as defined under this Subpart). Therefore, NSPS Subpart Dc requirements do not apply.

40 CFR 60, Subpart J – NSPS for Petroleum Refineries

These regulations apply to fluid catalytic cracking units (FCCU) catalyst regenerators and fuel gas combustion devices that commenced construction or modification after June 11, 1973 and before May 14, 2007, flares which commenced construction, reconstruction or modification between June 11, 1973 and June 24, 2008, and to Claus sulfur recovery plants with a capacity greater than 20 long tons per day that commenced construction or modification after October 4, 1976 and before May 14, 2007. The affected facilities under Subpart J include fuel gas combustion devices and the SRUs.

All existing refinery heaters that combust refinery fuel gas are already subject to NSPS Subpart J as stipulated under the refinery NSR consent decree and will continue to be subject to Subpart J post-Project. In addition, SRUs II and III are subject to NSPS Subpart J per the consent decree (Note: SRUs IV, V, and VI have always been subject to Subpart J). The FCC Regenerator vent is also subject to this Subpart per the consent decree.

40 CFR 60, Subpart Ja – NSPS for Petroleum Refineries

On June 24, 2008 EPA published in the Federal Register, new standards of performance for new, modified or reconstructed process units at petroleum refineries. These standards were last revised on December 19, 2013. These rules, codified under Subpart Ja, include emission limitations and work practice standards for FCCU, fluid coking units (FCU), delayed coking units, fuel gas combustion devices (including flares and process heaters) and sulfur recovery plants on which construction, reconstruction or modification commenced after May 14, 2007 and for flares which commenced construction, reconstruction or modification after June 24, 2008.

There are no new furnaces proposed as part of the Project. None of the affected furnaces (i.e., fuel gas combustion devices) will be modified or reconstructed as part of the Project. Additionally, there will be no increase in the maximum hourly emissions of any pollutant from the existing furnaces. Therefore, the Project will not trigger Subpart Ja applicability for any source. Two of the refinery boilers (F-2101, F-2102) are currently subject to NSPS Ja and will continue to comply with the requirements.

40 CFR 60, Subpart K – NSPS for Storage Vessels for Petroleum Liquids for which Construction, Reconstruction, or Modification Commenced After June 11, 1973 and Prior to May 19, 1978

40 CFR 60 NSPS Subpart K applies to storage vessels of petroleum liquids for which construction, reconstruction, or modification commenced after June 11, 1973, and prior to May 19, 1978. Facilities subject to this subpart include storage vessels not exceeding 246,052 liters (65,000 gallons), and that commenced construction or modification after March 8, 1974, and prior to May 19, 1978; and storage vessels that have a capacity greater than 246,052 liters (65,000 gallons), and commenced construction or modification after June 11, 1973, and prior to May 19, 1978. None of the existing refinery storage tanks

subject to NSPS Subpart K will be modified by this Project, therefore they will remain subject to this regulation and continue to comply as before.

<u>40 CFR 60, Subpart Ka – NSPS for Storage Vessels for Petroleum Liquids for which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984</u>

40 CFR 60 NSPS Subpart Ka applies to storage vessels with a capacity greater than 151.4 cubic meters (40,000 gallons) that are used to store petroleum liquids for which construction is commenced after May 18, 1978 and prior to July 23, 1984. Of the existing refinery storage tanks subject to NSPS Subpart Ka, the only one which will be modified by this Project is Tank 501. As part of the Project, Tank is proposed to be reconstructed and will trigger Subpart Kc as discussed below, and therefore will no longer be subject to Subpart Ka.

<u>40 CFR 60, Subpart Kb – NSPS for Storage Vessels for Petroleum Liquids for which Construction, Reconstruction, or Modification Commenced After July 23, 1984, and On or Before October 4, 2023.</u>

40 CFR 60 Subpart Kb applies to each storage vessel with a capacity greater than or equal to 75 cubic meters (19,813 gallons) that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification commenced after July 23, 1984 and on or before October 4, 2023.

None of the existing refinery storage tanks subject to NSPS Subpart Kb will be modified by this Project, therefore they will remain subject to this regulation and continue to comply as before.

<u>40 CFR 60, Subpart Kc – NSPS for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After October 4, 2023.</u>

40 CFR 60 Subpart Kc applies to each storage vessel with a capacity greater than or equal to 20,000 gallons (75.7 cubic meters) that is used to store VOL for which construction, reconstruction, or modification is commenced after October 4, 2023.

No storage tanks will be constructed or modified by the Project. Tank 501 and Tank 63 will both be reconstructed by the Project and therefore will trigger Subpart Kc. These external floating roof tanks will comply with all applicable control standards and sampling/monitoring, recordkeeping and reporting requirements under this regulation.

<u>40 CFR 60, Subpart GG – NSPS for Stationary Gas Turbines</u>

This regulation applies to stationary gas turbines with a heat input equal to or greater than 10 MMBtu/hr which commenced construction, modification or reconstruction after October 3, 1977. Exemptions from the NO_X standards of 40 CFR 60.332(a) apply to 1) stationary gas turbines with a heat input equal to or greater than 10 MMBtu/hr but less than 100 MMBtu/hr which commenced construction prior to October 3, 1982, and 2) stationary gas turbines with a heat input greater than 100 MMBtu/hr which commenced construction, modification or reconstruction between the dates of October 3, 1977 and January 27, 1982.

The Project does not involve installation/modification of any new/existing stationary gas turbines. The existing turbine KGT-6410 is subject to NSPS GG and will continue to comply with these requirements.

<u>40 CFR 60, Subpart KKKK – NSPS for Stationary Gas Turbines</u>

This regulation applies to stationary gas turbines with a heat input equal to or greater than 10 MMBtu/hr which commence construction, modification, or reconstruction after February 18, 2005. The Project will not include construction of new gas turbines and will not modify or reconstruct any existing gas turbine. Therefore, Subpart KKKK does not apply.

<u>40 CFR 60, Subpart KKKKa – NSPS for Stationary Gas Turbines</u>

This is a proposed regulation that will establish emission standards and compliance schedules for the control of emissions from stationary combustion turbines that recently (date to be determined) commenced construction, modification, or reconstruction. The Project will not include construction of new gas turbines and will not modify or reconstruct any existing gas turbines. Therefore, Subpart KKKKa will not apply if finalized as proposed.

40 CFR 60, Subpart VV – NSPS for Equipment Leaks of VOC in Synthetic Organic Chemical Manufacturing Industry (SOCMI)

Subpart VV applies to equipment within a process unit which produces a chemical regulated under this subpart and which is constructed or modified after January 5, 1981 and before November 7, 2006. Equipment includes all pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and flanges or other connectors in VOC service. Process units that will be affected as part of the Project will not trigger Subpart VV applicability because they do not produce any of the chemicals listed in 40 CFR 60.489 of this regulation and will be constructed after November 7, 2006.

40 CFR 60, Subpart VVa – NSPS for Equipment Leaks of VOC in SOCMI

Subpart VVa applies to equipment within a process unit which produces a chemical regulated under this subpart and which is constructed or modified after November 7, 2006. Equipment includes all pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and flanges or other connectors in VOC service. Process units that will be affected as part of the Project and any new or modified piping components will not trigger Subpart VVa applicability because they do not produce any of the chemicals listed in 40 CFR 60.489a of this regulation.

40 CFR 60, Subpart XX – NSPS for Bulk Gasoline Terminals

The provisions of this subpart apply to affected facilities for which construction, modification, or reconstruction commenced after December 17, 1980. Under NSPS Subpart XX, the affected facility is the total of all the loading racks that deliver liquid product into gasoline tank trucks at bulk gasoline terminals. Sources that are constructed or modified as part of the Project will not trigger Subpart XX applicability. This Project will not modify the PMT which is already subject to the Subpart XX requirements and will continue to comply as before.

40 CFR 60, Subpart GGG – NSPS for Equipment Leaks of VOC in Petroleum Refineries

This Subpart applies to an affected facility that commences construction or modification after January 4, 1983, and before November 7, 2006. NSPS Subpart GGG will not apply to the any equipment modified for the Project because the equipment will be modified after November 7, 2006. No existing process unit subject to this regulation will be modified by the Project.

40 CFR 60, Subpart GGGa – NSPS for Equipment Leaks of VOC in Petroleum Refineries

NSPS Subpart GGGa – Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries applies to an affected facility that commences construction or modification after November 7, 2006. Fugitive components from the piping modifications in the affected Plants will potentially meet the NSPS definition for capital expenditure; therefore, NSPS Subpart GGGa is assumed to be triggered for Plant 22 and Plant 61 for the process units in which piping modifications will take place. Plant 11 is currently subject to Subpart GGGa and will continue to comply with the requirements in this regulation.

40 CFR 60, Subpart QQQ – NSPS for VOC Emissions from Petroleum Refinery Wastewater Systems

The provisions of this subpart apply to affected facilities located in petroleum refineries for which construction, modification, or re-construction is commenced after May 4, 1987. Individual drain systems, oil-water separators, and aggregate facilities are each considered separate affected facilities. Note that sources which are subject both to Subpart QQQ and to the maximum achievable control technology (MACT) CC wastewater provisions are only required to comply with the MACT CC requirements. No new individual drain systems, oil-water separators, or aggregate facilities will be constructed, reconstructed, or modified by the Project.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

40 CFR 61, Subpart J – NESHAP for Equipment Leaks of Benzene

The requirements of this subpart apply to facilities that have equipment operated in benzene service. This regulation applies to pumps, valves, compressors, pressure relief devices, sampling systems, open-ended valves or lines, flanges and other connectors, and product accumulator vessels. Compliance with this regulation is demonstrated by complying with 40 CFR 61 Subpart V. None of the equipment being modified meets the definition of in benzene service. Existing equipment located within chemical manufacturing process units (CMPUs) or petroleum refinery processing units (PRPUs) are subject to 40 CFR Subpart 63 requirements, which supersede the requirements of this subpart. Chevron will continue to comply with this subpart by complying with those superseding regulations.

40 CFR 61, Subpart M – NESHAP for Asbestos

The requirements of this subpart apply to facilities that have asbestos related activities. Adequate measures must be taken to prevent emissions during activities involving the demolition, renovation, and disposal of asbestos containing material. Chevron complies with this subpart.

40 CFR 61, Subpart V – NESHAP for Equipment Leaks

The requirements of this subpart apply to facilities that have equipment operated in volatile HAP (VHAP) service. This regulation applies to pumps, valves, compressors, pressure relief devices, sampling systems, open-ended valves or lines, flanges and other connectors, and product accumulator vessels. Compliance with this regulation is demonstrated by implementing a fugitive monitoring program as prescribed in the regulation. All equipment in VHAP service being installed or modified by this Project is located within CMPUs or PRPUs subject to 40 CFR Subpart 63 requirements, which supersede the requirements of this subpart. Chevron complies with this subpart by complying with those superseding regulations.

40 CFR 61, Subpart Y – NESHAP for Benzene Emissions from Benzene Storage Vessels

This subpart applies to tanks that store a product that contains greater than 70% benzene and are larger than 10,000 gallons in size. The benzene storage tanks T-332, T-340, T-341 and T-342 meet the applicability requirements for this Subpart. There will not be an increase in throughput for these tanks as a result of the Pascagoula Aggregates Project. These existing tanks are also subject to 40 CFR 63 Subpart G requirements as Group 1 storage tanks, therefore they will continue to comply with the requirements of this subpart by complying with the requirements of Subpart G (40 CFR 63.110(b)(2)).

40 CFR 61, Subpart BB – NESHAP for Benzene Emissions from Benzene Transfer Operations

This subpart applies to product transfer operations in which benzene is loaded into tank trucks, rail cars or marine vessels. There will not be any increase in the amount of benzene product loaded out across the docks as a result of the Project. The barge loading operations for benzene are already subject to 40 CFR 61 Subpart BB and emissions from these transfer operations are currently controlled through the use of a lean oil absorber. Therefore, these transfer operations will continue to comply with the requirements of Subpart BB as before.

40 CFR 61, Subpart FF – NESHAP for Benzene Waste Operations

The provisions of this subpart apply to owners and operators of chemical manufacturing plants, coke by-product recovery plants, and petroleum refineries and to owners and operators of hazardous waste treatment, storage, and disposal facilities that treat, store, or dispose of hazardous waste generated by these industries. The waste streams at facilities subject to the provisions of this subpart are wastes containing benzene above 10 ppm.

The Pascagoula Refinery is an affected facility under this regulation. The Pascagoula Aggregates Project will not include any new equipment subject to Subpart FF. The Refinery will continue to comply with Subpart FF.

40 CFR 63, Subpart F – National Emission Standards for Hazardous Organic Air Pollutants from SOCMI

NESHAP Subpart F applies to chemical manufacturing process units that produce one or more of the chemicals listed in Table 1 or Table 2 of this subpart. The chemical manufacturing process units subject to existing source requirements under 40 CFR 63 Subpart F are: (1) new process units which have the potential to emit 10 tpy or more of any hazardous air pollutant or 25 tpy or more of any combination of hazardous air pollutants; or (2) existing process units that will be modified as a result of the Project; however, the modifications do not meet the definition of reconstruction.

The Project-affected sources do not produce any of the chemicals listed in Table 1 or Table 2 of Subpart F; therefore, Subpart F does not apply to these process units.

40 CFR 63, Subpart G – National Emission Standards for Hazardous Organic Air Pollutants from SOCMI for Process Vents, Storage Vessels, Transfer Operations, and Wastewater

Subpart G applies to all process vents, storage vessels, transfer racks, and wastewater streams within a chemical manufacturing process unit subject to Subpart F of this part.

None of the other project-affected units meet the definition of a chemical manufacturing process unit, therefore, for those units Subpart G requirements do not apply.

40 CFR 63, Subpart H – National Emission Standards for Hazardous Organic Air Pollutants for Equipment Leaks

Subpart H applies to equipment within a source (process unit) subject to a specific subpart of 40 CFR Part 63. Equipment includes all pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, instrumentation systems, and control devices or systems required by this subpart.

The Refinery complies with Subpart CC by complying with the NSPS Subpart VV or VVa requirements rather than Subpart H. However, the Project-affected sources are not subject to a specific subpart within 40 CFR Part 63 that requires compliance with Subpart H.

40 CFR 63, Subpart Q – NESHAP for Industrial Process Cooling Towers

Cooling Tower MACT Subpart Q prohibits usage of chromium-based water treatment chemicals in industrial process cooling towers. No new cooling towers are being proposed as part of the Project. Chevron complies with MACT Subpart Q for the existing cooling towers.

40 CFR 63, Subpart R – NESHAP for Gasoline Distribution Facilities

The provisions of this subpart apply to loading racks, storage vessels and equipment leaks at bulk gasoline terminals. This regulation requires emissions from gasoline loading operations to be controlled, gasoline tank trucks to be tested annually, storage tanks with a design capacity greater than 75 cubic meters to comply with NSPS Kb control requirements, and a monthly leak inspection of all equipment in gasoline service. No sources are being constructed or modified as part of the Project that will trigger Subpart R applicability. This Project will not modify the PMT which is already subject to Subpart R and complies with its requirements.

40 CFR 63 Subpart Y – NESHAP for Marine Vapor Recovery

Subpart Y does not apply to the refinery marine loading operations directly, but is referenced in the requirements listed under Subpart CC for refineries. The refinery is currently complying with the requirements of Subpart Y for commodities such as gasoline, with vapor pressures greater than 1.5 pounds per square inch absolute (psia) at 20°C.

No sources are being constructed or modified as part of the Project that will trigger Subpart Y applicability. This Project will enable an increase in the quantity of the fuel products made in the Refinery. These can be transported out of the Refinery via pipeline, trucks, rail, and marine vessels. The loading operations for those commodities subject to Subpart Y will continue to comply with the requirements as before.

40 CFR 63, Subpart CC – NESHAP for Petroleum Refineries

Subpart CC is applicable to refineries that are major HAP sources. The Pascagoula Refinery is an existing major HAP source subject to this rule. The Pascagoula Aggregates Project will not add any new Petroleum Refining Process Unit units, aside from new piping components with additional equipment leak emissions. This subpart applies to petroleum refining process units and includes emission standards for the following emission points:

- Miscellaneous process vents;
- Storage vessels;
- Wastewater streams and treatment operation;
- Equipment leaks;
- Marine vessel loading operations;
- Gasoline loading racks; and
- Storage vessels and equipment leaks associated with bulk gasoline terminals.

Based on the compliance analysis performed, the refinery MACT applies to the following emission points:

- Wastewater streams and treatment operations;
- Equipment leaks;
- Marine vessel loading operations;
- Storage vessels; and
- Miscellaneous process vents.

A MACT analysis for the five categories listed above is conducted as follows:

- Wastewater Streams and Treatment Operations

  Compliance with the wastewater provisions of Subpart CC is achieved by complying with the wastewater provisions of NESHAP Subpart FF. The Pascagoula Aggregates Project will not be installing any new wastewater drains. No new tanks or tank conversions are being proposed as part of this Project.

- Equipment Leaks

  The equipment leaks provisions of Subpart CC apply to all equipment which operates in HAP service. Most of the Pascagoula Aggregates Project piping component equipment being installed or modified will operate in HAP service. Equipment includes all pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, flanges and other connectors, product accumulator vessels, and control devices or systems required by this subpart. The Refinery will roll all newly subject components into the existing Leak Detection and Repair (LDAR) program for equipment leaks subject to Subpart CC. Note: compliance with equipment leak provisions of Subpart CC is achieved by complying with the equipment leak provisions of NSPS Subpart VV. Sources subject to Subpart CC that are also subject to NSPS GGGa comply with Subpart CC by complying with NSPS GGGa.

- Marine Vessel Loading Operations

Compliance with the marine vessel loading operations provisions of Subpart CC is achieved by complying with the provisions of Part 63 Subpart Y. The refinery complies with the requirements of this Subpart by the use of a lean oil absorber control system for all regulated product loading. The Project will result in an increase in product loading at the wharf, including those subject to this subpart. The Refinery will continue to comply with the applicable provisions of Subpart Y.

- Storage Tanks

  Storage tanks that store primary products or secondary (alternate) products with a true vapor pressure greater than 0.5 psia, and also liquids with HAP contents more than 2% by weight are considered as MACT Subpart CC Group 1 tanks, and are subject to the subpart's control requirements. The Project will not construct or modify any Subpart CC Group 1 tanks. All existing refinery Group 1 storage tanks will continue to comply with the applicable requirements.

- Miscellaneous Process Vents

  The Pascagoula Aggregates Project will not include any new Group 1 or Group 2 miscellaneous process vents. Group 2 process vents do not require control because the concentration of organic HAPs is less than 20 parts per million by volume (ppmv). Any existing Group 1 miscellaneous process vents in the affected units will continue to meet the control required of 40 CFR 63 Subpart CC. Chevron will comply with all applicable requirements of Subpart CC for existing Group 1 miscellaneous process vents.

40 CFR 63, Subpart UUU – NESHAP for Petroleum Refineries: Catalytic Cracking Units, Catalytic Reforming Units, and Sulfur Recovery Units

40 CFR 63 Subpart UUU applies to the following emission points at refineries:

- FCCUs catalyst regenerator vents;
- Catalytic Reformer Units (CRUs) catalyst regenerator vents;
- SRU vents; and

Bypass lines for FCCUs, CRUs, and SRUs

The proposed Project will not install any new FCCUs, CRUs, or SRUs and Chevron will continue to comply with the applicable Subpart UUU requirements for existing sources.

40 CFR 63, Subpart EEEE – NESHAP for Organic Liquids Distribution (Non-Gasoline)

40 CFR 63 Subpart EEEE applies to the following emission points:

- Storage tanks storing organic liquids;
- Transfer racks loading into or out of transport vehicles and /or containers;
- Transport vehicles while they are loading or unloading organic liquids at transfer racks;
- All containers while they are loading or unloading organic liquids at transfer racks subject to this subpart
- All equipment leak components in organic liquids service associated with:
  - Storage tanks storing organic liquids,
  - Transfer racks loading or unloading organic liquids,
  - Pipelines that transfer organic liquids directly between two storage tanks that are subject to this subpart, or

- Pipelines that transfer organic liquids directly between two transfer racks that are subject to this subpart, or
- Pipelines that transfer from a storage tank subject to this subpart and a transfer rack subject to this subpart.

Tanks, racks, equipment leaks, and pipelines that are subject to another 40 CFR Part 63 regulation are exempt from this regulation.

The collection of all existing affected units at the Pascagoula refinery is an existing affected source under Subpart EEEE. The Project will not constitute reconstruction of the existing affected sources, so all affected equipment will continue to be regulated as an existing source under Subpart EEEE.

The Project will not add any new storage tanks that would be subject to this regulation. All existing storage tanks subject to Subpart EEEE will continue to comply with the requirements.

40 CFR Part 63 Subpart FFFF – NESHAP for Miscellaneous Organic Chemical Manufacturing

No new sources which would be subject to this regulation are being added as part of the Project and Subpart FFFF does not apply to any existing sources at the Refinery.

40 CFR Part 63 Subpart YYYY – NESHAP for Stationary Combustion Turbines

No new combustion turbines will be constructed as part of the Pascagoula Aggregates Project, therefore, Subpart YYYY does not apply. The existing gas turbines at the two Hydrogen Plants are considered affected sources under Subpart YYYY since they were constructed prior to January 14, 2003. However, existing stationary gas turbines in all subcategories subject to Subpart YYYY do not have to meet the requirements of this subpart or the Subpart A General Provisions.

40 CFR Part 63 Subpart ZZZZ – NESHAP for Stationary Reciprocating Internal Combustion Engines

EPA promulgated NESHAP for existing, new, and reconstructed stationary Reciprocating Internal Combustion Engines (RICE) greater than 500 hp located at major sources on June 15, 2004 (69 FR 33474), for new and reconstructed stationary RICE that are located at area sources of HAP emissions and for new and reconstructed stationary RICE that have a site rating of less than or equal to 500 HP that are located at major sources of HAP emissions on January 18, 2008 (73 FR 3568). In 2010, EPA promulgated NESHAP requirements for existing stationary compression ignition (CI) RICE with a site rating of less than or equal to 500 hp located at major sources, existing non-emergency CI engines with a site rating greater than 500 hp at major sources, and existing stationary CI RICE of any power rating located at area sources.

RICE MACT Subpart ZZZZ applies to all new and existing Project-affected RICE with a site-rating of more than 500 brake horsepower. There is no existing RICE at the facility with a rating higher than 500 brake horsepower, nor will the Project be adding any new RICEs. Therefore, Subpart ZZZZ does not apply.

40 CFR 63, Subpart DDDDD – NESHAP for Industrial, Commercial, and Institutional Boilers, and Process Heaters

Process heaters and boilers MACT Subpart DDDDD (NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters) was proposed by EPA in the Federal Register on June 4, 2010. The final Subpart DDDDD rule applies to existing and new process heaters and boilers that burn natural gas and/or refinery fuel gas at the Chevron Pascagoula Refinery. Existing major sources of HAP must comply by January 31, 2016 and new sources must comply upon startup. There are no emission limits for boilers and process heaters burning natural gas or refinery fuel gas; only work practice standards apply to such boilers. For existing process heaters and boilers with capacities greater than or equal to 10 MMBtu/hr, such as those affected by this Project, an annual tune-up is required. In addition, by January 31, 2016, a one- time energy assessment is required for existing process heaters and boilers. The Chevron Pascagoula Refinery will comply with 40 CFR 63 Subpart DDDDD.

40 CFR Part 63 Subpart GGGGG – NESHAP for Site Remediation

The Pascagoula Refinery is subject to the Site Remediation MACT Subpart GGGGG. Any excavation material removed from the Pascagoula Aggregates Project will be sampled, analyzed, quantified and handled in compliance with the requirements of this subpart.

Risk Management Program, Section 112(r)

Title III of the CAA Amendments of 1990 contains requirements for subject facilities that store and/or process certain hazardous substances, so as to ensure their safe use. Under these requirements, facilities must identify and assess their hazards and carry out certain activities designed to reduce the likelihood and severity of accidental chemical releases. The three elements that should be incorporated into the risk management program (RMP) include:

- A Hazard Assessment;
- A Prevention Program; and
- An Emergency Response Program.

Section 112(r) of the CAA, codified in 40 CFR Part 68, mandated that EPA publish rules to develop and implement risk management programs for sources with more than the threshold quantity of a listed regulated substance (Tables 1 through 4 to 40 CFR 68.130). The existing Refinery is subject to this regulation and will continue to comply with it. The Project is also subject to this regulation and will comply with it.

Title V Operating Permit Program

Since the Refinery is a major source of all criteria air pollutants, a Title V Operating Permit is required for the operation of the facility. The Refinery operates under an existing Title V permit. A Title V permit modification application will be submitted to the MDEQ in order to add any new requirements that result from the Project.

Title VI – Stratospheric Ozone Protection (40 CFR PART 82)

In general, 40 CFR Part 82, including Subparts A through H, pertains to the protection of stratospheric ozone and provides for the phase-out of the production and use of chlorofluorocarbons (CFCs) and other chemicals that cause destruction of the stratospheric ozone layer, including hydro chlorofluorocarbons (HCFCs) and halons. Chevron has appliances that contain Class II substances as refrigerants, and will continue to comply with 40 CFR 82.

Mississippi State Regulations

Specific Criteria for Sources of Particulate Matter (11 Miss. Admin. Code Pt. 2, R. 1.3.)

11 Miss. Admin. Code Pt. 2, R. 1.3. defines standards for sources of particulate matter, including opacity and emissions from fuel burning.

- <u>Rule 1.3.A Smoke</u> – The standards for sources of particulate matter, including opacity and emissions from fuel burning. The standard for opacity states that no point source shall emit any air contaminant that exceeds 40% opacity, except during periods of startup. During startups, the 40% opacity limit may be exceeded for 15 minutes in a single hour. There may be a maximum of three startups for a single stack in a 24-hour period. The existing sources will continue to comply with this standard.
- <u>Rule 1.3.B Equivalent Opacity</u> – The standard for opacity states that no point source shall emit any air contaminant that exceeds 40% opacity. The existing sources will continue to comply with this standard.

- Rule 1.3.D Fuel Burning – Emissions of particulate matter from installations of less than 10 MMBtu/hr heat input shall not exceed 0.6 pound per million British thermal units (lb/MMBtu). Particulate emissions from installations greater than 10 MMBtu/hr heat input and less than 10,000 MMBtu/hr shall not be greater than:

  $E = 0.8808\ I - 0.1667$

  Where E is the emission rate in lb/MMBtu and I is the heat input in MMBtu/hour. Emission of particulate matter from installations equal to or greater than 10,000 MMBtu/hr heat input shall not exceed 0.19 lb/MMBtu. The existing fuel-burning units will continue to comply with this standard.

Specific Criteria for Sources of Sulfur Compounds (11 Miss. Admin. Code Pt. 2, R. 1.4)

11 Miss. Admin. Code Pt. 2, R. 1.4 defines standards for sources of sulfur compounds.

- Rule 1.4.A: Sulfur Dioxide Emissions from Fuel Burning – Emissions from existing fuel burning equipment shall not exceed 4.8 lb SO_2 per MMBtu of heat input. Emissions from any modified fuel-burning unit whose generation capacity is less than 250 MMBtu/hr shall not exceed 2.4 lb SO_2 per MMBtu of heat input. Existing fuel-burning sources at the Refinery will continue to comply with these standards, or source-specific permit limits, whichever are more stringent.
- Rule 1.4.B: Sulfur Dioxide Emissions from Processes –
  - (a) Emissions from existing equipment may not exceed 2000 ppmv sulfur dioxide and emissions from new equipment may not exceed 500 ppmv sulfur dioxide. Existing Refinery process vents will continue to comply with this requirement.
  - (b) Emissions of gas streams may not exceed H_2S concentrations of one grain per 100 standard cubic feet (gr/100 scf). There are no sources proposed as part of this Project that will result in emissions of H_2S in concentrations greater than 1gr/100 scf.
  - (c) Emissions from Sulfur Recovery Units may not exceed 0.12 pounds SO_2 per pound of sulfur produced. The Sulfur Recovery Units will continue to comply with this requirement.

Stack height considerations (11 Miss. Admin. Code Pt. 2, R. 1.9)

No new stack construction is proposed as part of the Project. Therefore, the requirements of this rule will not be applicable to this Project.

Construction and/or operation of air emission equipment (11 Miss. Admin. Code Pt. 2, Ch. 2)

This Permit Application is an application to construct. An updated Title V Permit Application to revise the refinery's Title V permit will be submitted to incorporate any changes that result from the Pascagoula Aggregates Project.

5. BACT Analysis

As detailed in **Table 4-3**, the Project will result in a significant net emissions increase for NO_X, PM, PM_{10}, $PM_{2.5}$, VOC and GHG, and is subject to PSD review for these pollutants. The PSD regulations specify that:

> *"A major modification shall apply best available control technology for each regulated NSR pollutant for which it would result in a significant net emissions increase at the source. This requirement applies to each proposed emissions unit at which a net emissions increase in the pollutant would occur as a result of a physical change or change in the method of operation in the unit."*[1]

The only Project-affected emission units at which a net emissions increase due to a physical modification and/or change in the method of operation will occur are the equipment leaks from Plants 11, 22 and 61 (AE-001, AM-001 and BE-001, respectively), which of the pollutants subject to PSD only emit VOC emissions. Therefore, a BACT analysis is required for VOC emissions from the equipment leaks for Plants 11, 22 and 61.

To complete the BACT analysis, EPA's "Top Down" BACT methodology has been used to organize and analyze available control options, and then select an appropriate control technology. To utilize the "Top Down" approach, commercially available control options for each affected pollutant and emission unit are identified. Technically infeasible alternatives are then eliminated, and the remaining control options are ranked and analyzed according to the emission control stringency and/or control effectiveness. This ranked order is then evaluated to assess BACT based on cost effectiveness, environmental effects, energy impacts, and other site-specific factors. The control technology concluded to represent BACT is the one that provides the most stringent level of control without causing unacceptable adverse economic, energy, or environmental impacts. Generally, the cost effectiveness parameter is stated as annualized dollar cost per ton of pollutant abated.

A review of the EPA RACT/BACT/LAER Clearinghouse (RBLC) and other databases was performed in January 2025 for equipment leaks/fugitive emissions at petroleum refineries to identify the top levels of controls and emission control strategies relevant to the proposed project. An extensive review of the methods of control for VOC in the database will define the range of potentially applicable emissions controls for the affected emissions units.

As discussed in **Section 4.0**, certain NSPS and NESHAP requirements apply to certain sources at the Refinery. Applicable NSPS or NESHAP limits are considered a "floor" or a minimum requirement for BACT or MACT considerations, respectively. Frequently, BACT is more stringent than the NSPS.

Based on the analyses completed, as documented in the subsequent subsections, the proposed BACT for VOC emissions for equipment leaks in Plants 11, 22 and 61 is summarized in **Table 5-1**.

Table 5-1 Summary of Proposed BACT

Source Description	Pollutant	BACT Selected
Equipment Leaks for Plants 11, 22, 61 (AE-001, AM-001, BE-001)	VOC	Compliance with Subpart GGGa LDAR Program

[1] 40 CFR §52.21(j)(3)

BACT for VOC Emissions

Source of VOC Emissions

VOC emissions from equipment leaks are due to VOC constituents in the product flowing through the piping escaping from various equipment components such as valves, pumps, and connectors. These components can develop leaks primarily due to normal wear and tear or corrosion/fouling of the components over time.

Currently, Refinery equipment leaks are subject to the requirements in the Refinery NESHAP (40 CFR 63 Subpart CC). However, post-Project, Equipment Leaks for Plants 11, 22, 61 will be subject to 40 CFR Part 60 Subpart GGGa (note that Plant 11 is currently subject to GGGa), which is more stringent than the Refinery NESHAP's equipment leak provisions. The Leak Detection and Repair (LDAR) program required under Subpart GGGa is designed to find and repair VOC leaks in an expeditious manner to minimize VOC emissions, and includes the following requirements listed in **Table 5-2**.

Table 5-2 LDAR Requirements under Subpart GGGa for Plants 11, 22 and 61

Component	Requirement
Pumps in Light Liquid Service	Monthly monitoring by Method 21 (2,000 ppm leak definition) and weekly visual inspections. Repair leaks within 15 calendar days after detection.
Compressors	To be equipped with a seal system that includes a barrier fluid that prevents VOC leaks.
Pressure Relief Valves in Gas/Vapor Service (excluding those routed to a control device/equipped with a rupture disk)	No emissions except during pressure releases as indicated by Method 21 monitoring (defined as <500 ppm above background). Must operate with no detected emissions within 5 days of a pressure release.
Sampling Connection Systems	Must be equipped with a closed-purge/loop/vent system to capture gases.
Open Ended Valves/Lines	Must be equipped with a cap, blind flange, plug, or a second valve
Valves in Gas/Vapor or Light Liquid Service (excluding difficult-to-monitor valves)	Monthly monitoring by Method 21 (500 ppm leak definition). Repair leaks within 15 calendar days after detection.
Pumps, Valves, and Connectors in Heavy Liquid Service and Pressure Relief Valves in Light Liquid or Heavy Liquid Service	If a visual, audible, olfactory, or other inspection shows evidence of a potential leak, must either monitor using Method 21 (10,000 ppm leak definition) and repair leaks within 15 calendar days OR eliminate the visual, audible, olfactory, or other indication of leak within 5 calendar days.
Closed Vent Systems/Control Devices (excluding those difficult or unsafe to inspect)	Vapor recovery systems must recover 95% or more of VOC. Enclosed combustion devices must have a destruction efficiency of 95% VOC or greater. Flares used to control leaks shall comply with the requirements of §60.18. Initial and annual Method 21 inspection (500 ppm leak definition) is required, OR if system is constructed of hard piping, conduct initial Method 21 inspection (500 ppm leak definition) and an annual visual, audible, olfactory inspection. Repair leaks within 15 calendar days after detection.

Identification and Technical Feasibility of Potential VOC Emission Controls for Equipment Leaks

A review of the RBLC listings for equipment leaks from refinery piping components provides an indication of prior BACT determinations for equipment leaks/fugitive emissions. A summary of the review that was conducted appears in **Appendix B**.

Control strategies for VOC emissions from equipment leaks identified in the RBLC listings primarily involve Subpart GGGa or state LDAR programs, low-leak equipment usage, improved maintenance practices and enhanced monitoring techniques. Based on a review of the RBLC, the only available BACT option for equipment leaks/fugitive emissions is a leak monitoring program with regular required monitoring for leaks with some coupling of such monitoring with the use of low-leak equipment or control guarantees.

The application of an LDAR program to identify and repair piping component leaks and the use of components with leakless technology are the only technically feasible options identified for control of VOC emissions from equipment leaks. An LDAR program is already being proposed as part of this Project via compliance with Subpart GGGa.

Economic Feasibility of VOC Emission Controls for Equipment Leaks

The proposed Project includes the installation of valves and flanges. As discussed above, the use of components with leakless technology was identified as technically feasible for control of VOC emissions from equipment leaks. Vendor-provided costing information was obtained for “common” gate valves and for bellows seal valves. Bellows seal valves use a cylindrical metal tube (the bellows element) that expands and contracts to create a hermetic seal in the valve stem, which prevents leaks of any liquids or vapors. **Table 5-3** below summarizes the pricing per valve for the two categories of valves proposed as part of the Project scope: valves greater than 2 inches (> 2”) and valves less than 2 inches (<2”).

Table 5-3 Cost Per Valve, in United States Dollars

Valve Type	Valves <2”	Valves >2”
Gate Valve	$100	$400
Bellows Seal Valve	$400	$1,500

Based on the estimated total number of valves to be added as part of the Project detailed in **Table A-32** of **Appendix A**, the cost for common gate valves would be $250,000 and the cost for leakless bellows seal valves would be $960,000, for an incremental price increase of $710,000. Assuming a typical useful life of 20 years for the valves and using the current bank prime loan interest rate of 7.5%[2], the capital recovery factor would be 0.0981, for capital recovery costs of $69,651 per year. Emissions from gate valves would be 3.77 tons of VOC per year, as detailed in **Table A-32** (a total of 0.861 pounds per hour of VOC from valves * 8,760 hours per year / 2,000 pounds per ton). Bellows seal valves would reduce VOC emissions down to effectively zero tons per year. Thus, installation of bellows seal valves would have additional capital recovery costs of $69,651 per year for a reduction of 3.77 tons per year of VOC, or $18,470 per ton of VOC controlled. This analysis demonstrates that leakless technology is not cost effective and is therefore not representative of BACT for control of VOC emissions from equipment leaks.

Selection and Justification of VOC BACT for Equipment Leaks

Based on the top-down analysis conducted for VOC control, application of the Subpart GGGa LDAR program to control VOC emissions from the piping components in Plants 11, 22 and 61 is concluded to be representative of BACT. Piping components will be monitored according to the requirements within Subpart GGGa, with specified leak detection levels, monitoring frequencies, and design requirements to minimize VOC emissions.

[2] https://www.federalreserve.gov/releases/h15/ as of May 13, 2025

6. Air Quality Analysis

As part of the PSD review requirements, an assessment of the potential impact of Project emissions on ambient air quality was completed. This section describes the modeling procedures that were used for assessing short-range (PSD Class II) modeled impacts from Project-related emissions at the Refinery for the pollutants subject to PSD review for which an ambient air quality standard exists (specifically PM_{10}, $PM_{2.5}$ and NO_2). A PSD applicant must demonstrate that emissions do not cause or contribute to an exceedance of any NAAQS or PSD increments. There are currently no NAAQS or PSD increments for GHG, and therefore no air quality impact analysis was conducted for GHGs. **Section 7** presents the results of the Class I modeling analysis. The modeling procedures were designed to be consistent with EPA's *Guideline on Air Quality Models* (40 CFR 51 Appendix W, November 29, 2024) and the modeling protocol submitted to MDEQ on January 24, 2025. On March 19, 2025, MDEQ provided comments on the modeling protocol. In the interest of time and anticipation of additional comments MDEQ may have on this air permit application, the application is submitted ahead of providing a response to comments. Chevron understands a revised air permit application may be necessary to address comments.

The results of the air quality modeling analysis demonstrate that the Project's PM_{10} and $PM_{2.5}$ concentrations will be less than EPA SILs for 24-hour and annual averaging periods shown in **Table 6-1**. If the maximum modeled concentrations from a proposed project are less than the respective SILs, the proposed project is presumed to not cause or contribute to a PSD increment or NAAQS exceedance and no further modeling is required for these pollutants.

The results of the air quality modeling analysis for 1-hour and annual NO_2 showed Project-related modeled concentrations exceed the applicable SILs. Therefore, a full impact analysis was conducted to assess the cumulative modeled concentrations from the Project, explicitly modeled nearby background sources and existing refinery NO_2 sources.

Attainment Status

The Chevron Pascagoula Refinery is located in Jackson County, Mississippi, in an area that is designated as attainment for all criteria pollutants. The surrounding areas are designated as Class II areas for PSD permitting purposes.

Jackson County Baseline Dates

The baseline dates for NOx outlined below would apply to the PSD increment analysis for annual NO_2. There is no PSD increment for 1-hour NO_2. These baseline dates were used to determine which sources consume (or have expanded) available PSD increment and should be included in the annual NO_2 PSD increment consumption analysis.

Major Source Baseline Date

The major source baseline date is the date after which actual emissions associated with construction at a major stationary source affect the available PSD increment. The major source baseline dates for this area are listed below:

- PM_{10} – January 6, 1975
- NO_x – February 8, 1988
- $PM_{2.5}$ – October 20, 2010

Table 6-1 Applicable Class II Air Quality Standards

Pollutant	Averaging Time	SIL[a] (µg/m³)	PSD Increments[a] (µg/m³)	NAAQS (µg/m³)
PM_{10}	Annual Arithmetic Mean	1	17	NA
	24-hour Maximum	5	30	150[e]
$PM_{2.5}$	Annual Arithmetic Mean	0.13[i]	4	9[f]
	24-hour Maximum	1.2	9	35[g]
NO_2	Annual Arithmetic Mean	1	25	100
	1-hour Maximum	7.5[b,c]	NA	188[d]
O_3	8-hour Maximum	1.0 ppb	NA	70 ppb[h]

NA = Not applicable, i.e., no increment, SIL or NAAQS exists for this pollutant or averaging period

a. Short-term PSD increments use the second-highest modeled concentration at any receptor and the SIL uses the highest modeled concentration at any receptor.
b. 1-hour SIL for NO_2 is an interim value specified by EPA.
c. 1-hour maximum concentration averaged over the five-year model period at each receptor.
d. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb (effective January 22, 2010).
e. Not to be exceeded more than once per year on average over 3 years.
f. The annual mean, averaged over 3 years, updated final rule (89 FR 16202) effective May 6, 2024.
g. To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m³.
h. To attain this standard, the annual 4th highest daily maximum 8-hour concentration, averaged over 3 years at each monitor must not exceed 70 ppb.
i. Updated Class II SILs, EPA April 30, 2024 memo.

Sources: 40 CFR 50; 40 CFR 52.21, 40 CFR 51.165, 89 FR 16202.

Trigger Date

The trigger date is the date on which a major stationary source or major modification submits a complete application. As with the major source baseline dates, the trigger dates are fixed dates as follows:

- PM_{10} – August 7, 1977
- NO_x – February 8, 1988
- $PM_{2.5}$ – October 20, 2011

Minor Source Baseline Date

The minor source baseline date (MiSBD) is the earliest date after the trigger date, which identifies the point in time after which actual emissions changes from all sources (major and minor) affect available increment in the county where the Project is located. The amount of PSD increment consumption within an area is determined from the actual emission increases and decreases that have occurred since the applicable baseline date.

The Jackson County minor source baseline date from which increment inventories were derived are:

- PM_{10} – April 9, 1979
- NOx – June 30, 1992

- $PM_{2.5}$ - Not triggered

Dispersion Model Selection

The suitability of an air quality dispersion model for a particular application is dependent upon several factors. For this study, several selection criteria were evaluated. These criteria are:

- Proposed or approved regulatory dispersion models and guidance;
- Availability of representative meteorological data;
- Land use analysis;
- Stack height relative to nearby structures; and
- Local terrain.

AERMOD is an EPA-preferred refined dispersion model for simple and complex terrain for receptors within 50 km of a modeled source. AECOM used the most recent version of AERMOD (Version 24142) as recommended by MDEQ which also includes the PRIME (Plume Rise Model Enhancement) building downwash algorithms. The AERMOD modeling system consists of two preprocessors and the dispersion model: (1) AERMET, the meteorological preprocessor component and (2) AERMAP, the terrain pre-processor component that characterizes the terrain and generates receptor elevations along with critical hill heights for those receptors.

AERMOD was used to assess air quality model concentrations in the local area for comparison to applicable air quality standards and PSD Class II increments. AERMOD was run with default model options in the CONTROL pathway.

Meteorological Data

The EPA Appendix W guidance recommends use of five years of representative meteorological data for regulatory refined modeling. The five most recent years of pre-processed meteorological data for the Pascagoula Trent Lott Airport was downloaded from MDEQ's website. Pascagoula Trent Lott Airport (14 km from the Refinery) surface data and Slidell, Louisiana upper air data were processed by MDEQ for the years 2020 through 2024 using AERMET (Version 24142). A wind rose for the Pascagoula Trent Lott Airport meteorological data is presented in **Figure 6-1**. The Pascagoula meteorological data are representative of the winds at the Refinery with stronger north-south flow representing the seabreeze. MDEQ's supporting documentation as it pertains to AERMET processing is available on their website[3].

Local Topography and Receptor Selection

Local topography plays an important role in the selection of the appropriate dispersion model. Available dispersion models were formerly divided into two general categories: those applicable to terrain that is below stack top (simple terrain) and those applicable where the terrain is above stack top (complex terrain). However, AERMOD removes this distinction and allows for a seamless treatment of Project impacts on terrain both above and below stack top elevation. The Refinery is located at an elevation of approximately 7 feet above mean sea level (msl). The only notable terrain features within approximately 5 km of the facility are the gypsum piles located to the north and northwest on the former Mississippi Phosphate Corporation's property.

The facility location, identified by the coordinates of the approximate center of the Refinery, is 357,000 m Easting and 3,357,500 m Northing (Universal Transverse Mercator [UTM] Zone 16, North American Datum [NAD83]). The Class II area receptor grid within 20-km is shown in **Figure 6-2**.

[3]. https://www.mdeq.ms.gov/wp-content/uploads/2025/02/MS-AERMOD-Ready-Met-Files-2024.pdf

Figure 6-1 Wind Rose for Pascagoula Trent Lott Airport

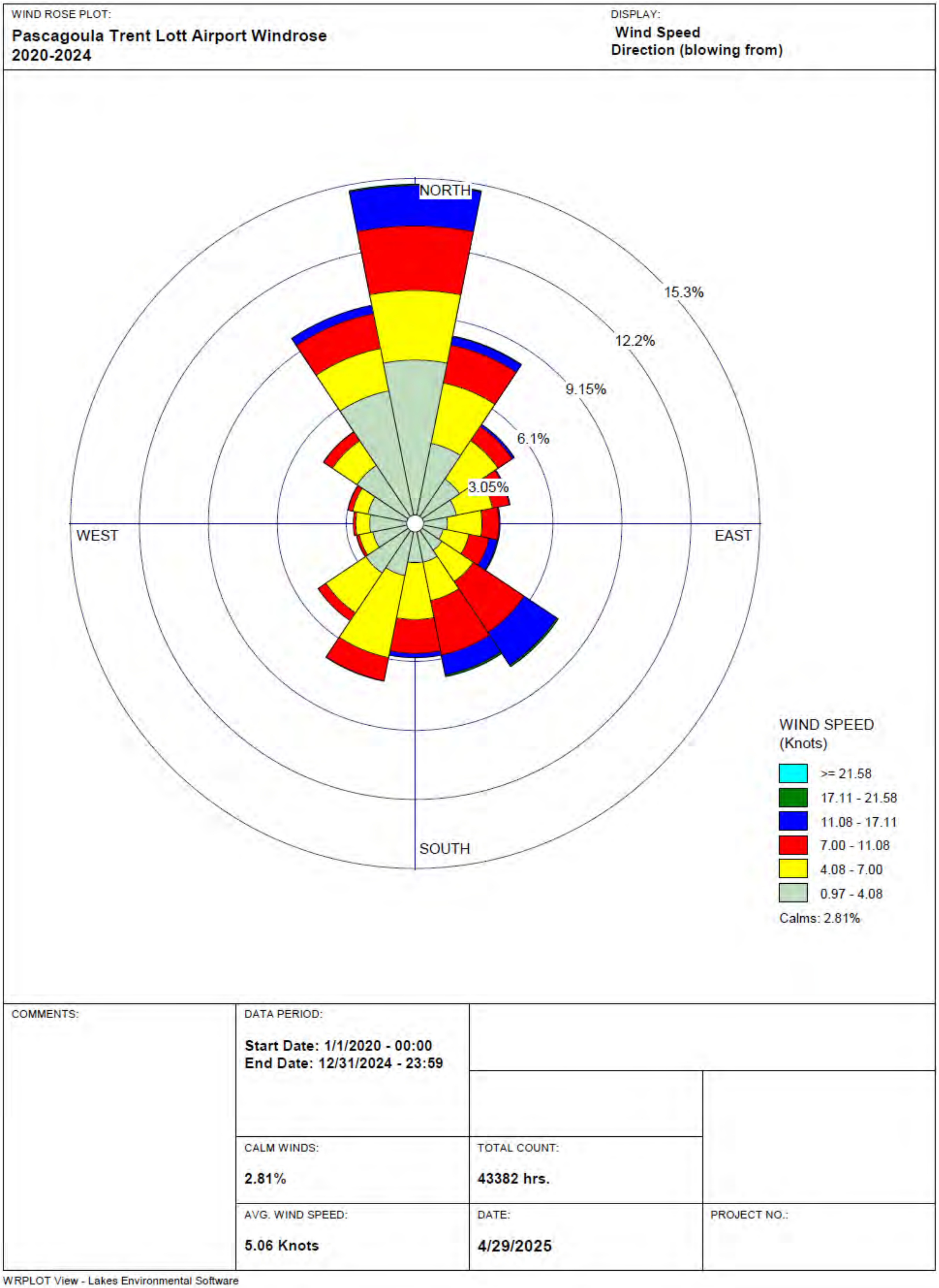


Figure 6-3 shows a close-in look at the receptors within a few km of the facility ambient air boundary. The receptor grid includes an extended modeling perimeter along the southern boundary to encompass Refinery property west of the outfall canal. The Refinery area west of Route 611 is fenced on the south, east and north sides. The west side along the wharf is monitored to ensure non-commercial vessels do not approach Chevron shipping berths. The Refinery area east of Route 611 is fenced on the north, east and west sides north of the dyke wall just south of the coke conveyor. The east ambient air boundary now extends south along the outfall canal from the hurricane dyke to the Gulf of Mexico. The south ambient boundary follows the shoreline west to the property line. The west ambient air boundary follows the property line north up to the hurricane dike. Signage, additional perimeter patrols, and security cameras were installed to maintain security in this area to preclude public access consistent with EPA's December 2019 "Revised Policy on Exclusions from Ambient Air"[4]. The camera locations are shown in **Figure 6-4**.

The receptor grid spacing to adequately resolve the Significant Impact Area (SIA) for the Class II area assessment is as follows:

- Fence line: 50 m
- Fence line to 1-km: 100 m
- 1-km to 5-km: 500 m
- 5-km to 18-km from the fenceline (20 km from the center of the Refinery): 1,000 m for PM_{10} and $PM_{2.5}$, and
- 5-km to 40-km from the fenceline: 1,000 m for NO_x.

Additional receptors with 250-m spacing were added to the northwest of the Refinery to further characterize modeled concentrations in residential areas near the refinery.

Depending upon the receptor grid spacing at the locations of the peak modeled concentrations, AECOM made additional model runs if necessary using 100-m grid spacing to confirm the peak modeled concentration. The lateral extent of this receptor grid was sufficient to capture the maximum modeled impacts.

AERMAP (Version 24142) was used to calculate terrain elevations and critical hill heights for the modeled receptors (NAD83 datum and UTM Zone 16) using United States Geological Survey (USGS) 3D Elevation Program (3DEP) data. The dataset was downloaded from the USGS National Map download tool (https://apps.nationalmap.gov/downloader/) and consists of 1/3 arc second (~10 m resolution) elevation data. As per the AERMAP User's Guide, the domain was sufficient to ensure all significant nodes are included such that all terrain features exceeding a 10% elevation slope from any given receptor, are considered. The USGS 3DEP files may not include the elevations of the gypsum piles associated with the former Mississippi Phosphates Corporation's Pascagoula Plant. The receptor elevations and critical hill heights were reviewed and corrected manually as necessary.

[4] https://www.epa.gov/sites/default/files/2019-12/documents/revised_policy_on_exclusions_from_ambient_air.pdf

Figure 6-2 Full Receptor Grid for AERMOD Modeling

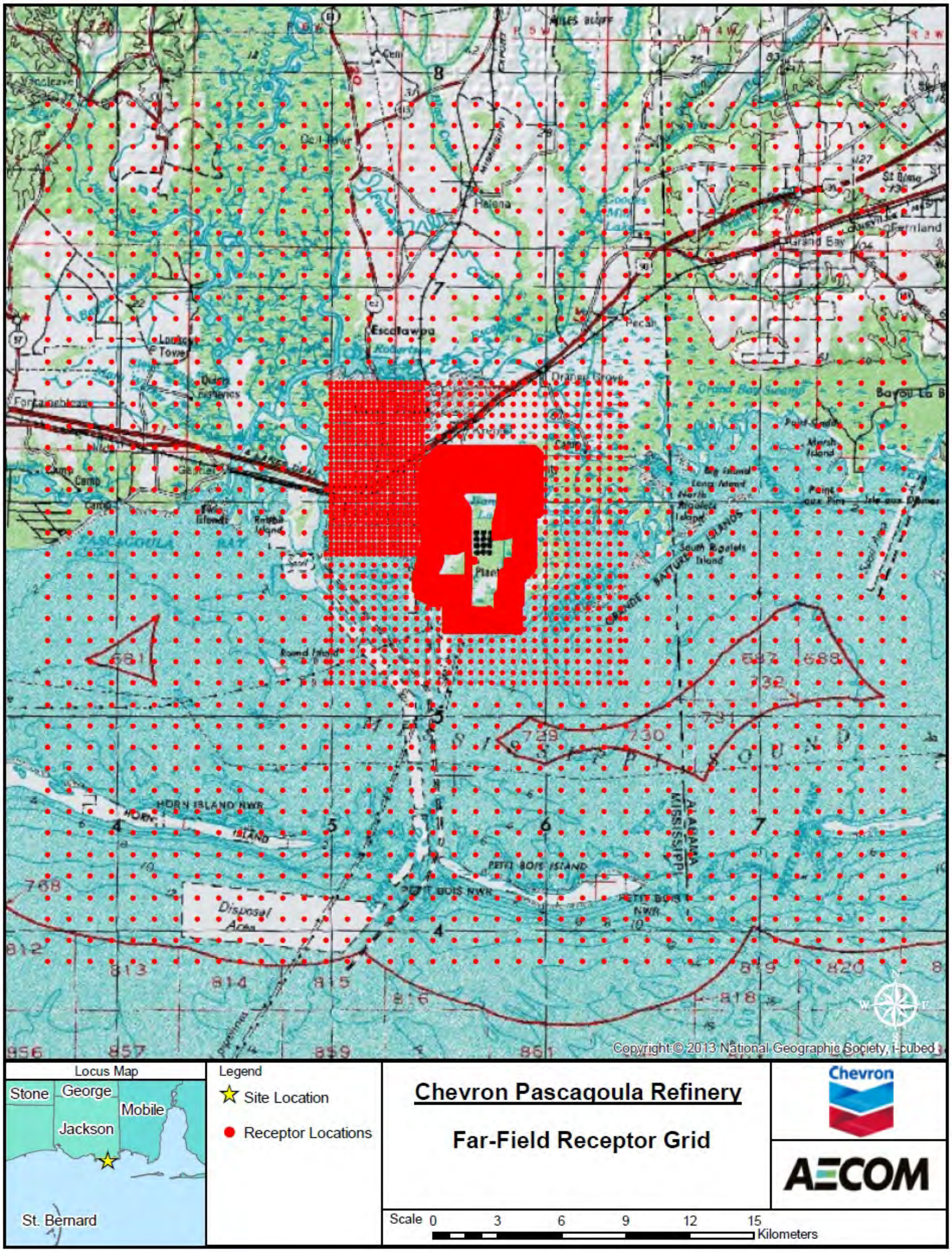


Figure 6-3 Close-Up View of Receptor Grid for AERMOD Modeling

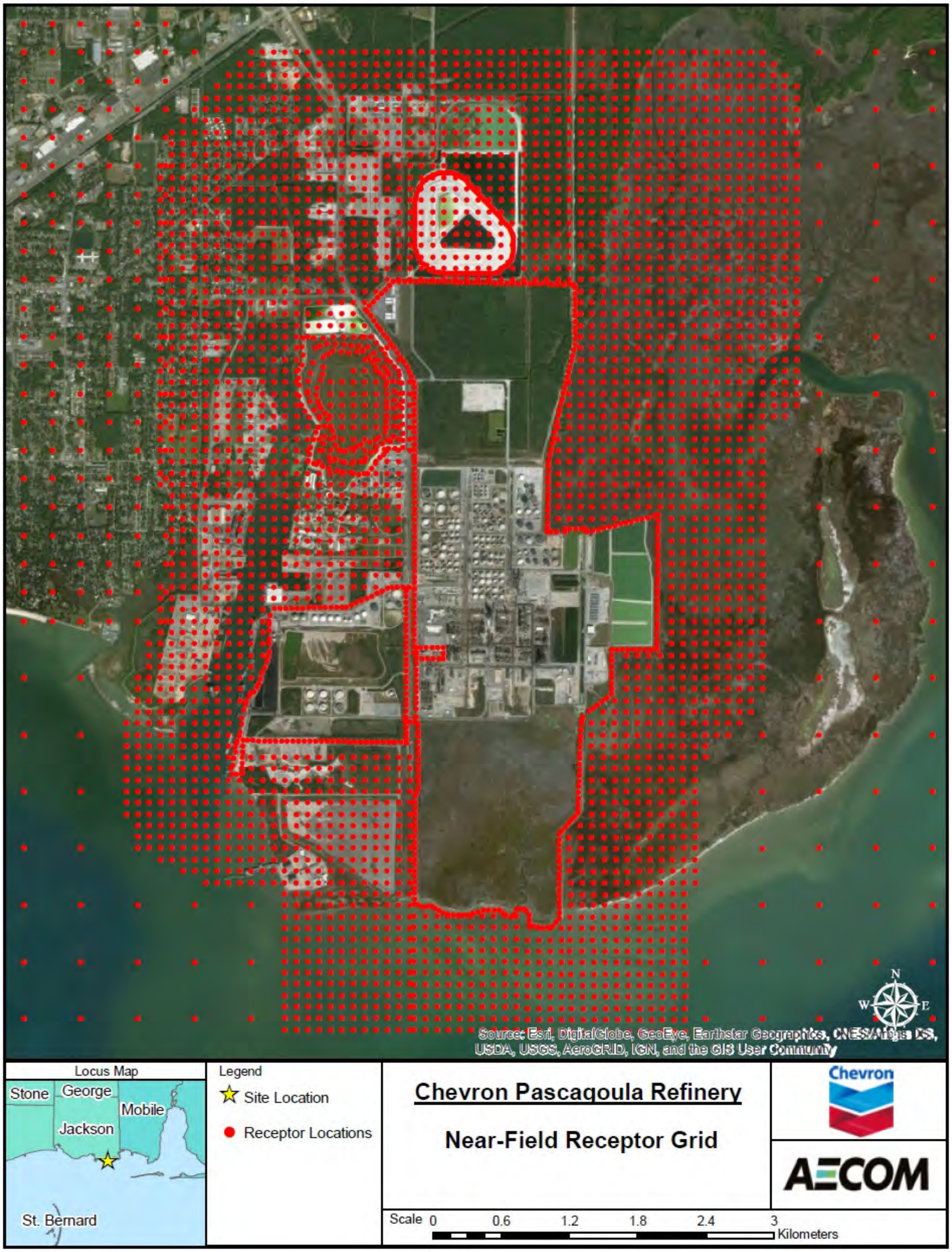
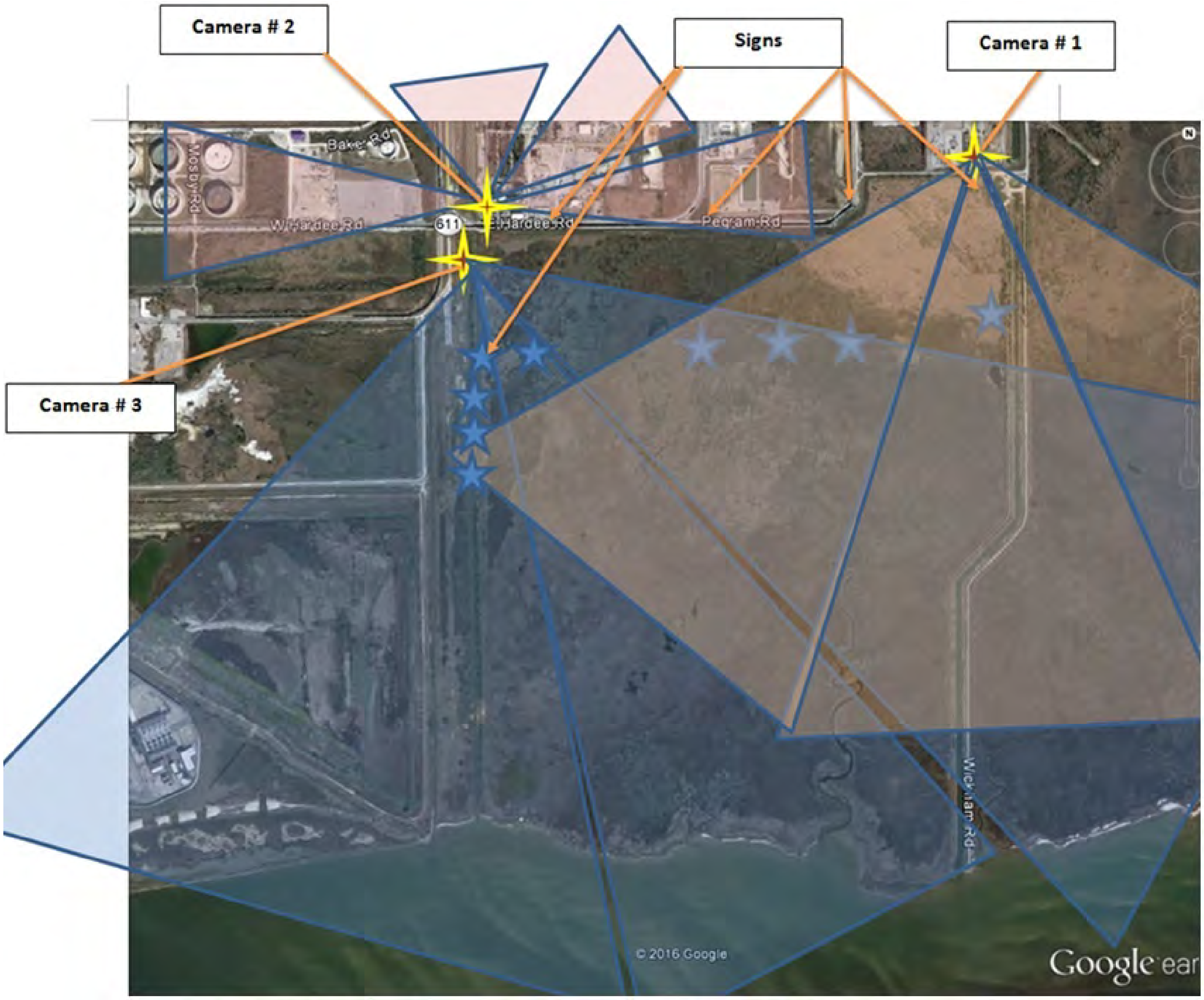


Figure 6-4 Security Camera Locations Monitoring South Perimeter



Good Engineering Practice (GEP) Stack Height Analysis

A GEP stack height analysis was performed to determine the potential for building-induced aerodynamic downwash. The analysis procedures described in EPA's Guidelines for Determination of Good Engineering Practice Stack Height, Stack Height Regulations (40 CFR 51), Stack Height Considerations (11 Miss. Admin. Code Pt. 2, Ch. 1, R.9), and current Model Clearinghouse guidance was used.

The GEP formula height is based on the observed phenomena of disturbed atmospheric flow in the immediate vicinity of a structure resulting in higher ground level concentrations at a closer proximity to the building than would otherwise occur. It identifies the minimum stack height at which significant aerodynamics (downwash) are avoided. The GEP formula stack height, as defined in the 1985 final regulations, is calculated as:

$H_{GEP} = H_{BLDG} + 1.5L$

where:

H_{GEP} is the maximum GEP stack height;

H_{BLDG} is the height of the nearby structure; and

L is the lesser dimension (height or projected width) of the nearby structure.

Both the height and width of the structure are determined from the frontal area of the structure projected onto a plane perpendicular to the direction of the wind. In all instances, the GEP stack height is based on the plane projections of any nearby building that results in the greatest justifiable height. For purposes of the GEP analysis, “nearby” refers to the “sphere of influence,” defined as five times the height or width of the building, whichever is less, downwind from the trailing edge of the structure. In the case where a stack is not influenced by nearby structures, the maximum GEP stack height is limited to 65 meters (m).

Refinery equipment and structures that could potentially produce aerodynamic downwash of the stack exhaust plumes were included in the GEP analysis. One building in the Mississippi Power Cogeneration site located within the Refinery was also considered in determining downwash effects. **Figure 6-5**, **Figure 6-6**, and **Figure 6-7** show the buildings and stacks assessed in the analysis. All stacks are either less than the maximum GEP stack height of 65 meters or less than GEP formula height and therefore were modeled with their full physical stack height.

The direction-specific building dimensions were determined using the latest version of EPA’s Building Profile Input Program software (BPIP-PRIME, Version 04274) using the stack and building heights provided by Chevron. Electronic BPIP files with horizontal and lateral building dimensions digitized in a UTM coordinates system (Zone 16 – NAD83) are provided in the modeling archive in **Appendix C**.

Building Cavity Analysis

AERMOD’s inclusion of the PRIME downwash algorithm accounts for the cavity region, which is approximately three building heights in length downwind. As such, no additional cavity analysis (e.g., using SCREEN3) was necessary using AERMOD (v24142).

Analysis of Existing Air Quality

Background Air Quality Data

Background air quality data are required for the air quality impact assessment for two purposes: (1) satisfy the PSD pre-construction monitoring requirement and (2) to account for the contribution of non-modeled sources as part of the NAAQS compliance demonstration.

Concentrations of $PM_{2.5}$, NO_2 and ozone are recorded at the Pascagoula monitor which is located in a parking lot near the Singing River Hospital and Pascagoula Exceptional School approximately 6 km northwest of the Refinery. The area surrounding the monitor is commercial and influenced by traffic emissions from Highway 90. The three-kilometer area surrounding the monitor is classified as 62 percent urban due to proximity to commercial buildings, medium density housing and Highway 90; whereas the three-kilometer area surrounding the Refinery is classified as 27 percent urban. The Refinery itself and other nearby industrial facilities are classified as urban; however, the proximity to the coastal wetlands and waterbodies heavily influences the land use classification of the surrounding area. The terrain surrounding the monitor is flat, similar to the terrain around the Refinery. Since the monitor is located within 10 km of the Refinery, sources that impact the monitor would also impact the background air quality near the Refinery. As such, background concentrations from the Pascagoula monitor are likely very representative of air quality in the vicinity of the Refinery.

PM_{10} is no longer monitored at the Pascagoula monitor. The closest PM_{10} monitor to the Refinery is located in Chalmette Vista, Louisiana. The Chalmette Vista monitor is in an industrial area bordered by residences, and the surrounding terrain is flat. The surrounding area within three kilometers is classified as 71 percent urban. The monitor is located within 5 km of two refineries and a sugar manufacturing facility with similar proximity to the coastline as the Refinery. As such, background concentrations from the Chalmette Vista monitor are likely very representative of air quality in the vicinity of the Refinery.

Figure 6-5 Buildings and Stacks Considered in the GEP Analysis

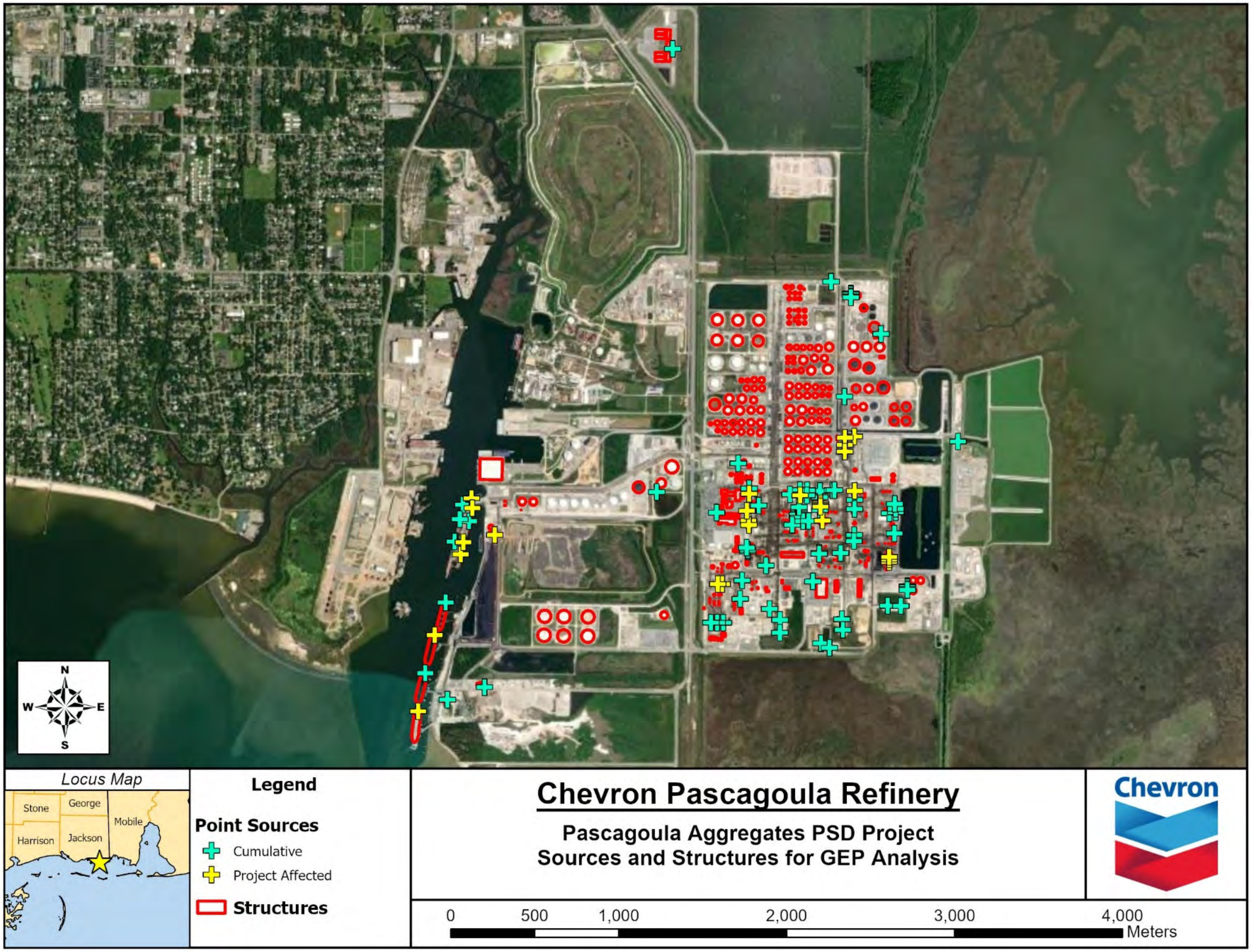


Figure 6-6 Buildings and Stacks Considered in the GEP Analysis (Close-up West)

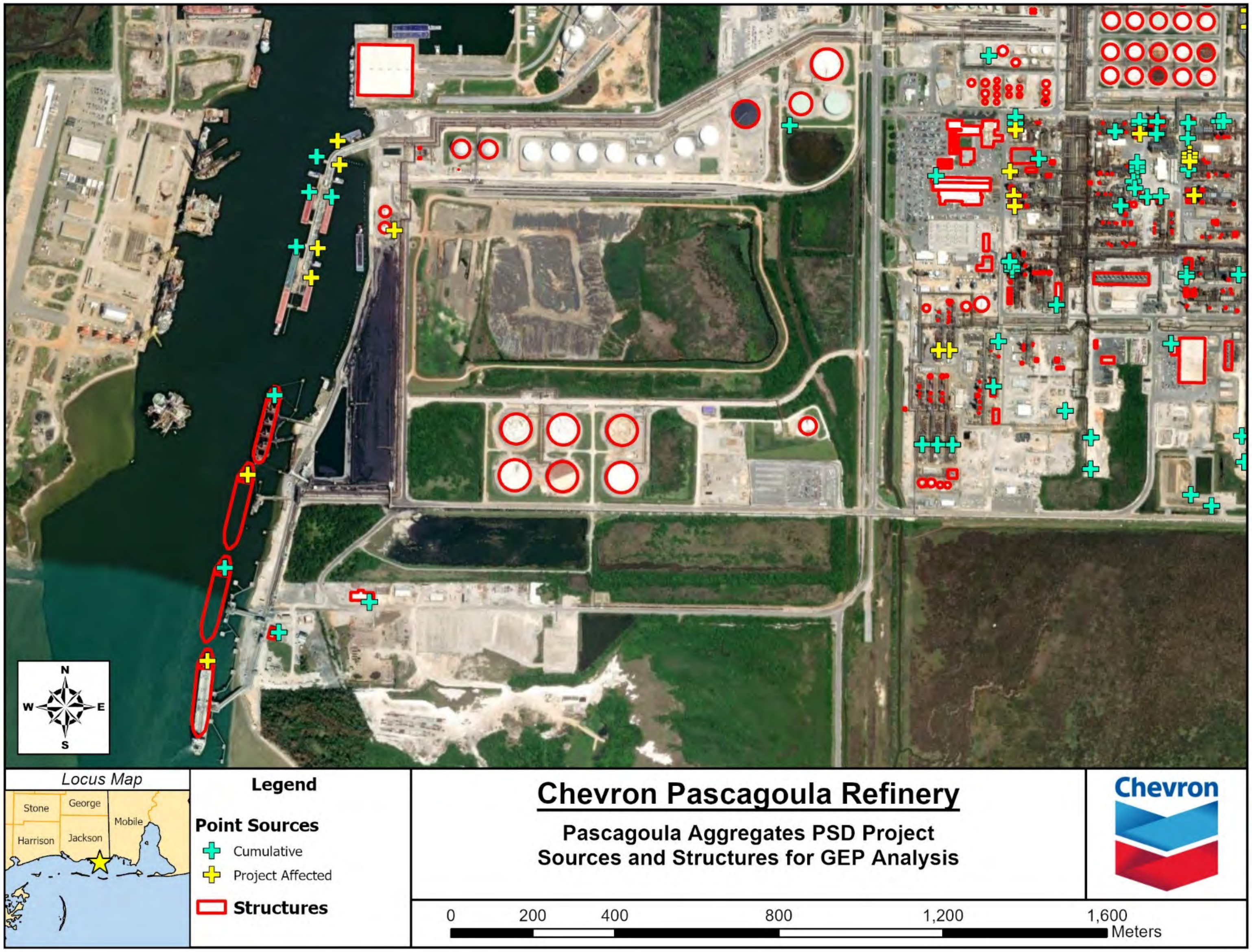
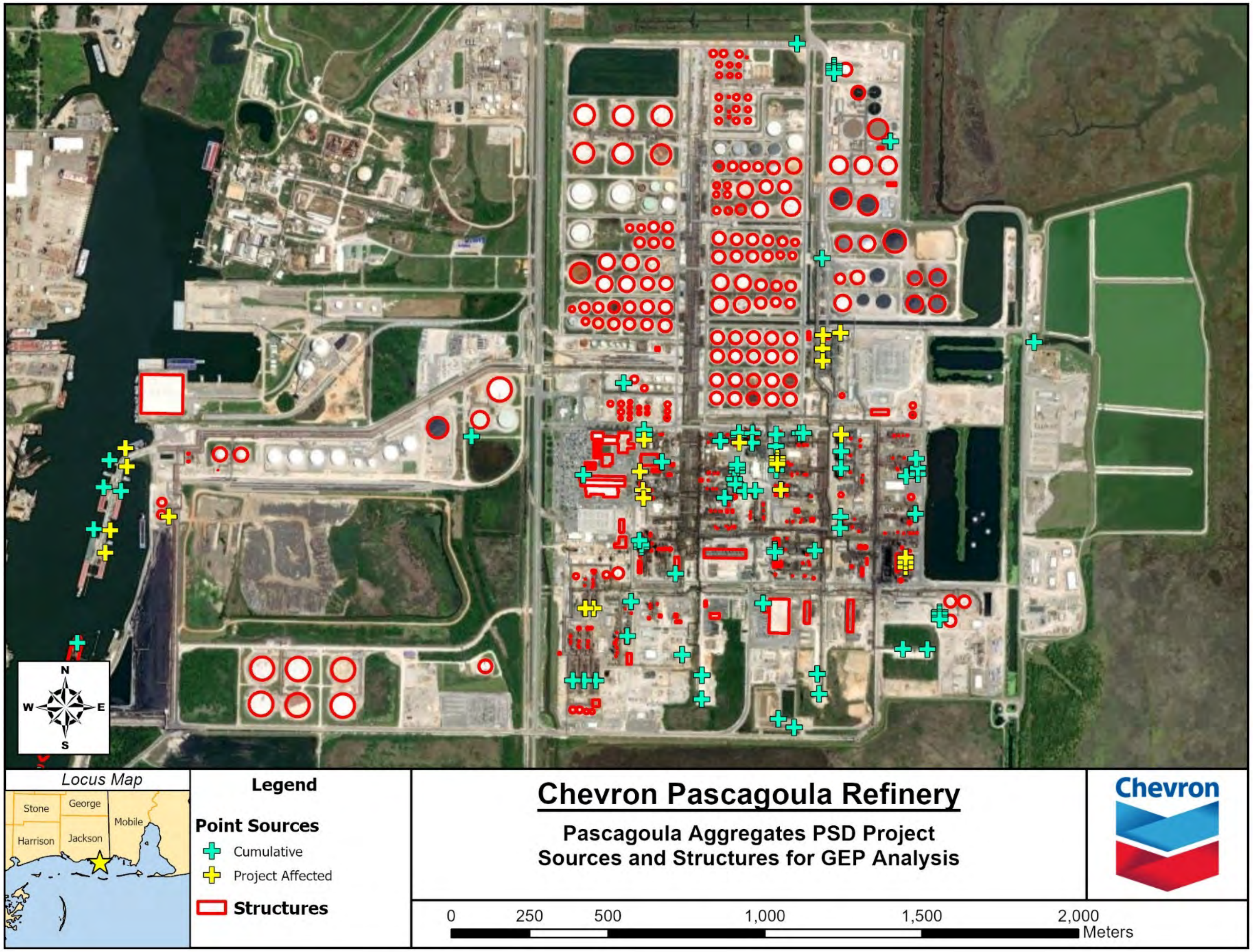


Figure 6-7 Buildings and Stacks Considered in the GEP Analysis (Close-up East)



Monitor concentrations proposed for this project are summarized in **Table 6-2**. NO_2 and ozone background concentrations developed for NAAQS modeling are discussed in the cumulative modeling section. **Table 6-2** provides the three-year average for 1-hour NO_2, 8-hour ozone, 24-hour and annual PM_{25}, and highest annual monitored background concentrations for NO_2 from the Pascagoula monitor for the most recent three years of data (2022 through 2024). The Pascagoula monitoring station also records hourly ozone data during the ozone season, which is the months of March through October. **Table 6-2** also provides the 2nd highest short-term PM_{10} monitored concentrations from the Chalmette Vista, Louisiana monitor for each year (2022 through 2024).

Table 6-2 Monitored Background Concentrations (2022 – 2024)

Pollutant	Averaging Period(1)	2022 (µg/m³)	2023 (µg/m³)	2024 (µg/m³)	SIL (µg/m³)	NAAQS (µg/m³)
NO_2(2)	1-hour	Three-Year Average of the 98th Percentile: 52.2			7.5	188
	Annual	5.8	7.0	6.8	1	100
Ozone(2)	8-hour	Three-Year Average of the 98th Percentile: 66 ppb			1 ppb	70 ppb
PM_{10}(3)	24-Hour	43	49	54	5	150
$PM_{2.5}$(2)	24-Hour	Three-Year Average of the 98th Percentile: 16.6			1.2	35
	Annual	Three-Year Average: 8.0			0.13	9

(1) Short-term values not to be exceeded more than once per year.
(2) Monitor located in Pascagoula, MS.
(3) Monitor located in Chalmette, LA.
Sources: EPA AirData Website, MDEQ Air Monitoring Data Annual Report

Pre-Construction Monitoring

The PSD regulations require that a PSD permit application include an analysis of existing air quality for all regulated pollutants that exceed their SERs. The definition of existing air quality can be satisfied by air measurements from either a state-operated or private network, or by a pre-construction monitoring program that is specifically designed to collect data in the vicinity of the Project.

To fulfill the pre-construction monitoring requirement for PSD without conducting on-site monitoring, a source may either justify that data collected from existing monitoring sites are conservatively representative of the air quality in the vicinity of the Project site or demonstrate through modeling that concentrations from the Project are less than the *de minimis* levels established by the EPA. As such, if the source-only modeled impacts are greater than the *de minimis* monitoring concentrations found in **Table 6-3**, then the background air quality data in **Table 6-2** was used to quantify existing air quality.

Table 6-3 Significant Monitoring Concentrations

Pollutant	Averaging Time		
	Annual (µg/m³)	24-hour (µg/m³)	8-hour (µg/m³)
NO_2[1]	14	-	-
Ozone	-	-	VOC emission increase > 100 TPY
PM_{10}	-	10	-

[1] A significant monitoring concentration has not been established for one-hour NO_2.

Modeled Sources

This section summarizes the Project sources included in the SIL modeling analysis. All modeling data is provided in **Appendix C**. **Figure 6-8** and **Figure 6-9** show the modeled non-point source locations. The point source locations are shown in the GEP figures.

Furnaces and Boilers

The Project-affected furnaces and boilers are described in **Section 1**. Stack parameters are derived from stack test data, CEMs, or Title V information. All additional furnaces at the Refinery were included in the cumulative modeling as they were not associated with the Project. Each furnace and boiler were modeled as a point source.

Ships and Barges

The Project includes an annual increase in purchased feed barge and ship unloading at Berths 1, 2B, 4A/B, 6 and 7A. Berths 1, 2B and 4A/B are barge increases only, while Berths 6 and 7A will see an increase in both ships and barges. There is no increase in unloading emissions on a daily basis as a ship or barge can be docked for an entire 24-hour period and ships and barges are berthed most days of the year. Therefore, ship and barge emissions are not included in the 1-hour NO_2, 24-hour PM_{10} and $PM_{2.5}$ SIL modeling. Ship and barge emissions were addressed for annual NO_2 and $PM_{2.5}$ in two modeling scenarios, one where VGO arrives all by barge and one where VGO all arrives by ship. Hoteling emissions are considered a mobile-source activity and exempt from modeling. Emissions at Berths 1 through 9 were included in the cumulative modeling. Each ship and barge are modeled as a point source.

Coke Pile Wind Erosion and Bulldozing

Coke pile wind erosion occurs when the wind speed exceeds the threshold friction velocity and bulldozing emissions occur when coke is pushed by bulldozers to the reclaims. Currently, water is applied as needed but not on a daily basis. As part of this permit application, daily watering will be incorporated such that the chemical surfactant will be reactivated to reduce airborne dust during bulldozing activities and wind erosion. Both sources of emissions were modeled as area sources.

There is no increase in coke pile wind erosion and bulldozing on a daily basis compared to the baseline period, as the maximum hourly wind speed was used in the wind erosion calculation and bulldozing has occurred during the baseline period; therefore, wind erosion and bulldozing emissions are not included in the 24-hour PM_{10} and $PM_{2.5}$ SIL modeling. Annual emissions due to daily watering will decrease and were included as negatives for the annual $PM_{2.5}$ SIL modeling.

Coke Handling System

Petroleum coke is transported from the coke drum and coke pit at Plant 83 via conveyor system to the coke piles next to the wharf and then transferred via conveyor system from the coke piles to Berth 8 where the coke is loaded onto a ship. The coke is transferred from the coke pit to an open conveyor to transfer station 2, where a chemical surfactant is applied to reduce PM emissions. The coke pit was modeled as an area source and the open conveyor as a line volume source. From transfer station 1 to transfer station 6, the conveyors are enclosed, and each transfer point exhaust was modeled as volume sources. At transfer station 6, the coke can be transferred to either an open conveyor to the east stacker and on to the coke pile or an open conveyor to transfer station 7, an open conveyor and then to the west stacker and on to the coke pile. Each transfer station and drop onto the coke pile was modeled as a volume source and each open conveyor as a line volume source. There is no increase in coke throughput on a daily basis compared to the baseline period, as the maximum daily coke throughput has occurred during the baseline period; therefore, coke handling emissions are not included in the 24-hour PM_{10} and $PM_{2.5}$ SIL modeling. Annual increases in throughput of coke handling emissions were included for annual $PM_{2.5}$ SIL modeling.

When a ship is docked at Berth 8, bulldozers push coke to the east and west reclaim and the coke is transported on open conveyors to transfer station 8. Open conveyors transport coke through transfer stations 9 and 10. The conveyors that transport coke from transfer station 10 to 12 and on to 13 are enclosed. Transfer station 11 is not in service as the conveyor belt does not exist. The open conveyor from transfer station 13 to the ship ends in a telescopic chute to transfer coke to the cargo hold of the ship. Each transfer station and drop into the cargo hold was modeled as a volume source and each open conveyor as a line volume source using adjacent volume sources.

There is no increase in coke throughput on a daily basis compared to the baseline period, as the maximum daily coke throughput has occurred during the baseline period; therefore, coke handling emissions are not included in the 24-hour PM_{10} and $PM_{2.5}$ SIL modeling. Due to the daily watering discussed above that reactivates the surfactant, annual emissions will decrease overall in the annual $PM_{2.5}$ SIL modeling.

Roadways

The Project includes an increase in truck traffic at the Marketing Terminal due to increases in product shipping. In addition, there is a potential increase in the trucking of coke from the coke pit to the coke piles in the event of a conveyor malfunction or maintenance period. Trucking of coke will be allowed up to 30 days per year and Chevron will water these roads daily when they are in use for trucking coke.

Silt loading measurements were collected at the refinery in 26 locations. The silt loading measurements and traffic data were used to estimate the baseline emission rates for all road segments in the refinery. The increase in Marketing Terminal traffic on the six road segments that make up the marketing terminal “loop” was used to develop the incremental change in PM emissions, taking into consideration that the road segments were resurfaced after the baseline period.

Each road segment was modeled as a line volume source using adjacent volume sources following EPA’s Haul Road Workgroup Guidance. Site-specific silt loading measurements were used to develop the emission rates for each road segment.

Figure 6-8 Modeled Source Locations (Roadways)

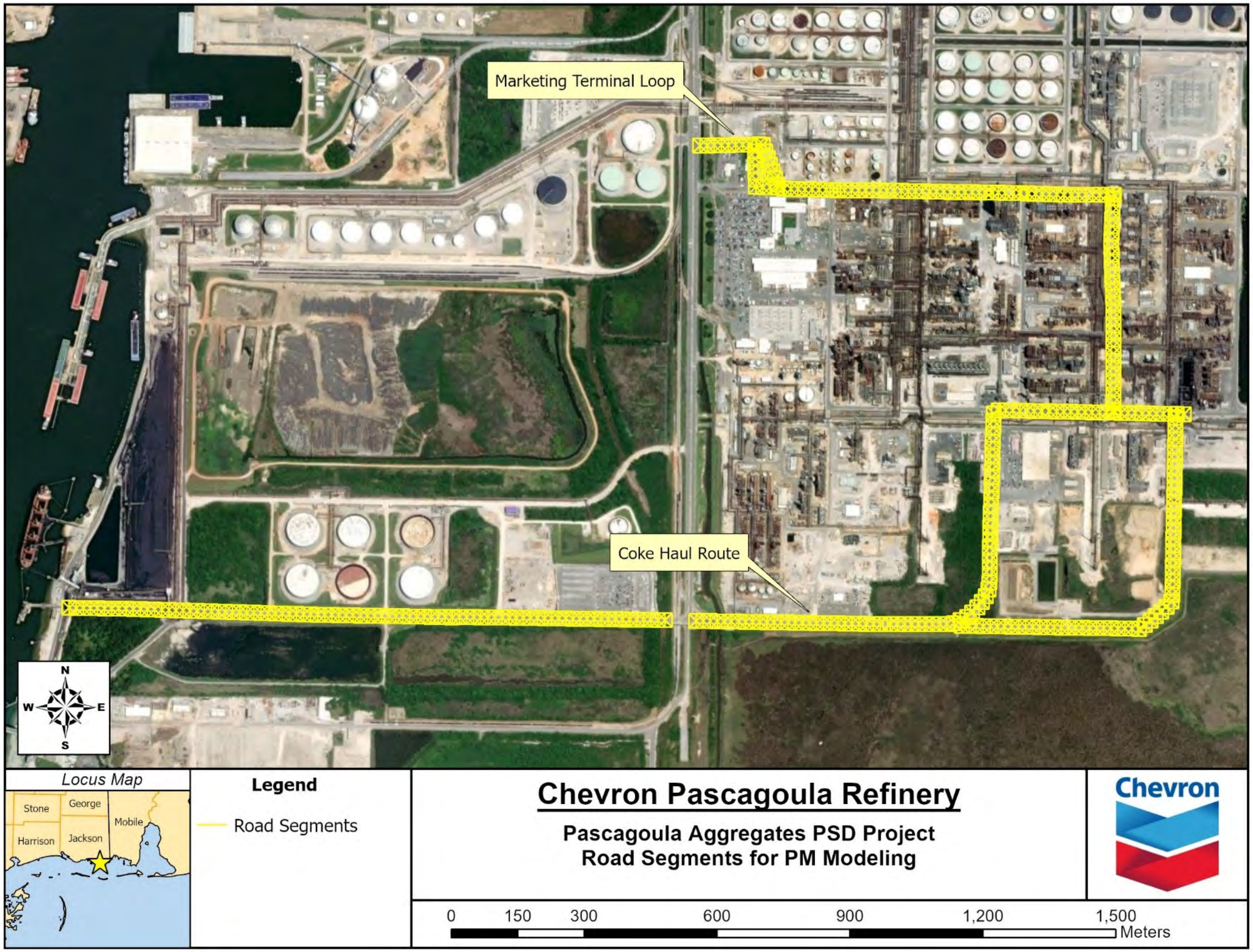
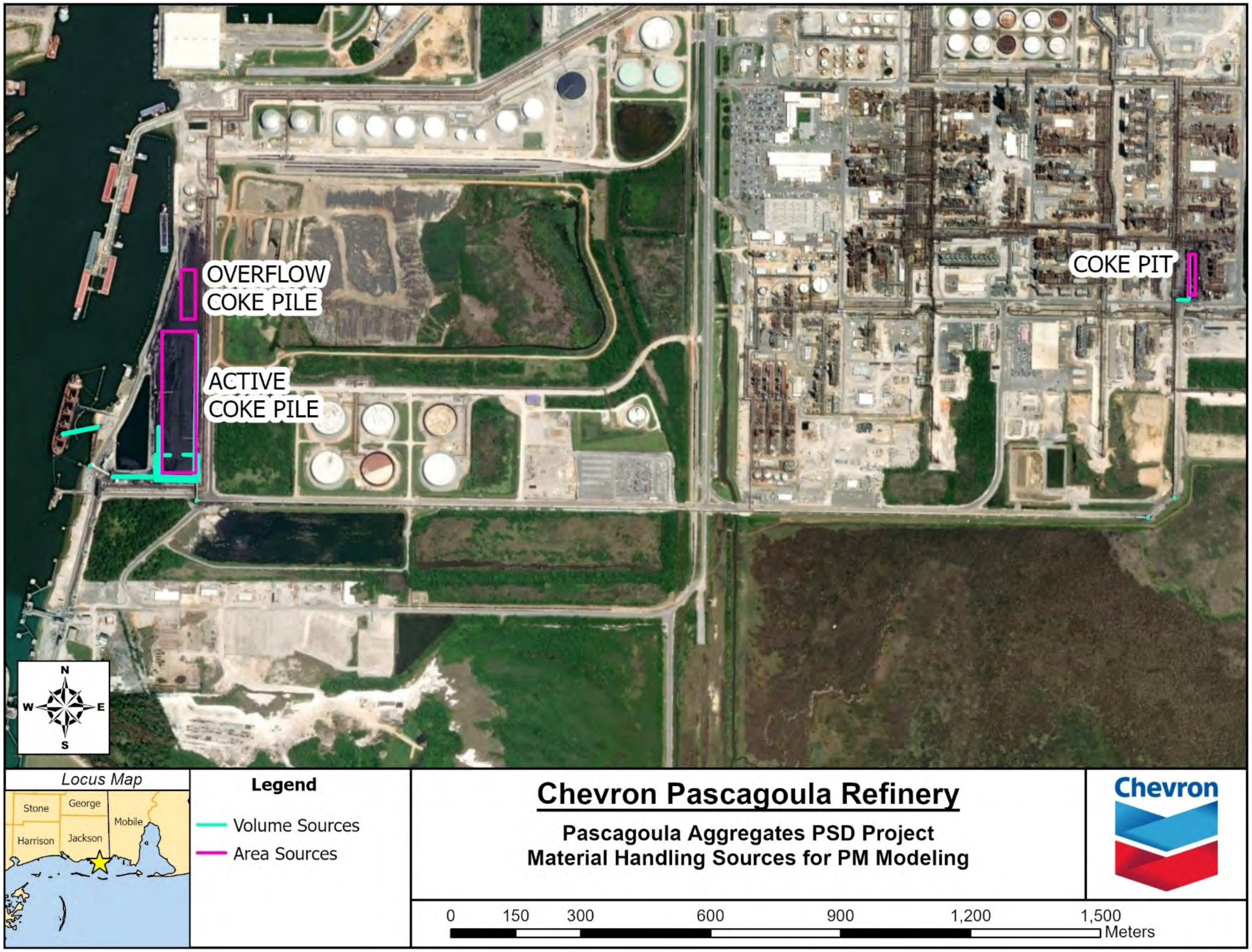


Figure 6-9 Modeled Source Locations (Material Handling)



PSD Class II Significant Impact Analysis

Project-related emissions of the PSD-applicable pollutants were modeled to determine if the Project would have a significant impact on local air quality. Impacts were assessed using AERMOD at the Class II receptor locations described previously and compared to the Class II SILs. The five years of Pascagoula Trent Lott meteorological data were used as input to AERMOD.

When modeled concentrations for a specific pollutant and averaging period are less than the SILs, the proposed Project's contribution to ambient air quality is deemed to be insignificant, such that construction of the modification has no bearing on compliance with ambient standards and increments for that pollutant and averaging period. When a specific pollutant and averaging period is modeled to be less than the SIL, then no additional modeling is required for that pollutant and averaging period. However, when modeled impacts are above the SIL, then a cumulative assessment of the proposed Project's impacts is required to determine compliance with NAAQS and PSD increments. It is evident that the monitored values plus the SILs are well below the NAAQS, so the SILs may be used to demonstrate the proposed Project will not cause or contribute to an exceedance of the NAAQS or PSD increment.

The maximum modeled concentration for each PSD-applicable pollutant was located in areas with 100-m receptor grid spacing or less. Therefore, additional dense grid modeling was not required for the SIL analysis. For modeled concentrations greater than the SIL, no additional modeling with dense grid (100-m) receptors was conducted and we proceeded directly to cumulative modeling.

Modeling of NO_2 Concentrations

Based on current guidance, NO_2 impacts can be determined by using a 3-tiered NO_x to NO_2 conversion rate system, where:

- Tier 1 assumes 100 percent NO_x to NO_2 conversion;
- Tier 2 utilizes the Ambient Ratio Method 2 (ARM2); and
- Tier 3 allows the use of refined techniques such as the Ozone Limiting Method (OLM), Plume Volume Molar Ratio Method Version 2 (PVMRM2), and the Generic Reaction Set Method (GRSM). All three are default options in AERMOD.

For this Project, initial modeled concentrations were assessed using the EPA default Tier 2 methodology for estimating NO_2 concentrations from total NO_X emissions under ARM2.

For both averaging periods, NO_2 modeling for the SIL analysis was conducted using the Tier 2 ARM2 methodology with default values for minimum (0.5) and maximum NO_2/NOx ratio (0.9). For 1-hour NO_2, the 5-year average of the maximum modeled 1-hour NO_2 concentrations exceeded the SIL at 2,712 receptors and created an SIA of 9.8 km. The receptors that exceed the SIL were used in the cumulative analysis for demonstrating compliance with the NAAQS. Concentration isopleths for the 1-hour NO_2 SIL are shown in **Figure 6-10**.

For annual NO_2, the highest annual concentration predicted in each of the five years modeled exceeded the SIL at 92 receptor locations for the "VGO through barge" scenario and 61 receptors for the "VGO through ship" scenario, resulting in an SIA of 2.83 and 2.80 km, respectively. These receptors were used in the cumulative analysis for demonstrating compliance with the PSD increment and NAAQS and are shown in **Figure 6-11**. The SIL modeling results for NO_2 are summarized in **Table 6-7**.

Figure 6-10 1-hour NO_2 Concentration Isopleths

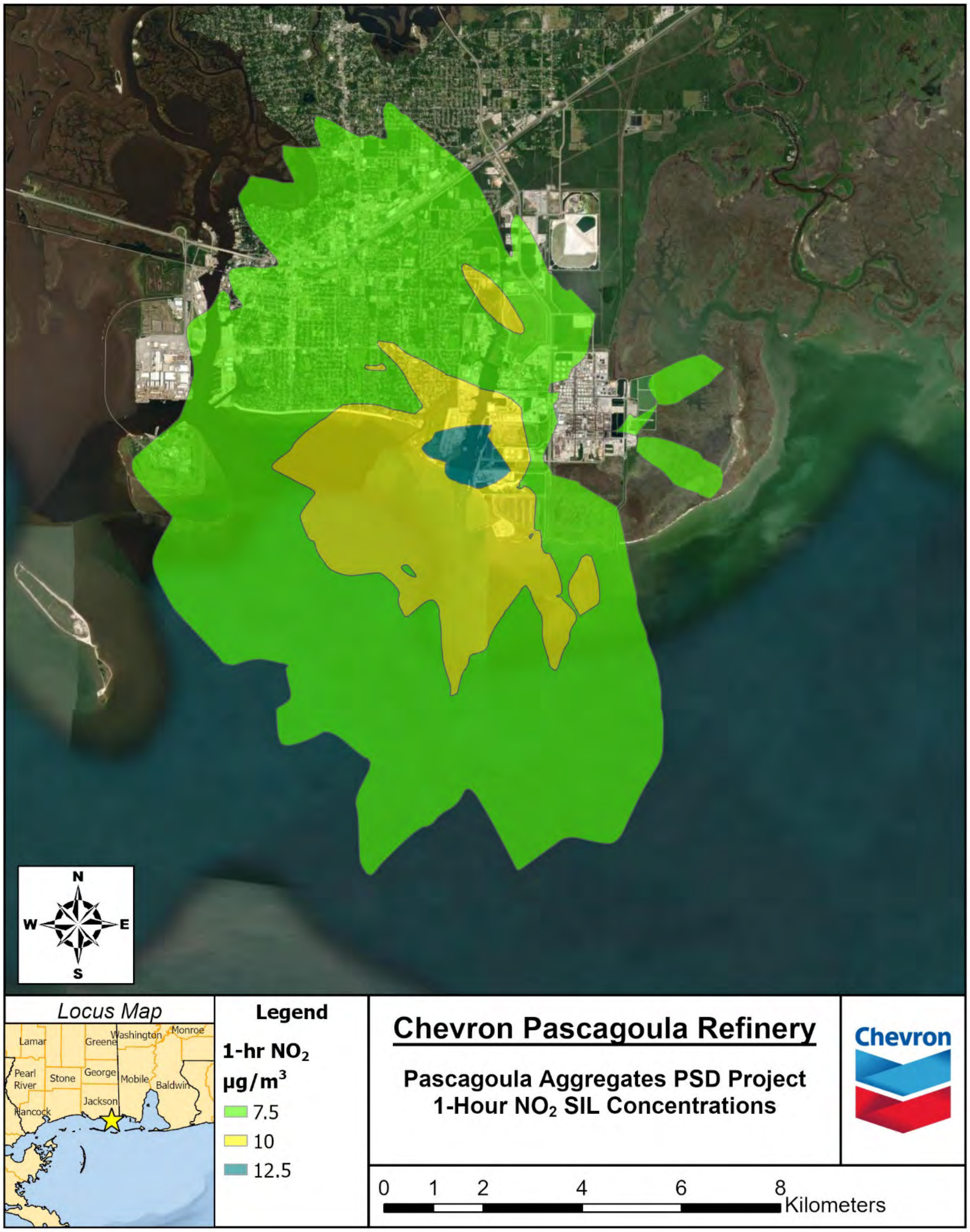
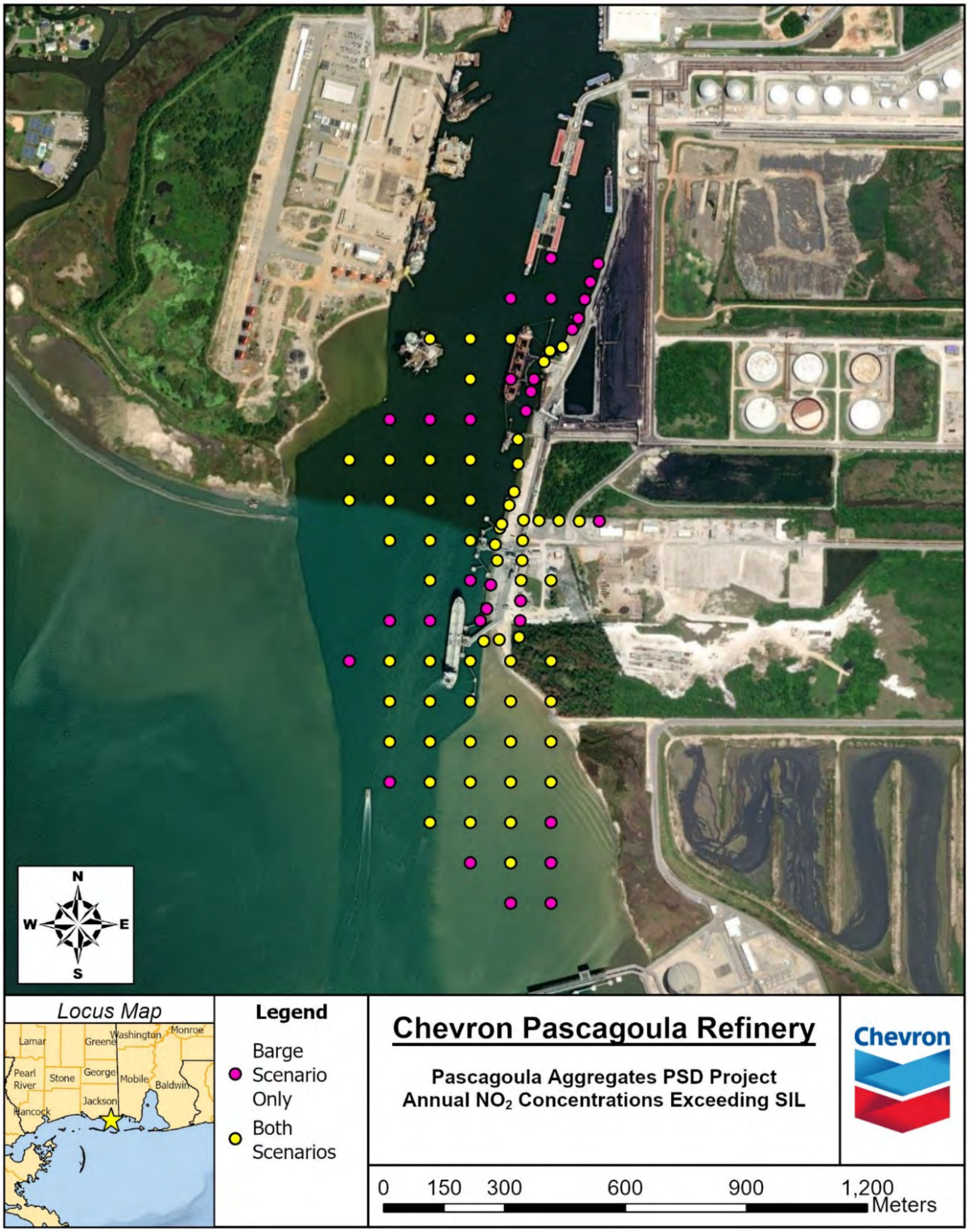


Figure 6-11 Receptor Locations Exceeding the Annual NO_2 SIL



Modeling of Secondary $PM_{2.5}$ Emissions

In July 2022, EPA released their Final Guidance for Ozone and Fine Particulate Matter Permit Modeling and provided updates to the guidance in April 2024 to reflect changes to the $PM_{2.5}$ SILs. The guidance from EPA recommends a tiered approach for determining which sources would be important to consider when assessing secondary $PM_{2.5}$ concentrations.

The two cases presented by EPA include[5]:

- Case 1: If the $PM_{2.5}$ emission increases < 10 tons per year (TPY) and NO_x and SO_2 emission increases < 40 TPY; then a $PM_{2.5}$ compliance modeling demonstration IS NOT required.
- Case 2: If the $PM_{2.5}$ emission increases > 10 TPY and/or NO_x or SO_2 emission increases > 40 TPY; then a $PM_{2.5}$ compliance modeling demonstration IS required and secondary $PM_{2.5}$ MUST BE accounted for from the Project sources.

Secondary $PM_{2.5}$ modeling for Chevron Pascagoula falls under Case 2 and a qualitative / quantitative analysis to address secondary $PM_{2.5}$ is required.

The Final Guidance provides recommendations on air quality modeling and related technical analyses to satisfy compliance demonstration requirements for $PM_{2.5}$ for permit-related assessments under the PSD program; Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program (April 30, 2019)[6]. The guidance and the accompanying online tool[7] provide a Tier 1 demonstration tool for $PM_{2.5}$. The MERPs are screening thresholds for precursor emissions, where SO_2 and NO_x screening values are provided for $PM_{2.5}$, for Projects that are expected to result in an insignificant increase in ambient $PM_{2.5}$ relative to PSD Increment and the NAAQS; i.e., an impact less than the 24-hour $PM_{2.5}$ SIL of 1.2 $\mu g/m^3$ or annual $PM_{2.5}$ SIL of 0.13 $\mu g/m^3$. The MERP values were derived based on modeling conducted by EPA for locations across the U.S. For this Project, since PSD review requirements are not triggered with respect to SO_2, 39 tons/year was conservatively used for the MERP calculation with the NOx Project emission rate.

In order to determine the Project's secondary $PM_{2.5}$ concentration, the closest hypothetical sites modeled by EPA with modeled $PM_{2.5}$ concentrations found in Appendix A of EPA's MERP Guidance are located in Orleans County, LA, Smith County, MS, and Bay County, FL. The Smith County, MS site is in a rural area located inland from the Project site and does not represent the coastal and more industrial environment near Pascagoula. The Orleans County, LA and Bay County, FL sites are more representative of the Project location as they are both located on the Gulf Coast within a similar climate regime, exhibiting a warm and humid climate. For Bay County, FL and Orleans County, LA, climate summaries from the National Weather Service (NWS) / National Oceanic and Atmospheric Administration (NOAA) Online Weather products indicate very similar 30-year climate normals when compared to Jackson County, MS (location of the Refinery) though it is noted that the Bay County, FL site is classified under a different climate zone than the Orleans, LA site in US EPA's MERPs database. A comparison of 30-year (1992-2022) average, maximum, and minimum temperatures and precipitation for the Refinery, Bay County, FL and Orleans County, LA hypothetical sources is provided **Table 6-4**. In addition, there are no significant terrain features that would differentiate the climate regimes between the Refinery and either of these hypothetical sources. The base elevation of the Refinery is 2 meters, the Bay County, FL hypothetical site has a base elevation of 24 meters, and the Orleans County, LA hypothetical site has a base elevation of 1 meter.

The county level emissions (10,312 tons/year combined for NO_x, SO_2 and $PM_{2.5}$[8]) and population density (198 persons per square mile[9]) of Bay County, FL are (in combination) more representative of the

[5] Available at https://www.epa.gov/system/files/documents/2022-07/Guidance_for_O3_PM25_Permit_Modeling.pdf
[6] Available at https://www.epa.gov/sites/default/files/2020-09/documents/epa-454_r-19-003.pdf
[7] Available at: https://www.epa.gov/scram/merps-view-qlik
[8] Available for all three sites at: https://awsedap.epa.gov/public/single/?appid=20230c40-026d-494e-903f-3f112761a208&sheet=5d3fdda7-14bc-4284-a9bb-cfd856b9348d&opt=ctxmenu,currsel
[9] Available for all three sites at: https://maps.geo.census.gov/ddmv/map.html

Jackson County, MS county level emissions (13,759 tons/year) and population density (231 persons per square mile) where the Refinery is located compared to Orleans County. The Orleans County, LA emissions (9,194 tons/year) are lower, however the population density (2,265 persons per square mile) is significantly higher. The resultant EPA-modeled $PM_{2.5}$ concentrations, along with the modeled precursor emission levels, are provided in **Table 6-5**. Since the Refinery is an elevated source, the EPA results for the "H" source was utilized.

Table 6-4 30-Year Climate Normals for Hypothetical Sources and Project Site (1992 – 2022)

Station/ Source	Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Ann
Bay Co. Florida	Average Max. Temperature (°F)	63.1	65.8	70.7	76.2	83.5	88.9	90.9	90.6	88.5	80.9	72.1	65.6	78.10
	Average Min. Temperature (°F)	45.3	47.9	53.6	60.1	68	74.1	76.2	75.8	72.4	63.2	53	47.5	61.40
	Average Total Precipitation (in.)	4.52	4.96	4.7	4.55	3.22	4.7	5.77	6.08	5.18	2.82	4.13	4.72	55.35
Orleans Co. Louisiana	Average Max. Temperature (°F)	62	65.9	71.8	77.9	84.9	89.7	91.1	91.2	88	80.5	71	64.3	78.20
	Average Min. Temperature (°F)	40.7	44.4	50	56.1	63.8	70.9	73.1	72.9	68.5	57.4	46.7	42.8	57.30
	Average Total Precipitation (in.)	5.57	4.14	4.94	5.21	5.46	6.11	7.25	6.96	4.14	3.72	3.89	4.49	61.88
Refinery	Average Max. Temperature (°F)	61.3	64.8	70.4	76.5	83.6	88.7	90.4	90.7	87.8	79.9	70	63.5	77.30
	Average Min. Temperature (°F)	42.4	46.2	51.8	58.4	66.4	73.2	74.9	74.6	70.6	60.1	49.2	44.6	59.40
	Average Total Precipitation (in.)	5.36	4.53	5.07	4.91	5.18	6.86	8.16	7.52	5.66	3.99	3.84	4.8	65.88

Source: NOAA Online Weather Data, https://weather.gov

Modeling of PM_{10} and $PM_{2.5}$ Concentrations

The maximum 24-hour PM_{10} concentration over the five-year meteorological period is below the SIL of 5 $\mu g/m^3$. The maximum modeled concentration is located in an area of 50-meter spacing along the fenceline; therefore, no additional modeling is required.

For 24-hour and annual $PM_{2.5}$, the 5-year average of the maximum modeled concentrations were added to the secondary $PM_{2.5}$ concentrations in **Table 6-5**. The total $PM_{2.5}$ concentrations for both averaging periods are below their respective SILs. All locations of the maximum modeled concentrations are in areas with 50-meter and 100-meter spacing; therefore, no additional modeling is required.

The SIL modeling results for PM_{10} and $PM_{2.5}$ are summarized in **Table 6-7**.

Modeling of Ozone Precursors

As noted above for $PM_{2.5}$, similar guidance is available to calculate the Project's ozone concentration due to the precursors, NO_2 and VOC. The two cases presented by EPA include:

- Case 1: If the NO_x and VOC emission increases < 40 TPY; then an ozone compliance modeling demonstration IS NOT required.
- Case 2: If the NO_x and/or VOC emission increases > 40 TPY; then an ozone compliance modeling demonstration IS required.

Ozone modeling for Chevron Pascagoula falls under Case 2 and a qualitative / quantitative analysis to address ozone was required. In this case, the Project's ozone concentration can be extrapolated based on the modeled ozone concentration and a ratio of the Project emissions over the modeled emissions. This would provide a very conservative estimate of the Project-specific modeled ozone concentrations. The modeling results found in Appendix A of EPA's MERP Guidance that provides estimated ozone concentrations for hypothetical sources was used as a Tier 1 approach to estimate the Project's ozone concentration.

In order to determine the Project's ozone concentration, the closest hypothetical sites modeled by EPA with modeled ozone concentrations found in Appendix A of EPA's MERP Guidance are located in Orleans Co., LA, Smith Co., MS, and Bay Co., FL. As discussed above, both the Bay County, FL and Orleans County, LA are considered for this analysis. The resultant EPA-modeled ozone concentrations for this site, along with the modeled precursor emission levels, are provided in **Table 6-6**. Since the Refinery is an elevated source, the EPA results for the "H" source was utilized.

Table 6-6 also shows the combined Project ozone concentrations by scaling the EPA modeled concentrations by a ratio of Project emissions over the EPA-modeled emissions, respectively. Project precursor emissions were adjusted accordingly based on final Potential to Emit (PTE) emission calculations in lb/hr converted to tons/year for the Project. The Project's ozone concentration was added to the design concentration from the nearby Pascagoula monitor shown in **Table 6-2** with a 3-year average concentration of 66 ppb. This total concentration was compared to the 8-hour ozone NAAQS (70 ppb) to show compliance for the Project.

This approach is conservative for the following reasons:

- The proposed Project-modeled value derived from the MERP data is the <u>highest</u> modeled concentration, not the 4th highest value consistent with the standard.
- This approach assumes that the highest modeled ozone concentration for the Project derived using the MERP data occurs on the same days in which the monitor's highest design concentration occurred, which is a conservative <u>paired-in time</u> assumption.
- The Tier 1 approach also assumes that the <u>location</u> of the peak concentration prediction coincides with the peak background ozone concentration.

The modeling results in **Table 6-7** are less than the significant monitoring concentrations listed in **Table 6-3**; therefore, no additional analysis is required.

Table 6-5 MERPs-Estimated Secondary $PM_{2.5}$ Concentration Attributable to Project Emissions

Pollutant	Avg. Period	Hypothetical Source	NOx				SO_2				Project Secondary $PM_{2.5}$ Modeled Concentration ($\mu g/m^3$)
			EPA Precursor Emissions (TPY)	EPA Modeled Conc. ($\mu g/m^3$)	Project Precursor Emissions (TPY)	Project Modeled Conc. ($\mu g/m^3$)	EPA Precursor Emissions (TPY)	EPA Modeled Conc. ($\mu g/m^3$)	Project Precursor Emissions (TPY)	Project Modeled Conc. ($\mu g/m^3$)	
$PM_{2.5}$	24-hour	Bay Co., FL	1000	0.142	349.4[1]	0.0495	1000	0.717	30.7	0.0220	0.0715
	Annual		1000	0.010	660.1[2]	0.0066	1000	0.032	30.7	0.0010	0.0076
	24-hour	Orleans Co., LA	500	0.118	349.4[1]	0.0924	500	0.279	30.7	0.0171	0.0996
	Annual		500	0.002	660.1[2]	0.0032	500	0.009	30.7	0.0005	0.0037

[1]Short-term (lb/hr) emission increases converted to tons per year (TPY).
[2]Annual emission increases.

Table 6-6 MERPs-Estimated Ozone Concentration Attributable to Project Emissions

Pollutant	Avg. Period	Hypothetical Source	NOx				VOC				Project Ozone Modeled Concentration (ppb)
			EPA Precursor Emissions (TPY)	EPA Modeled Conc. (ppb)	Project Precursor Emissions (TPY)[1]	Project Modeled Conc. (ppb)	EPA Precursor Emissions (TPY)	EPA Modeled Conc. (ppb)	Project Precursor Emissions (TPY)	Project Modeled Conc. (ppb)	
Ozone	8-hour	Bay Co., FL	1000	3.799	349.4[1]	1.327	500	0.144	124.4	0.036	1.363
		Orleans Co., LA	500	1.332	349.4[1]	0.930	1000	0.382	124.4	0.048	0.978

[1]Short-term (lb/hr) emission increases converted to tons per year (TPY).

Table 6-7 SIL Modeling Results

Pollutant	Averaging Period	AERMOD Model Concentration (µg/m³)						SIL (µg/m³)	Exceeds SIL?
		2020	2021	2022	2023	2024	Max.		
NO_2(1)	1-hour	High-1st-High Averaged Over 5 Years = 13.66						7.5	Yes
PM_{10}	24-hour	3.19	2.74	2.52	2.56	2.82	3.19	5.0	No
$PM_{2.5}$(2)	24-hour	High-1st-High Averaged Over 5 Years = 0.81						1.2	No
$PM_{2.5}$(3)	24-hour	High-1st-High Averaged Over 5 Years = 0.84						1.2	No
VGO via Barge									
NO_2(1)	Annual	2.25	2.26	2.04	2.25	2.03	2.26	1.0	Yes
$PM_{2.5}$(4,5)	Annual	High-1st-High Averaged Over 5 Years = 0.054						0.13	No
$PM_{2.5}$(4,6)	Annual	High-1st-High Averaged Over 5 Years = 0.050						0.13	No
VGO via Ship									
NO_2(1)	Annual	1.97	1.97	1.79	1.99	1.78	1.99	1.0	Yes
$PM_{2.5}$(4,5)	Annual	High-1st-High Averaged Over 5 Years = 0.054						0.13	No
$PM_{2.5}$(4,6)	Annual	High-1st-High Averaged Over 5 Years = 0.049						0.13	No

(1) Conversion of NO_x to NO_2 using Tier 2 (ARM2) method.
(2) Includes secondary PM concentration from Bay County, FL site (0.0715 µg/m³).
(3) Includes secondary PM concentration from Orleans County, LA site (0.0996 µg/m³).
(4) 5-year average of the maximum annual modeled concentration.
(5) Includes secondary PM concentration from Bay County, FL site (0.00762 µg/m³).
(6) Includes secondary PM concentration from Orleans County, LA site (0.00371 µg/m³).

Cumulative NO_2 Modeling

As discussed in the previous section, NO_2 impacts can be determined by using a 3-tiered NO_x to NO_2 conversion rate system. The NAAQS and PSD Increment modeling was conducted using the Tier 3 approach outlined below.

Tier 3 Using OLM for Cumulative NO_2 Modeling

OLM and PVMRM in AERMOD account for ambient conversion of NO to NO_2 in the presence of ozone based on the basic chemical mechanism of ozone titration, the interaction of NO with ambient ozone to form NO_2 and O_2. OLM and PVMRM both assume that ambient ozone (as measured at a representative ambient monitor) is present and available to oxidize NO to NO_2 without consideration of competing reactions. For both methods, the degree to which NO is converted to NO_2 depends on the relative concentration of the modeled NO with respect to ambient ozone. The main distinction between PVMRM and OLM is the approach taken to estimate the ambient concentrations of NO from emission sources for which the ozone titration mechanism is applied. OLM applies the mechanism to the hourly modeled ground-level concentration of NO at each receptor and PVMRM applies the mechanism to the average NO concentrations in an elevated plume. The applicability of OLM versus PVMRM depends on the nature and number of modeled sources that contribute to local NO_2. Because it more realistically represents single, non-overlapping plumes, PVMRM is generally applicable when modeling isolated elevated point sources. When concentrations from numerous sources overlap, OLM is more appropriate as it accounts for the combined NO_x concentration from multiple sources. The GRSM NO_2 screening option addresses photolytic conversion of NO_2 to NO and to address the time-of-travel necessary for NO_X plumes to convert the NO portion of the plume to NO_2 via titration and entrainment of ambient ozone. PVMRM and OLM do not address or provide for treatment of these mechanisms and have been shown to over-predict for some source characterizations and model configurations at Project source ambient air boundaries and within the first 1 to 3 kilometers.

Due to the numerous Project and background sources that would be considered in this analysis, the OLM Tier 3 option was applied for the cumulative modeling analyses. The modeling applied OLM with the

OLMGROUP ALL option as recommended by EPA for multiple stack applications. For simplicity, NO_2 NAAQS and PSD Increment were modeled using the same inventory of permitted emission rates for all sources with the exception of Berths 1 through 6 and 8 at the Wharf, which existed prior to the MiSBD in 1992. This is conservative for PSD Increment as several Refinery and nearby sources have reduced NO_2 emissions or ceased operations since the MiSBD and likely resulted in increment expansion.

In-Stack Ratios for OLM

There are two model inputs for OLM, the hourly ambient ozone concentrations and the source-specific in-stack ratios of NO_2/NO_x emissions. Ozone concentrations are discussed below. For the in-stack ratios, Chevron has conducted stack testing to determine the in-stack NO_2/NO_x ratios for a number of Refinery sources. A summary of the in-stack ratios is provided as part of the modeling archive in **Appendix C**. In addition, Mississippi Power provided Chevron with in-stack ratios for Cogen Units 1, 2, and 5. Cogen Units 3 and 4 were recently replaced and as no unit specific in-stack ratios are available for these units, the default value of 0.5 was used. In-stack ratios for other sources within 3 km were determined from EPA's in-stack ratio database or from stack test data submitted to MDEQ. For modeled background sources beyond 1 to 3 km (EPA, 2014), a default in-stack ratio of 0.2 was applied as recommended by EPA.

Hourly Ozone and NO_2 Concentrations for OLM

The Pascagoula monitoring station collects and records hourly ozone data during the months of March through October only. Based on direction from MDEQ, data for three nearby stations during the months of March and October were compared with the Pascagoula monitoring station to determine which station would be appropriate to use for the missing months of November through February. **Table 6-8** shows the average of the maximum daily 8-hour ozone concentrations for the Ferry Pass, FL, Pensacola, FL (both located in Escambia County) and Meraux, LA (located in St. Bernard Parish downwind of a number of large chemical facilities and the City of New Orleans along the Mississippi River) monitoring stations for 2022 through 2024 in addition to Pascagoula.

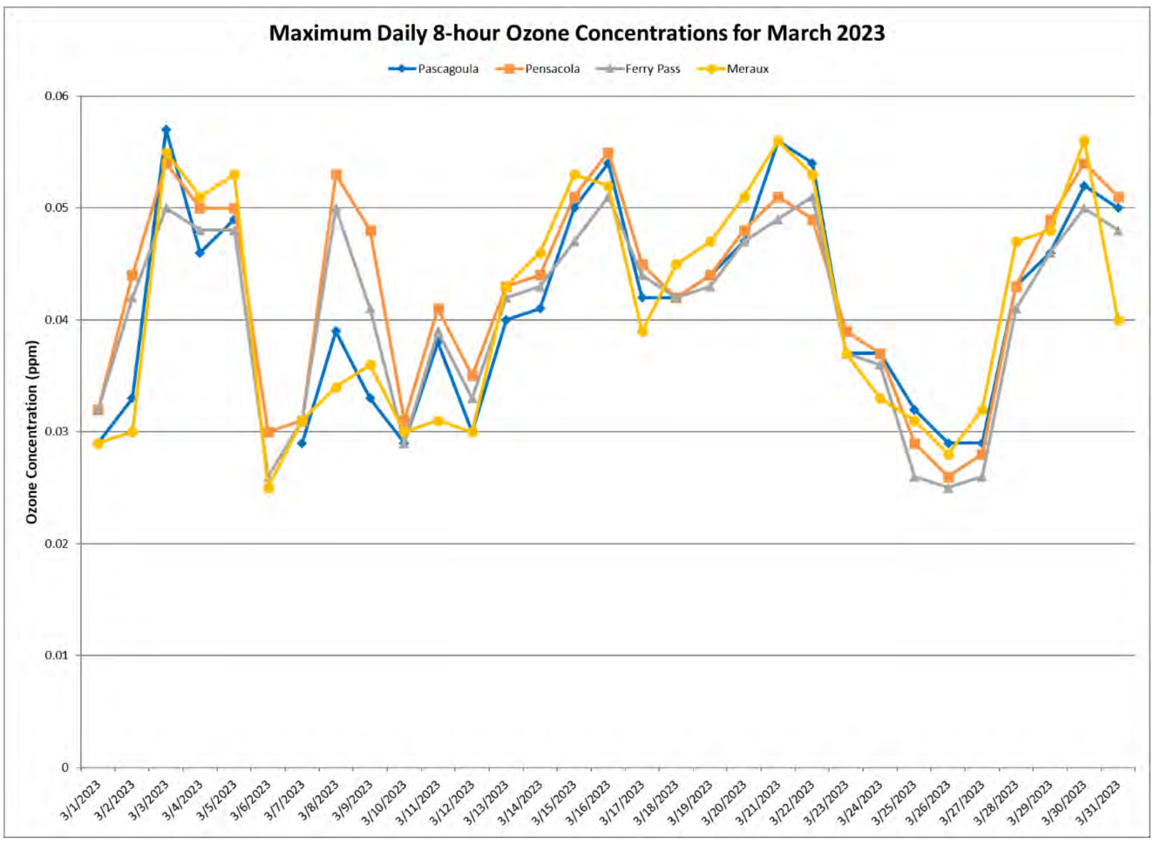
Table 6-8 Average of Maximum Daily 8-hour Ozone Concentrations at Nearby Stations (ppb)

Year	Ferry Pass, FL	Pensacola, FL	Meraux, LA	Pascagoula, MS
	March			
2022	44.65	46.97	46.06	46.84
2023	40.74	42.81	41.03	41.23
2024	41.61	42.52	42.35	42.80
Average	42.33	44.10	43.15	43.62
	October			
2022	41.52	44.35	46.00	45.00
2023	39.45	41.03	44.61	41.58
2024	36.16	45.61	49.65	46.87
Average	39.04	43.67	46.75	44.48

Ozone concentrations at Pensacola align most closely with those at Pascagoula for the months of March and October. The 3-year average for Pensacola is less than 0.7 ppb higher in March and 1.1 ppb lower in October to the 3-year averages for Pascagoula. Ferry Pass and Meraux are both lower in March and lower and higher in October, respectively, than the Pensacola and Pascagoula monitors. **Figure 6-12** and **Figure 6-13** show the maximum daily 8-hour ozone concentrations for March and October 2023, respectively, and **Figure 6-14** shows the locations of the monitoring stations in relation to the Refinery. Ferry Pass is approximately 20 kilometers from the coastline; while Meraux, Pensacola and Pascagoula are all 5 to 8 kilometers from the coastline. The coastline near the Meraux and Ferry Pass monitors is a different orientation than the coastline near the Pascagoula and Pensacola monitors. The county level emissions of Escambia County, FL (31,420 tons/year of NOx and VOC combined) are similar to Jackson County, MS (28,387 tons/year of NOx and VOC combined). The Meraux monitor is located near the confluence of four parishes (Jefferson, Orleans, Plaquemines, and St. Bernard Parishes) and while it is located in St. Bernard Parish, the emissions are much lower (7,475 tons/year of NOx and VOC combined) than Jackson County, MS but the combined emissions from the four parishes is much higher (66,341 tons/year) than Jackson County, MS.

Based on the 3-year average values in **Table 6-8**, the Pensacola station is the most like Pascagoula in terms of proximity to the coast and county-level emissions of precursor pollutants. It was therefore used in AERMOD to fill the missing months from Pascagoula. Hourly ozone concentrations from January 1, 2020 through December 31, 2024 with missing values filled using the maximum hourly ozone concentration for that month by hour-of-day were used in the 1-hour NO_2 NAAQS modeling. The 2020 to 2024 period for hourly ozone values is concurrent with the meteorological data available at the time of the analysis, consistent with EPA guidance. **Figure 6-15** shows the monthly maximum hour-of-day ozone concentrations that were used to fill in missing hourly values. For the months of March through October, maximum month hour-of-day values are derived from the Pascagoula station, while the Pensacola station was used for the months of November through February.

Figure 6-12 Comparison of Maximum Daily 8-hour Ozone Concentrations (March 2023)



NO_2 background concentrations for the years 2022 through 2024 were developed and added to the modeled impacts to obtain estimates of total ambient air quality concentrations for comparison against the 1-hour and annual NO_2 NAAQS. The background monitor located in Pascagoula includes contributions from modeled sources, thus summing these background values with the modeled impacts would add an element of conservatism to the impact analysis. Use of seasonal and hour-of-day varying background concentrations consistent with EPA guidance in their March 1, 2011 clarification memo was implemented for the 1-hour NO_2 NAAQS modeling. The season-hour-of-day background concentrations for the 1-hour NO_2 NAAQS modeling are summarized in **Table 6-9**.

Figure 6-13 Comparison of Maximum Daily 8-hour Ozone Concentrations (October 2023)

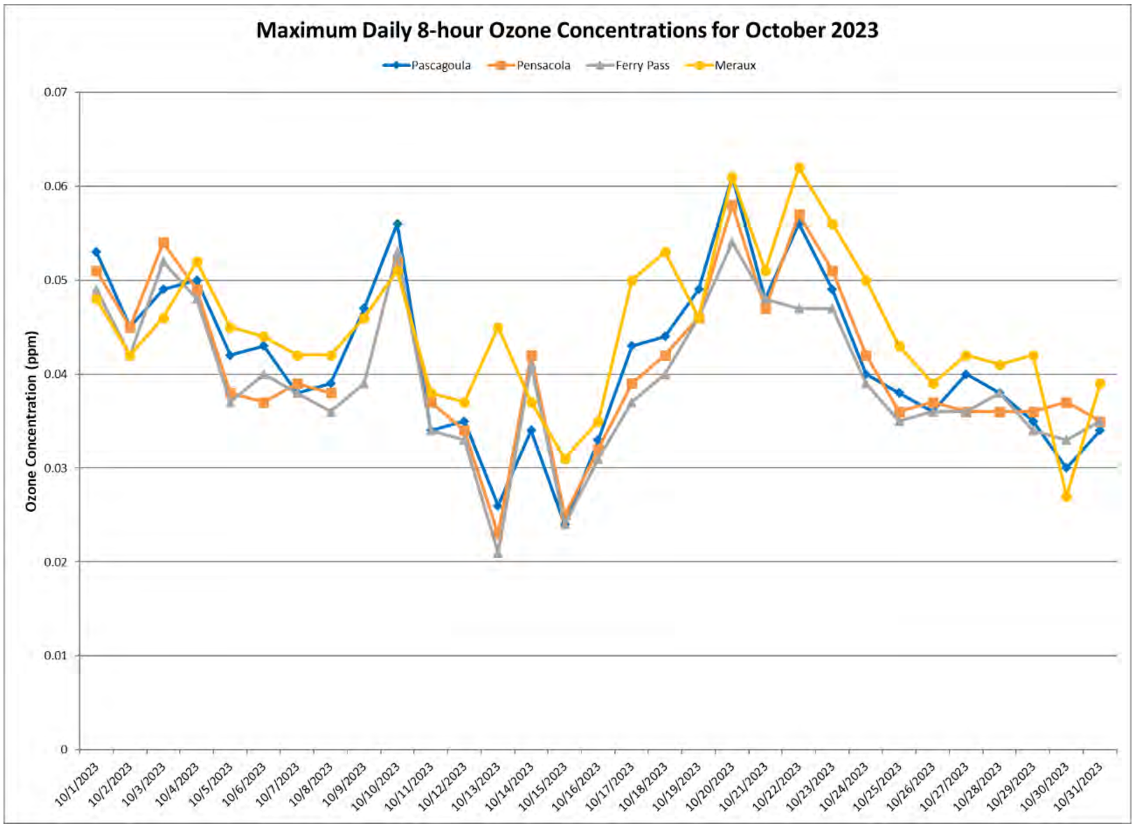


Figure 6-14 Locations of Ozone Monitoring Stations

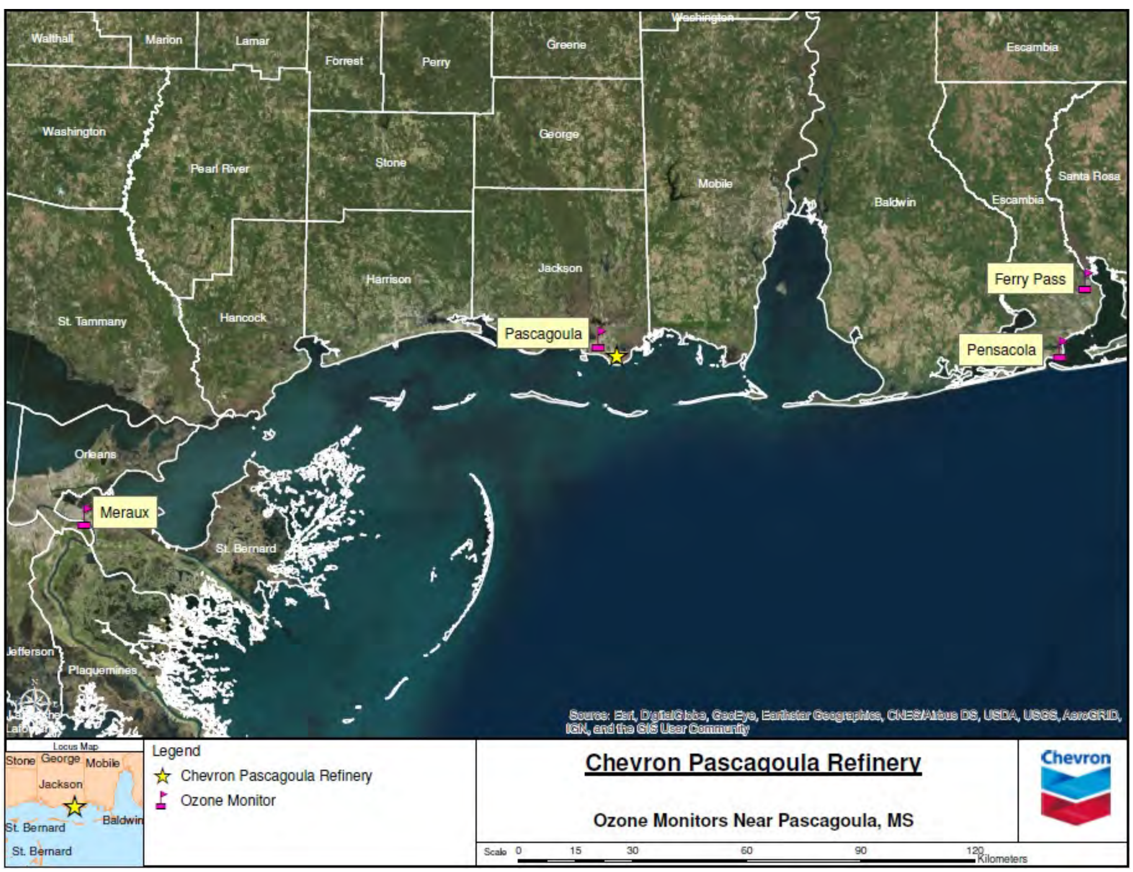


Figure 6-15 Maximum Monthly Hour of Day Ozone Concentrations

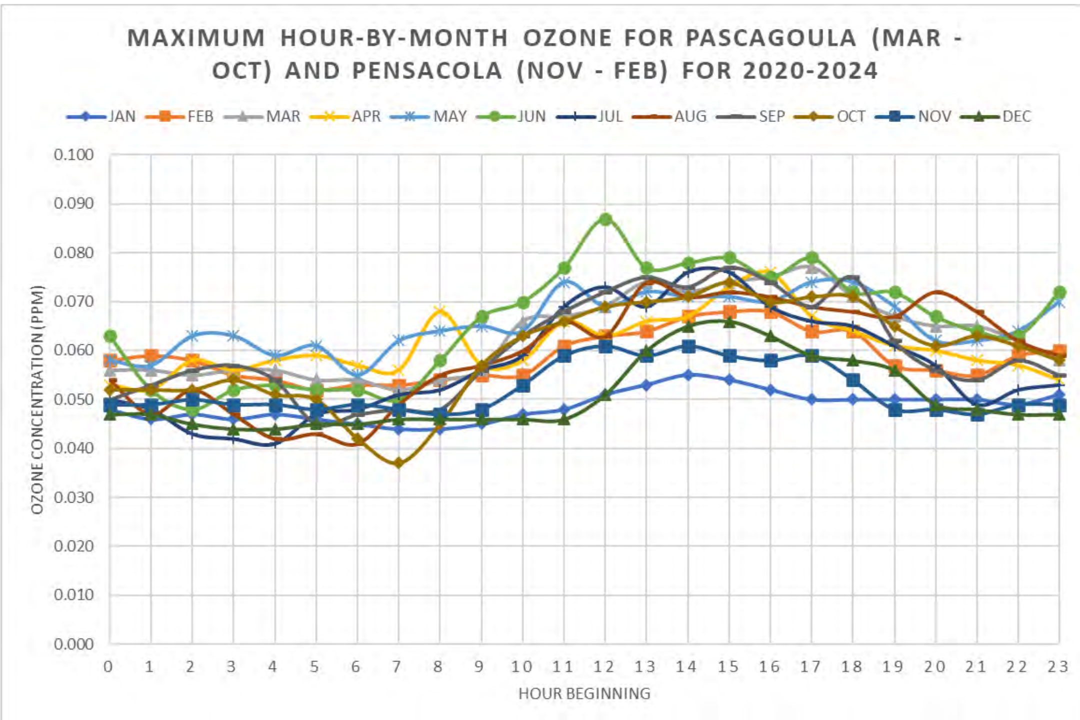


Table 6-9 Season-Hour-of-Day NO_2 Background Concentrations Used in AERMOD (µg/m³)

Season / Hour	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00
Winter	34.09	29.77	27.07	23.56	28.20	27.76	31.02	29.64
Spring	27.45	19.68	18.36	20.87	31.02	32.46	32.77	22.06
Summer	17.99	16.98	16.79	16.23	16.61	15.85	15.23	10.59
Fall	29.39	28.07	25.25	22.94	24.88	26.26	25.76	24.57
Season / Hour	**08:00**	**09:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**
Winter	20.18	15.42	11.78	13.85	12.78	14.16	14.16	14.10
Spring	13.60	10.84	11.15	10.84	11.22	11.59	10.97	11.34
Summer	13.03	9.46	14.04	8.27	7.71	9.09	10.53	8.46
Fall	14.98	10.47	10.09	8.02	7.77	10.21	10.84	10.59
Season / Hour	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**22:00**	**23:00**
Winter	19.36	32.21	39.61	43.55	42.93	43.87	42.17	38.23
Spring	11.09	13.97	17.36	25.07	32.65	31.21	27.26	26.88
Summer	8.21	11.09	12.47	16.48	17.86	16.04	16.73	16.61
Fall	14.04	23.06	32.02	44.49	44.24	40.86	38.98	33.97

Background Source Inventory for Cumulative Modeling

The background source inventory was based on a conservative 50-km search radius from the Pascagoula Refinery, requiring inventories from Mississippi (MDEQ), Alabama (ADEM), and BOEM. Chevron requested the Alabama source inventory from ADEM in 2022 and used this inventory for cumulative modeling. Chevron reviewed permit applications that have been submitted since that date through April 2025[10]. The majority of permit actions involved replacement-in-kind of existing equipment or

[10] Available at: https://app.adem.alabama.gov/eFile/

intermittent sources such as emergency engines or firewater pumps. New sources or increased permit limits of existing equipment results in a NO_x emissions increase of 13.65 lb/hr or 0.49 percent of the 2022 inventory which includes 2,766.52 lb/hr in existing emissions. The sources with new or increased NOx emissions are a minimum of 20 kilometers from the peak modeled concentration and would be expected to minimally contribute to that peak concentration. Chevron used the most recent emissions inventory available (year 2021) from BOEM. The 2023 inventory is in process but has yet to be posted[11].

The available inventory data provided by MDEQ has been reviewed and supplemented by information gathered via file review at MDEQ's Jackson office in April 2022 and November 2024. This file review updated parameters and emissions gathered in previous file reviews conducted in February 2015 and May 2018. All emission rates and stack parameters are compiled for annual and 1-hour NO_2 modeling. Representative actual emissions were used in the NAAQS analysis for Chevron Cogeneration Units 3 and 4, per the 2024 Appendix W Table 8-2. All other sources included in the NAAQS and PSD modeling were conservatively included at their permitted emission rates, including all non-project affected sources at the Refinery. Documentation regarding all background sources and operating levels is provided in **Appendix C**. The background sources modeled are shown in **Figure 6-16**.

For the 1-hour NO_2 NAAQS analysis, the high-eighth-high 1-hour modeled concentration averaged over the five years was added to the season hour-of-day monitored background concentrations summarized in **Table 6-9**. For the annual NO_2 NAAQS analysis, the highest annual modeled concentration was added to the monitored background concentrations in **Table 6-2**. For annual NO_2, the modeled concentration will be summarized to determine compliance with the PSD increments.

PSD Increment and NAAQS Modeling

Cumulative modeling was conducted for 1-hour and annual NO_2 using the inventory described above and summarized in **Appendix C**. The NAAQS modeling results are presented in **Table 6-10** and the PSD Increment results are in **Table 6-11**. For the 1-hour NO_2 NAAQS modeling, all receptors are below the NAAQS as shown in **Figure 6-17**. The highest 1-hour NO_2 NAAQS concentrations are located within the area of 100-meter receptor spacing. The annual PSD Increment and NAAQS NO_2 concentrations are less than their respective thresholds and the peak concentrations are in areas of 100-meter spaced receptors; therefore, additional refinement of the results is not required. The modeling results are below applicable thresholds therefore the Project does not cause or contribute to a violation of the 1-hour NO_2 NAAQS and annual NO_2 PSD increment or NAAQS.

Table 6-10 NO_2 NAAQS Cumulative Modeling Results

Pollutant	Averaging Period	AERMOD Model Concentration (μg/m³)						Background Conc. (μg/m³)	Total Conc. (μg/m³)	NAAQS (μg/m³)
		2020	2021	2022	2023	2024	Max.			
NO_2	1-hour	171.4						N/A(1)	171.4	188(2)
	Annual	21.6	20.9	22.9	22.3	21.6	22.9	7.0	29.9	100

(1) Includes seasonal hourly background concentration.
(2) High-8th-High Average over 5-years

Table 6-11 NO_2 PSD Increment Modeling Results

Pollutant	Averaging Period	AERMOD Model Concentration (μg/m³)						PSD Increment (μg/m³)
		2020	2021	2022	2023	2024	Max.	
NO_2	Annual	19.0	18.3	20.0	19.8	19.1	20.0	25

[11] Available at: https://www.boem.gov/environment/environmental-studies/ocs-emissions-inventories

Figure 6-16 Modeled Background Source Locations

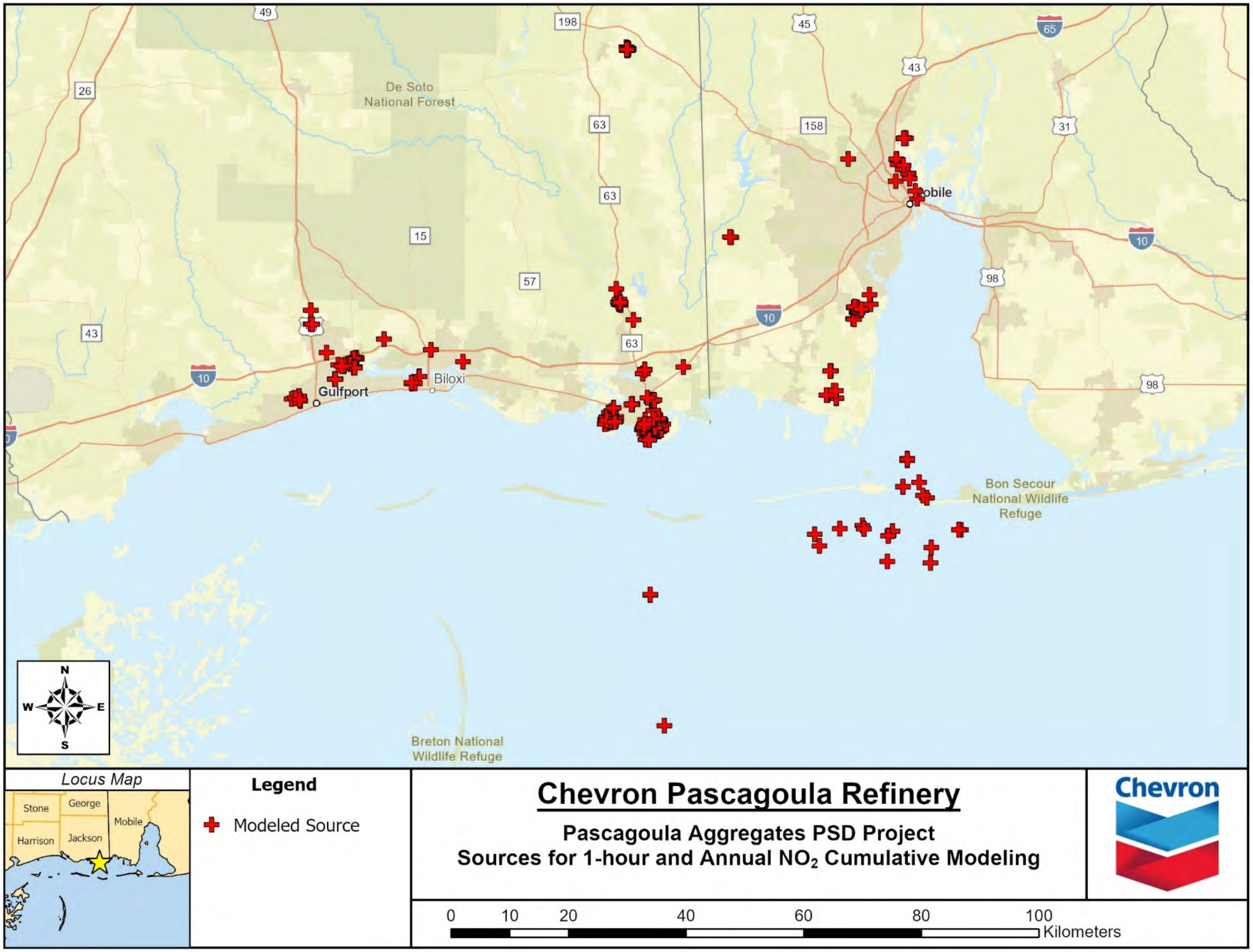
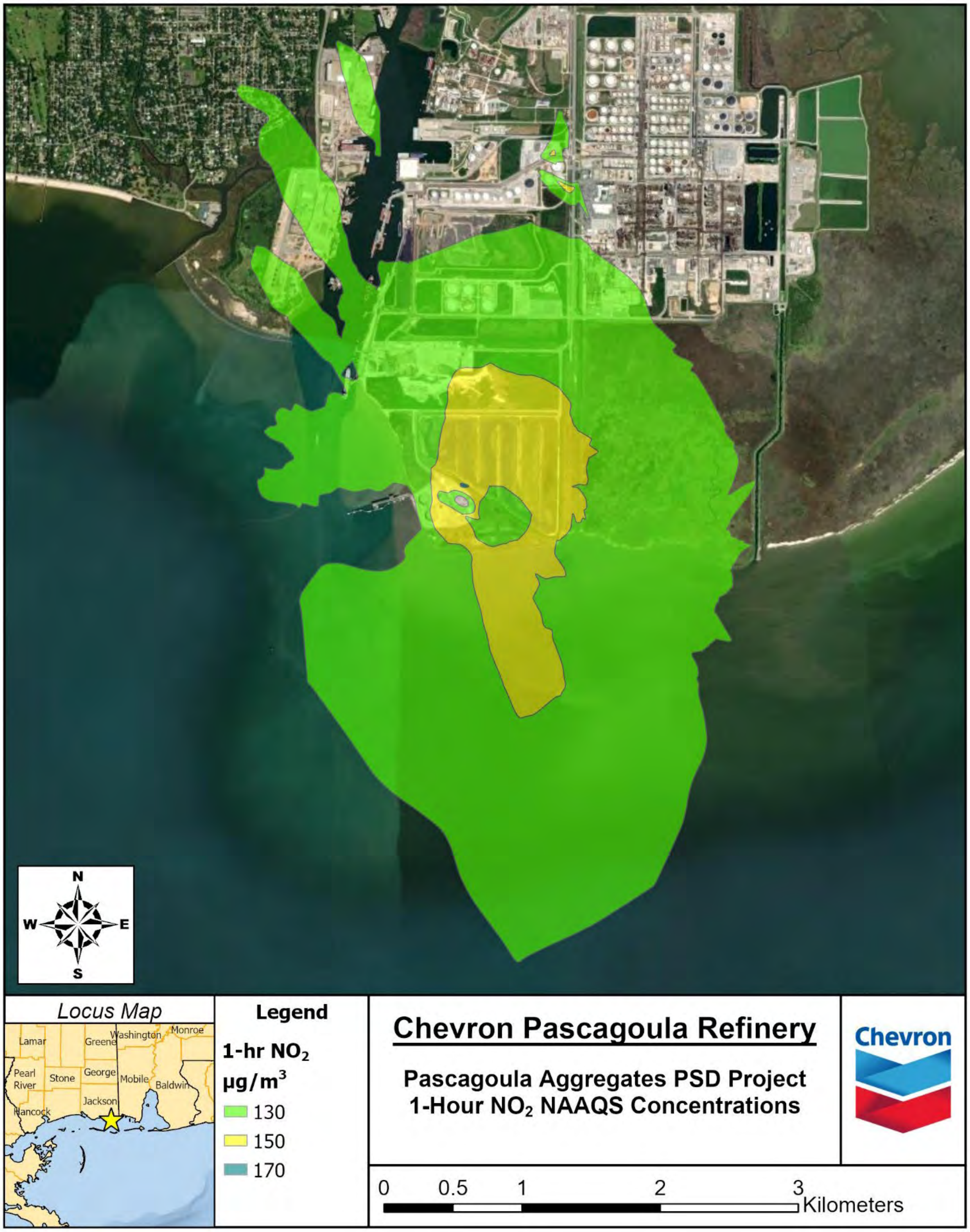


Figure 6-17 1-hour NO2 NAAQS Modeled Concentrations



7. Additional Impact Analysis

The PSD additional impacts analysis is an evaluation of:

- General commercial, residential, industrial and other growth associated with the Project.
- The air quality impact projected for the area as a result of the general growth described above.
- The impairment to visibility, soils, and vegetation that would result from the Project.
- The air quality impact projected for any nearby Class I areas.
- The visibility impact on any nearby Class I areas.

Growth Analysis

A growth analysis examines the potential emissions from secondary sources associated with the proposed Project. Chevron anticipates that the majority of the construction labor force will come from the local area. Any additional personnel requirements for operations will also likely be filled from within the local labor force. As a result, no significant increase in population in the area will occur as a result of construction or operation of the Project. Local commercial establishments may see a temporary increase in business during the construction period. However, operation of the Project is not expected to significantly affect industrial and commercial development in the Pascagoula area.

The above discussion indicates that there will be no significant change in employment, population, housing, or commercial development associated with the proposed Project. Therefore, there will not be any significant increase in growth-related emissions associated with construction and operation of the proposed Project.

Soil and Vegetation Analysis

PSD regulations require an analysis of air quality impacts on sensitive vegetation types, with significant commercial or recreational value, sensitive types of soil, and ecological effects such as damage to aquatic and terrestrial ecosystems. The predicted impacts attributable to the proposed Project are compared with the screening levels presented in *A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils, and Animals* (EPA, 1980) and the secondary NAAQS as summarized in **Table 7-1**. The results show that the impacts are well below the screening thresholds.

Table 7-1 Screening Concentrations for Soils and Vegetation

Pollutant	Averaging Period	Modeled Concentration ($\mu g/m^3$)	Ambient Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	Screening Concentration ($\mu g/m^3$)
NO_2	4-Hours	8.25	71.44(1)	79.69	3,760
	1-Month	0.95	60.16(2)	61.11	564
	Annual	2.26	7.00(1)	9.26	94
PM_{10}	24-hour	3.19	54.00(2)	57.19	150(5)
$PM_{2.5}$	24-hour	0.86	16.60(3)	17.46	35(5)
	Annual	0.05	8.0(4)	8.05	15(6)

(1) Background concentration is the highest concentration (2022-2024) (EPA Air Data Website)
(2) Background concentration is the high-second-high concentration (2022-2024) (EPA Air Data Website)
(3) Background concentration is the three-year average of the 98th percentile concentration (2022-2024) (EPA Air Data Website)
(4) Background concentration is the three-year average annual concentration (2022-2024) (EPA Air Data Website)
(5) Primary and Secondary NAAQS
(6) Secondary NAAQS

The Refinery is located near the Gulf Coast in an ecological region known as the East Gulf Coastal Plain (ECGP) which is characterized by sandy, silt, clay derived soils, wetlands, rivers and streams. The EGCP supports diverse plant and animal species within its terrestrial and aquatic systems. The EGCP areas close to the refinery on the south and east sides are undisturbed by refinery activity. The area is not supportive of typical agricultural crops and no farming occurs near the Refinery.

According to the U.S. Fish and Wildlife Service, there are 117 threatened and endangered species in Mississippi (99 animal and 18 plant species). Three of the plant species are known to grow in Jackson County, false rosemary (*Conradina canescens*), Louisiana quillwort (*Isoetes louisianesis Thieret*), and chaffseed (*Schwalbea americana L.*). All three species are listed as endangered. None of these has been observed to occur in the vicinity of the Refinery.

Most of the designated vegetation screening levels are equivalent to or less stringent than the NAAQS and/or PSD increments; therefore, satisfaction of NAAQS and PSD increments assures compliance with sensitive vegetation screening levels.

Class II Scenic Vistas

The Class II Visibility Analysis evaluates the impact of the proposed project on local visibility conditions. Based on discussions with MDEQ and consistent with other PSD projects in EPA Region IV, Chevron conducted a visibility analysis for the Shepard State Park (SSP), located approximately 13.5 km northwest of the Refinery in Gautier, MS as shown in **Figure 7-1**. The visible plume analysis was conducted with the most current version of EPA's screening model VISCREEN to determine if the project's potential increase emissions have the potential to cause visibility impairment. VISCREEN was applied with the guidance provided in EPA's Workbook for Plume Visual Impact Screening and Analysis ("Workbook")[12]. As such, the VISCREEN model was applied to estimate two visual impact parameters, plume perceptibility (ΔE) and plume contrast (Cp) against a sky background. Given that there are no elevated scenic vistas with terrain as background for this area, visual impacts on terrain should not be a critical value in determining plume perceptibility. Screening-level guidance indicates that values above 2.0 for ΔE and +/- 0.05 for Cp are considered perceptible. The Workbook offers two levels of analysis. Level 1 screening analysis which is the most simplified and conservative approach employing default meteorological data with no site-specific conditions. The Level 1 modeling parameters for SSP are summarized in **Table 7-2**.

Table 7-2 VISCREEN Level 1 Modeling Parameters

Parameter	SSP
Background Ozone (ppm)	0.04
Background Visual Range (km)	20
Source-Observer Distance (km)	13.5
Min. Source-Class I Distance (km)	13.5
Max. Source-Class I Distance (km)	15.5
Wind Speed (m/s)	1.00
Stability Class	F
Plume-Source Observer Angle (degrees)	11.25
Particulates (lb/hr)	15.13
NOx (as NO_2) (lb/hr)	79.76

[12] EPA 1992. Workbook for Visual Impact Screening and Analysis (Revised). EPA-450/R-92-023.

Figure 7-1 VISCREEN Observation Points and Distances for Shepard State Park

Initially, the Level 1 analysis was conducted and indicated ΔE values were above the screening thresholds. The SSP website does not include star gazing as an activity/attraction in the park; therefore, nighttime hours were excluded from the analysis. Based on Table 3-1, "Key to Stability Categories", in the Workbook of Atmospheric Dispersion Estimates, the most conservative stability category during daytime hours is Stability Category D. For conservatism, the analysis used Stability Category E, 1 m/s to include dawn and dusk hours. All other inputs remained the same as the Level 1 analysis. The VISCREEN results are summarized in **Table 7-3**.

Table 7-3 VISCREEN Results Inside Shepard State Park

Background	Theta[1]	Azimuth	Distance	Alpha	ΔE		Contrast (Cρ)	
					Criteria	Plume	Criteria	Plume
SKY	10	119	15.5	49	2.00	1.147	0.05	0.000
SKY	140	119	15.5	49	2.00	0.369	0.05	-0.005[2]
TERRAIN	10	84	13.5	84	2.00	0.466	0.05	0.005
TERRAIN	140	84	13.5	84	2.00	0.110	0.05	0.003

(1) VISCREEN results are provided for the two VISCREEN default worst-case theta angles. The two theta angles represent the sun being in front of the observer (theta = 10 degrees) and behind the observer (theta = 140 degrees).

(2) A negative C_p means the plume has a darker contrast than the background sky.

Class I Modeling Analysis

PSD Class I areas are areas of special national or regional value from a natural, scenic, recreational, or historical perspective. The PSD program provides special protection for such areas. According to 40 CFR §52.21(p), sources located within 300 km of a Class I area may be required to demonstrate that a proposed Project will not cause or contribute to an exceedance of the PSD Class I increments or adversely affect certain AQRVs (including visibility and acid deposition). There is one (1) Class I area located within 300 km of the Project site, which is shown in **Figure 7-2.** The closest Class I area is Breton National Wildlife Refuge (NWR) located approximately 50 km from the Refinery. At this distance and beyond, a non-steady-state modeling approach which considers spatial and time variations in meteorological conditions, such as CALPUFF, is appropriate for AQRVs.

The Federal Land Managers' Air Quality Related Values Work Group Phase 1 Report (Revised 2010) (FLAG 2010) guidance document contains a screening approach that is designed to screen out projects from the need to conduct an AQRV analysis for nearby Class I areas. This screening approach is based on the Q/D ratio, where 'Q' is the annual steady-state equivalent emission rate based on the sum of NO_X, SO_2, filterable PM_{10}, and H_2SO_4 emissions (expressed in tons per year, based on maximum 24-hour emissions), and 'D' is the distance (km) to the closest Class I area. The Q/D screening approach is calculated using short-term and annual emissions in **Table 7-4**.

Per discussion with Tim Allen of the United States Fish and Wildlife Service, the Project screens out for additional AQRV review based on the distance to the Class I area and the Q/D estimates.

Table 7-4 Q/D Screening Calculation

Averaging Period	NO_x (TPY)	PM_{10} (TPY)	SO_2 (TPY)[(2)]	H_2SO_4 (TPY)[(2)]	Distance (km)	Total Q/D
24-hour	349.4[(1)]	66.3[(1)]	30.7	3	50	9.0
Annual	660.1	50.4	30.7	3	50	14.9

(1) Emissions are TPY Equivalent

(2) Non-PSD pollutant. Annual emissions used for both short-term and annual Q/D calculations.

Figure 7-2 Class I Areas Within 300-km of the Refinery

Receptors

Receptors from the National Park Service database of Class I receptors was used for this modeling analysis (found at: http://www2.nature.nps.gov/air/maps/Receptors/index.htm) for Breton NWR as shown in **Figure 7-3**.

PSD Increment

The Significant Impact Analysis for compliance with PSD Class I increments was conducted with AERMOD using the same meteorological data as discussed in **Section 6**.

Secondary $PM_{2.5}$ formation was included for Project sources. Breton NWR is between 50 and 60 km from the Refinery. The MERP calculation distances are 40 and 60 km. The calculation for the 40 km distance from both the Orleans County, LA and Bay County, FL MERP sites are shown in **Table 7-5**. These secondary $PM_{2.5}$ concentrations were added to the AERMOD model output. The modeled concentrations at all receptors within the Class I area were compared to the SILs. Total $PM_{2.5}$ was compared to the $PM_{2.5}$ SILs.

The AERMOD modeled impacts are summarized in **Table 7-6**. As all modeled impacts are below the applicable SILs for NO_2, PM_{10}, and $PM_{2.5}$, the Project is assumed to have an insignificant impact for these pollutants, and no further modeling is required.

Figure 7-3 Breton NWR Receptor Locations for Class I Modeling

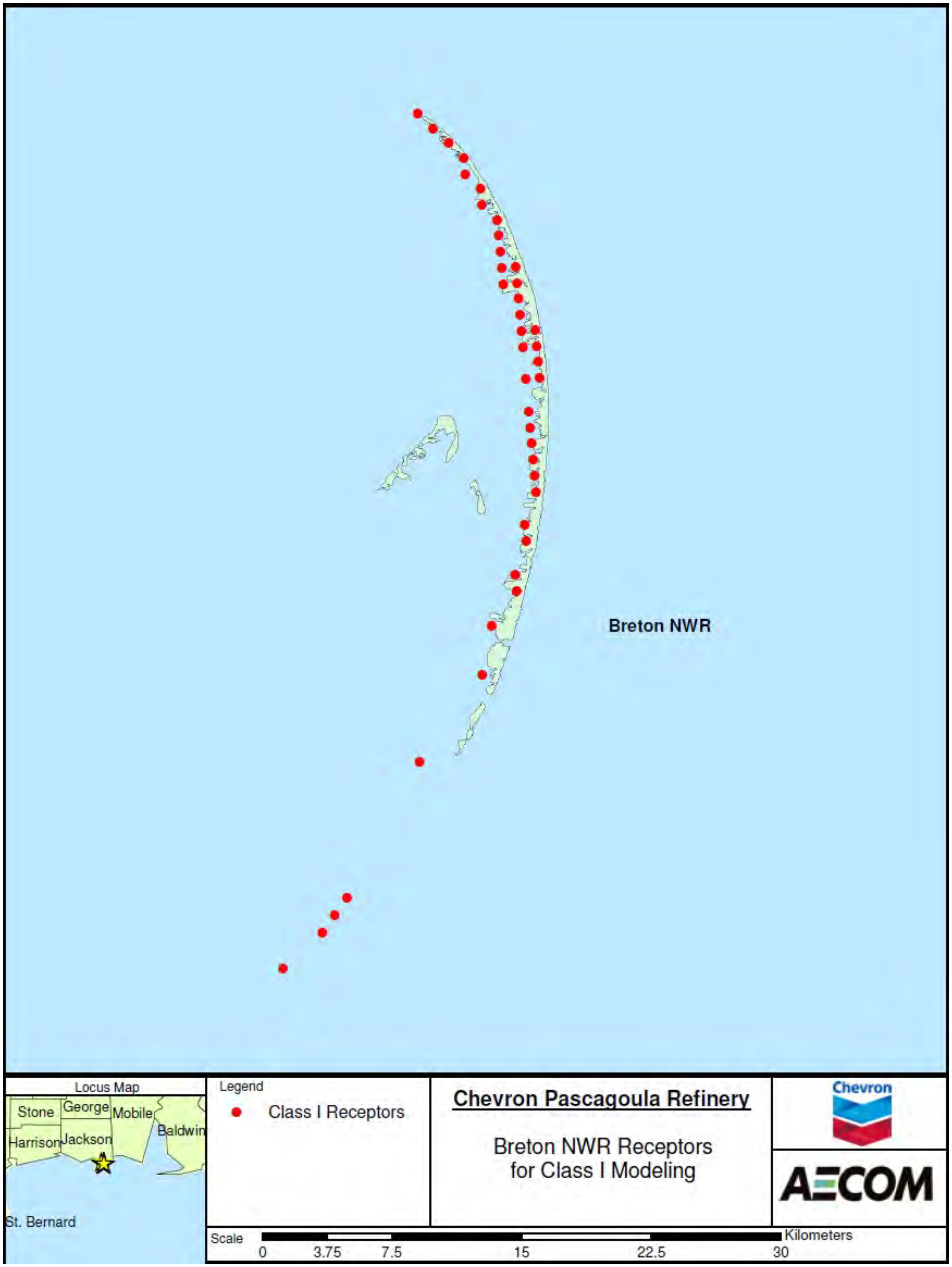


Table 7-5 Class I MERP Secondary $PM_{2.5}$ Concentration Calculation

Pollutant	Avg. Period	Hypothetical Source	NOx				SO_2				Project Secondary $PM_{2.5}$ Modeled Concentration (µg/m³)
			EPA Precursor Emissions (TPY)	EPA Modeled Conc. (µg/m³)	Project Precursor Emissions (TPY)	Project Modeled Conc. (µg/m³)	EPA Precursor Emissions (TPY)	EPA Modeled Conc. (µg/m³)	Project Precursor Emissions (TPY)	Project Modeled Conc. (µg/m³)	
$PM_{2.5}$	24-hour	Bay Co., FL	1000	0.1348	349.4[1]	0.0471	1000	0.6586	30.7	0.0202	0.0673
	Annual		1000	0.0047	660.1[2]	0.0031	1000	0.0193	30.7	0.0006	0.0037
	24-hour	Orleans Co., LA	500	0.0552	349.4[1]	0.0386	500	0.1682	30.7	0.0103	0.0489
	Annual		500	0.0016	660.1[2]	0.0021	500	0.0058	30.7	0.0004	0.0024

[1]Short-term (lb/hr) emission increases converted to tons per year (TPY).
[2]Annual emission increases.

Table 7-6 PSD Increment Class I AERMOD Modeling Results

Pollutant	Averaging Period	AERMOD Model Concentration (µg/m³)						SIL (µg/m³)
		2020	2021	2022	2023	2024	Max.	
PM_{10}	24-hour	High-1st-High = 0.06						0.3
$PM_{2.5}$(2)	24-hour	High-1st-High Averaged Over 5 Years = 0.111						0.27
$PM_{2.5}$(4)	24-hour	High-1st-High Averaged Over 5 Years = 0.129						0.27
VGO via Barge								
NO_2(1)	Annual	0.03	0.03	0.02	0.03	0.03	0.03	0.1
PM_{10}	Annual	0.002	0.002	0.002	0.002	0.002	0.002	0.2
$PM_{2.5}$(3)	Annual	0.005	0.004	0.004	0.005	0.005	0.005	0.03
$PM_{2.5}$(5)	Annual	0.006	0.006	0.006	0.006	0.006	0.006	0.03
VGO via Ship								
NO_2(1)	Annual	0.03	0.03	0.02	0.03	0.03	0.03	0.1
PM_{10}	Annual	0.002	0.002	0.002	0.002	0.002	0.002	0.2
$PM_{2.5}$(3)	Annual	0.005	0.004	0.004	0.005	0.005	0.005	0.03
$PM_{2.5}$(5)	Annual	0.006	0.006	0.006	0.006	0.006	0.006	0.03

(1) Conversion of NO_x to NO_2 using Tier 2 (ARM2) method.
(2) Includes secondary PM concentration of 0.0489 µg/m³ (Orleans Co., LA).
(3) Includes secondary PM concentration of 0.0024 µg/m³ (Orleans Co., LA).
(4) Includes secondary PM concentration of 0.0673 µg/m³ (Bay Co., FL).
(5) Includes secondary PM concentration of 0.0037 µg/m³ (Bay Co., FL).

Appendix A Air Emission Calculations

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Table A-1 Emission Netting Summary

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Pollutant	Project Increases (ton/yr)	Project Decreases (ton/yr)	Net Project Emission Changes (ton/yr)	PSD Significance Threshold (ton/yr)	PSD Netting Required?	Contemp. Emission Changes (ton/yr)	PSD Net Emission Changes (ton/yr)	PSD Review Required?
NO_X	660.05		660.05	40	Yes	177.67	837.72	**Yes**
SO_2	50.73	-17.3	33.45	40	No	N/A	N/A	No
PM	53.51	-12.69	40.82	25	Yes	20.83	61.65	**Yes**
PM_{10}	53.43	-2.99	50.44	15	Yes	20.37	70.81	**Yes**
$PM_{2.5}$	53.27	-0.50	52.77	10	Yes	19.91	72.68	**Yes**
VOC	124.41		124.41	40	Yes	238.81	363.21	**Yes**
CO	57.85		57.85	100	No	N/A	N/A	No
H_2SO_4	3.21	-0.26	2.94	7	No	N/A	N/A	No
H_2S	0.97		0.97	10	No	N/A	N/A	No
TRS	3.25		3.25	10	No	N/A	N/A	No
HF	0		0	3	No	N/A	N/A	No
Pb	0.02		0.02	0.6	No	N/A	N/A	No
GHG as CO_2e	656,971		656,971	75,000	Yes	452,898	1,109,869	**Yes**

Notes:
The contemporaneous period for this project is the time period from October 2020 through third quarter 2027.

Table A-2 Contemporaneous Project History for Netting Analysis

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Project Description	Startup Date	NO_X	SO_2	PM	PM_{10}	$PM_{2.5}$	VOC	CO	H_2SO_4	GHG as CO_{2e}
		(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)
T-76 Reconstruction	October 2020	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0
East Basin Portable Pump	September 2020	1.68	0.44	0.01	0.01	0.01	0.54	1.78	0.01	382
2020 Deminimis Piping Modifications	December 2020	0.00	0.00	0.00	0.00	0.00	1.80	0.00	0.00	0
Base Oil Tankfarm Project	February 2021	0.00	0.00	0.00	0.00	0.00	2.80	0.00	0.00	0
63 Plant Piping Modification	April 2021	0.88	0.59	0.16	0.16	0.16	0.12	1.80	0.00	2,563
34 Plant Chemical Additives	April 2021	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0
T-144 Reconstruction	June 2021	0.00	0.00	0.00	0.00	0.00	-0.08	0.00	0.00	0
T-406 Reconstruction	June 2021	0.00	0.00	0.00	0.00	0.00	0.69	0.00	0.00	0
17 Plant Portable Generator	July 2021	3.97	1.24	0.30	0.30	0.30	1.51	4.97	0.02	659
Wharf Flexibility Project	July 2021	0.00	0.00	0.00	0.00	0.00	3.08	0.00	0.00	0
Blending Chemical Additive	September 2021	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0
2021 Deminimis Piping Modifications	December 2021	0.00	0.00	0.00	0.00	0.00	37.10	0.00	0.00	0
84 Plant Chemical Additive	January 2022	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0
11 Plant Chemical Additives	March 2022	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0
Temporary #3 Cooling Tower	April 2022	0.00	0.00	1.00	0.90	0.70	16.60	0.00	0.00	0
T-120 Service Change	April 2022	0.00	0.00	0.00	0.00	0.00	1.99	0.00	0.00	0
84 Plant Temporary Cooling Tower	August 2022	0.00	0.00	0.03	0.03	0.02	2.37	0.00	0.00	0
2022 Deminimis Piping Modifications	December 2022	0.00	0.00	0.00	0.00	0.00	38.29	0.00	0.00	0
T-173 Service Change	February 2023	0.00	0.00	0.00	0.00	0.00	0.55	0.00	0.00	0
Temporary #1 CT System	March 2023	0.00	0.00	0.30	0.30	0.20	5.50	0.00	0.00	0
T-409 Reconstruction	May 2023	0.00	0.00	0.00	0.00	0.00	1.27	0.00	0.00	0
T-191 Reconstruction	May 2023	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0
VDU Temporary Cooling Tower	May 2023	0.00	0.00	0.03	0.03	0.02	2.41	0.00	0.00	0
T-12 Chiller System Portable Generator	May 2023	4.63	14.45	0.76	0.76	0.76	0.21	0.81	0.22	7,107
Additional Temporary #1 Cooling Tower Cells	July 2023	0.00	0.00	0.60	0.50	0.40	4.40	0.00	0.00	0
T-205 Reconstruction	July 2023	0.00	0.00	0.00	0.00	0.00	-3.28	0.00	0.00	0
F-34401 Replacement	July 2023	1.22	26.92	0.09	0.09	0.09	0.07	1.05	0.41	1,707
T-302 Reconstruction	July 2023	0.00	0.00	0.00	0.00	0.00	4.31	0.00	0.00	0
F-1531 Replacement	October 2023	4.49	14.78	0.90	0.90	0.90	0.52	22.72	0.23	15,695
91 Plant Temporary Diesel Pump	November 2023	2.49	0.66	0.02	0.02	0.02	0.81	2.65	0.01	650
2023 Deminimis Piping Modifications	December 2023	0.00	0.00	0.00	0.00	0.00	15.42	0.00	0.00	0
Avgas Railcar Loading Project	January 2024	0.00	0.00	0.00	0.00	0.00	6.43	0.00	0.00	0
ETP (3) Diesel Pumps	January 2024	8.34	2.22	0.33	0.33	0.33	2.72	8.87	0.03	568
53 Plant Portable Generator	March 2024	13.18	4.22	0.68	0.68	0.68	5.15	11.82	0.06	2,259
Coker MACC Projects	April 2024	0.00	0.00	0.00	0.00	0.00	6.87	0.00	0.00	0
T-500 Reconstruction	May 2024	0.00	0.00	0.00	0.00	0.00	-0.31	0.00	0.00	0
24 Plant Temporary Chiller System Generators	June 2024	37.00	0.04	0.20	0.20	0.20	2.04	3.04	0.00	3,050
16 Plant Light Towers	June 2024	3.60	0.59	0.20	0.20	0.20	0.72	3.17	0.01	255
79 Plant Temporary Air Compressor	August 2024	1.72	5.39	0.09	0.09	0.09	6.57	15.09	0.08	2,288
CT #3 Diesel Engine Pumps	September 2024	28.19	10.40	1.41	1.41	1.41	12.69	29.08	0.16	509
ETP Portable Generator	October 2024	1.06	3.32	0.05	0.05	0.05	4.05	9.29	0.05	2,062
(4) Diesel Engine Pumps	October 2024	13.17	3.77	0.29	0.29	0.29	4.59	17.09	0.06	1,689
T-332 Reconstruction	October 2024	0.00	0.00	0.00	0.00	0.00	-4.11	0.00	0.00	0
24 Plant Debottleneck Project	November 2024	18.76	5.59	5.88	5.88	5.88	19.76	2.70	0.26	204,923
T-182 Reconstruction	December 2024	0.00	0.00	0.00	0.00	0.00	-0.94	0.00	0.00	0
2024 Deminimis Piping Modifications	December 2024	0.00	0.00	0.00	0.00	0.00	11.51	0.00	0.00	0
Naphtha Processing Project	January 2025	23.33	14.90	7.42	7.16	7.12	17.89	40.40	1.07	204,593
Diesel Pumps	March 2025	9.96	2.65	0.08	0.08	0.08	3.25	10.60	0.04	1,939
Contemporaneous Emission Changes		**177.67**	**112.17**	**20.83**	**20.37**	**19.91**	**238.81**	**186.93**	**2.73**	**452,898**

Table A-3.1 Project Related Emission Changes

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

New, Modified or Affected Source?	Emission Source Description	NO_x	SO_2	PM	PM_{10}	$PM_{2.5}$	VOC	CO	H_2SO_4	H_2S	TRS	HF	Lead	GHG as CO_{2e}
		(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)
Affected	Combustion Sources	606.19	38.10	51.53	51.53	51.53	21.97	35.02	1.75				2.00E-02	636,045
Affected	Barges and Ships (Purchased Feeds)	21.60	4.94	0.76	0.69	0.52	0.53	2.41	0.04				2.01E-04	1,585
Affected	Truck Traffic at the Marketing Terminal			-9.59	-1.92	-0.47								
Affected	Coke Handling			-3.10	-1.08	-0.03	0.44							
Affected	Product Shipping Trucks and Rail Tank Cars						11.40							
Affected	Product Shipping at the Wharf						20.10							
Affected	Storage Tanks						55.30			4.57E-05	4.57E-05			
New	Equipment Leaks						13.80							
Affected	Sulfur Recovery Units IV, V and VI									4.01E-01	2.68E+00			
Affected	Sulfur Recovery Units II and III	31.06	7.69	1.12	1.12	1.12	0.81	19.69	1.41	2.47E-01	2.47E-01			18,289
Affected	Sulfur Shipping	1.21	-17.28	0.09	0.09	0.09	0.07	0.74	-0.26	3.24E-01	3.24E-01			1,051
	Total Project Emissions Increases:	**660.05**	**50.73**	**53.51**	**53.43**	**53.27**	**124.41**	**57.85**	**3.21**	**9.73E-01**	**3.25E+00**	**0.00**	**2.02E-02**	**656,971**
	Total Project Emission Decreases:	**0.00**	**-17.28**	**-12.69**	**-2.99**	**-0.50**	**0.00**	**0.00**	**-0.26**	**0.00E+00**	**0.00E+00**	**0.00**	**0.00E+00**	**0**
	Total Project Emission Change:	**660.05**	**33.45**	**40.82**	**50.44**	**52.77**	**124.41**	**57.85**	**2.94**	**9.73E-01**	**3.25E+00**	**0.00**	**2.02E-02**	**656,971**

Table A-3.2 Summary of Baseline Annual Emissions, Future Annual Emissions, and Emission Changes

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Unit	Plant		NOx			SO2			PM			PM_{10}			$PM_{2.5}$			VOC			CO		
	Name	Number	Baseline	Future	PSD Delta	Baseline	Future	PSD Delta	Baseline	Future	PSD Delta	Baseline	Future	PSD Delta	Baseline	Future	PSD Delta	Baseline	Future	PSD Delta	Baseline	Future	PSD Delta
			ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr
F-1101/1102	Crude I	11	235.20	262.52	27.33	37.40	41.71	4.31	13.61	19.96	6.35	13.61	19.96	6.35	13.61	19.96	6.35	12.65	14.47	1.82	2.76	3.51	0.75
F-1501/1502/1503	Rheniformer I/NHT I	15	61.62	280.71	219.10	4.31	17.47	13.16	3.14	14.43	11.29	3.14	14.43	11.29	3.14	14.43	11.29	2.26	11.66	9.40	1.01	4.07	3.06
F-2101	Boiler Plant	21	14.83	46.43	31.60	7.95	9.57	1.62	3.14	7.34	4.20	3.14	7.34	4.20	3.14	7.34	4.20	1.61	4.18	2.57	3.88	12.31	8.42
F-2201	Hydrofiner	22	16.13	29.43	13.30	2.12	3.06	0.94	0.84	1.27	0.43	0.84	1.27	0.43	0.84	1.27	0.43	1.00	1.14	0.13	14.74	20.80	6.05
F-6101/6102	Crude II	61	104.15	157.68	53.53	28.66	36.12	7.46	8.79	19.71	10.92	8.79	19.71	10.92	8.79	19.71	10.92	11.81	14.19	2.38	4.07	6.09	2.01
F-6410	Hydrogen II	64	309.51	459.90	150.39	39.83	44.64	4.81	16.27	21.80	5.53	16.27	21.80	5.53	16.27	21.80	5.53	4.25	5.96	1.70	5.66	8.66	3.00
KGT-6410	Hydrogen II	64																					
F-8110	RDS	81	11.87	31.32	19.45	3.14	3.48	0.34	0.84	2.14	1.30	0.84	2.14	1.30	0.84	2.14	1.30	1.16	1.54	0.38	9.16	15.39	6.23
F-8210	Isodewaxing/ Hydrofinishing	82	2.60	6.78	4.18	1.70	1.79	0.09	0.86	1.22	0.36	0.86	1.22	0.36	0.86	1.22	0.36	0.62	1.22	0.60	0.04	0.09	0.06
F-8220	Isodewaxing/ Hydrofinishing	82	5.25	11.30	6.05	3.41	3.79	0.38	1.83	2.50	0.67	1.83	2.50	0.67	1.83	2.50	0.67	1.31	2.03	0.72	0.16	0.33	0.17
F-8250	Isodewaxing/ Hydrofinishing	82	2.26	5.78	3.52	1.31	1.50	0.19	0.69	1.03	0.34	0.69	1.03	0.34	0.69	1.03	0.34	0.50	1.04	0.54	0.15	0.40	0.25
F-8280	Isodewaxing/ Hydrofinishing	82	4.08	9.22	5.13	2.59	2.77	0.19	1.60	1.91	0.31	1.60	1.91	0.31	1.60	1.91	0.31	0.96	1.66	0.69	0.15	0.34	0.19
F-8300A	Coker	83	62.67	87.35	24.68	13.29	13.88	0.59	3.93	6.64	2.71	3.93	6.64	2.71	3.93	6.64	2.71	4.55	4.81	0.27	13.53	15.54	2.01
F-8300B	Coker	83	52.08	87.35	35.28	12.99	13.88	0.89	2.67	6.64	3.98	2.67	6.64	3.98	2.67	6.64	3.98	4.46	4.81	0.35	13.94	15.32	1.38
F-8300C	Coker	83	74.69	87.35	12.66	10.74	13.88	3.14	3.49	6.64	3.15	3.49	6.64	3.15	3.49	6.64	3.15	4.40	4.81	0.41	17.04	18.47	1.43
Barges and Ships (Purchased Feeds)					21.60			4.94			0.76			0.69			0.52			0.53			2.41
Truck Traffic at the Marketing Terminal	Marketing Terminal	5171							9.96	0.37	-9.59	1.99	0.07	-1.92	0.49	0.02	-0.47						
Coke Handling	Coker	83							20.88	17.78	-3.10	7.01	5.94	-1.08	0.78	0.75	-0.03	2.36	2.80	0.44			
Product Shipping Trucks and Rail Tank Cars																		22.37	33.77	11.40			
Product Shipping at the Wharf																		89.11	109.20	20.10			
Storage Tanks																		198.86	254.16	55.30			
Equipment Leaks																				13.80			
Sulfur Recovery Units IV, V and VI	Sulfur Recovery	90, 91, 92																					
Sulfur Recovery Units II and III	Sulfur Recovery	27	6.65	37.71	31.06	34.66	42.35	7.69	0.88	2.01	1.12	0.88	2.01	1.12	0.88	2.01	1.12	0.64	1.45	0.81	5.01	24.70	19.69
Sulfur Shipping			0.21	1.42	1.21	48.90	31.62	-17.28	0.02	0.11	0.09	0.02	0.11	0.09	0.02	0.11	0.09	0.01	0.08	0.07	0.45	1.19	0.74
Overall Emission Change				**Total:**	**660.05**		**Total:**	**33.45**		**Total:**	**40.82**		**Total:**	**50.44**		**Total:**	**52.77**		**Total:**	**124.41**		**Total:**	**57.85**
Emission Increases				**Total:**	**660.05**		**Total:**	**50.73**		**Total:**	**53.51**		**Total:**	**53.43**		**Total:**	**53.27**		**Total:**	**124.41**		**Total:**	**57.85**
Emission Decreases				**Total:**	**0.0**		**Total:**	**-17.28**		**Total:**	**-12.69**		**Total:**	**-2.99**		**Total:**	**-0.50**		**Total:**	**0.00**		**Total:**	**0.00**

Table A-3.2 Summary of Baseline Annual Emissions, Future Annual Emissions, and Emission Changes

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Unit	Plant		H2SO4			H2S			TRS			HF			Lead			GHG as CO2e		
	Name	Number	Baseline	Future	PSD Delta	Baseline	Future	PSD Delta	Baseline	Future	PSD Delta	Baseline	Future	PSD Delta	Baseline	Future	PSD Delta	Baseline	Future	PSD Delta
			ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr
F-1101/1102	Crude I	11	1.718	1.916	0.198													330,271	349,875	19,604
F-1501/1502/1503	Rheniformer I/NHT I	15	0.198	0.803	0.605													83,874	282,028	198,154
F-2101	Boiler Plant	21	0.365	0.440	0.075													57,424	151,597	94,173
F-2201	Hydrofiner	22	0.097	0.141	0.043													23,372	27,459	4,087
F-6101/6102	Crude II	61	1.316	1.659	0.343													275,793	343,239	67,446
F-6410	Hydrogen II	64	1.830	2.051	0.22													321,836	417,607	95,771
KGT-6410	Hydrogen II	64																92,643	111,296	18,653
F-8110	RDS	81	0.144	0.160	0.015													26,576	37,184	10,608
F-8210	Isodewaxing/ Hydrofinishing	82	0.078	0.082	0.004													13,674	29,536	15,862
F-8220	Isodewaxing/ Hydrofinishing	82	0.157	0.174	0.018													28,968	49,198	20,229
F-8250	Isodewaxing/ Hydrofinishing	82	0.060	0.069	0.009													11,435	25,171	13,736
F-8280	Isodewaxing/ Hydrofinishing	82	0.119	0.127	0.009													21,188	40,119	18,931
F-8300A	Coker	83	0.610	0.638	0.027													121,645	145,519	23,874
F-8300B	Coker	83	0.597	0.638	0.041													127,179	145,519	18,340
F-8300C	Coker	83	0.494	0.638	0.144													128,942	145,519	16,577
Barges and Ships (Purchased Feeds)					0.043												2.01E-04			1,585
Truck Traffic at the Marketing Terminal	Marketing Terminal	5171																		
Coke Handling	Coker	83																		
Product Shipping Trucks and Rail Tank Cars																				
Product Shipping at the Wharf																				
Storage Tanks						2.92E-05	7.49E-05	4.57E-05	2.92E-05	7.49E-05	4.57E-05									
Equipment Leaks																				
Sulfur Recovery Units IV, V and VI	Sulfur Recovery	90, 91, 92				0.70	1.10	0.401	4.26	6.94	2.677									
Sulfur Recovery Units II and III	Sulfur Recovery	27	0.53	1.94	1.41	1.12	1.36	0.25	1.12	1.36	0.25							13,253	31,543	18,289
Sulfur Shipping			0.75	0.48	-0.26	0.70	1.03	0.324	0.70	1.03	0.324							641	1,693	1,051
Overall Emission Change				**Total:**	**2.94**		**Total:**	**0.97**		**Total:**	**3.25**		**Total:**	**0.00**		**Total:**	**2.01E-04**		**Total:**	**656,971**
Emission Increases				**Total:**	**3.21**		**Total:**	**0.97**		**Total:**	**3.25**		**Total:**	**0.00**		**Total:**	**2.01E-04**		**Total:**	**656,971**
Emission Decreases				**Total:**	**-0.26**		**Total:**	**0.00**		**Total:**	**0.00**		**Total:**	**0.00**		**Total:**	**0.00E+00**		**Total:**	**-**

Table A-4 HAP Emissions Summary

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

HAPs - Potential Emissions (ton/yr)

CAS Number	Chemical Name	Combustion Sources	Barge and Ship Unloading (Purchased Feeds)	Storage Tanks	Equipment Leak Fugitives	SRU II-III	Product Loading	Total
75070	Acetaldehyde	0.25	0.00	-	-		-	0.25
107028	Acrolein		0.00		-		-	0.00
71432	Benzene	1.04	0.00	2.57	0.07	0.57	0.08	4.33
92524	Biphenyl			0.15				0.15
106990	1,3-Butadiene		0.00	-	-		-	0.00
75150	Carbon disulfide			-				-
463581	Carbonyl sulfide			-				-
1319773	Cresols/Cresylic acid (isomers and mixture)			-	-		-	-
98828	Cumene			1.10	0.01		0.18	1.29
25321226	Dichlorobenzene	0.00				0.32		0.32
111422	Diethanolamine			-	-		-	-
123911	1,4-Dioxane			0.00				0.00
100414	Ethyl benzene	0.49	0.00	2.18	0.04		0.10	2.81
75003	Ethyl chloride (Chloroethane)							-
106934	Ethylene dibromide (Dibromoethane)			0.00	-		0.00	0.00
107211	Ethylene glycol				-		-	-
50000	Formaldehyde	1.86	0.01		-	20.20	-	22.07
110543	Hexane	1.70		4.79	0.47	0.67	0.35	7.98
7664393	Hydrogen fluoride			-				-
67561	Methanol (methyl alcohol)			-				-
71556	Methyl chloroform (1,1,1-Trichloroethane)		0.00					0.00
108101	Methyl isobutyl ketone (hexone)			-				-
1634044	Methyl tert butyl ether			-	-		-	-
101144	4,4-Methylene bis(2-chloroaniline)							-
101688	MDI (methylene diphenyl diisocyanate)			-				-
91203	Naphthalene	0.01	0.00	1.78	0.00	0.16	0.00	1.95
108952	Phenol	0.09		-	-		-	0.09
127184	Tetrachloroethylene			-				-
108883	Toluene	1.73	0.00	5.56	0.16	0.92	0.61	8.96
584849	Toluene diisocyanate			0.01				0.01
540841	2,2,4-Trimethylpentane			3.79	0.10		0.83	4.72
1330207	Xylenes (isomers and mixture)	0.60	0.00	3.26	0.12	6.87	0.17	11.03
108383	m-Xylenes			0.00				0.00
95476	o-Xylenes			0.12				0.12
106423	p-Xylenes			0.40				0.40
--	Dioxins/Furans		0.00					0.00
--	Antimony Compounds	0.01	0.00					0.01
--	Arsenic Compounds	0.01	0.00			0.05		0.07
--	Beryllium Compounds	0.00	0.00			0.00		0.00
--	Cadmium Compounds	0.02	0.00			0.30		0.31
--	Chromium Compounds	0.02	0.00			0.38		0.40
--	Cobalt Compounds	0.00	0.00			0.02		0.02
--	Coke Oven Emissions							-
--	Cyanide Compounds							-
--	Glycol ethers							-
--	Lead Compounds	0.08				0.13		0.21
--	Manganese Compounds	0.11	0.00			0.10		0.21
--	Mercury Compounds	0.00	0.00	-		0.07		0.07
--	Fine mineral fibers							-
--	Nickel Compounds	0.15	0.01	-		0.57		0.73
--	Polycylic Organic Matter	0.01	0.00	0.63	0.12	0.19	0.10	1.04
--	Radionuclides (including radon)							-
--	Selenium Compounds	0.00	0.00			0.01		0.01
	Total HAPs	8.17	0.02	26.34	1.10	31.53	2.42	69.58

Selected non-HAPs - Potential Emissions (ton/yr)								
95636	1,2,4-Trimethylbenzene			1.45	0.05		0.21	1.70
7664417	Ammonia			-	-		-	-
191242	Benzo(g,h,i)perylene		0.00	0.00	0.00	0.00	0.00	0.00
110827	Cyclohexane			1.94	0.09		0.03	2.07
74851	Ethylene			0.00			-	0.00
7783064	Hydrogen Sulfide			-		1.36	-	1.36
--	PACs			0.01	0.00		0.00	0.01
7664939	Sulfuric Acid Mist	10.99	0.04	-	-	1.94	-	12.97
	Ethanol			0.36			0.52	0.88

Table A-5 Affected Combustion Sources

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Unit	Description	Plant		MDEQ ID	Reason Affected
		Name	Number		
F-1101/1102	Vacuum/Atmospheric Furnaces	Crude I	11	AE-013	Increased annual throughput
F-1501/1502/1503	Rhen I Furnace	Rheniformer I/NHT I	15	AG-043	Increased annual throughput
F-2101	Boiler 1	Boiler Plant	21	AL-104	Increased steam demand
F-2201	Process Heater	Hydrofiner	22	AM-111	Increased annual throughput
F-34401	Thermal Oxidizer	Shipping	45	AZ-571	Increased annual throughput
F-6101/6102	Atm. Col. And Vac. Col. Heaters	Crude II	61	BE-211	Increased annual throughput
F-6410	Reformer Furnace	Hydrogen II	64	BH-231	Increased hydrogen demand
KGT-6410	Gas Turbine	Hydrogen II	64	BH-232	Increased hydrogen demand
F-8110	RDS Feed Furnace 1	RDS	81	BP-511	Increased annual throughput
F-8210	HCR Feed Heater	Isodewaxing/ Hydrofinishing	82	CK-003	Increased annual throughput
F-8220	FPU Vac. Col. Feed Heater	Isodewaxing/ Hydrofinishing	82	CK-004	Increased annual throughput
F-8250	IDW/HDF Reactor Feed Heater	Isodewaxing/ Hydrofinishing	82	CK-005	Increased annual throughput
F-8280	IDW/HDF Vac. Feed Heater	Isodewaxing/ Hydrofinishing	82	CK-006	Increased annual throughput
F-8300A	Coker Furnace No. 1	Coker	83	BQ-521	Increased annual throughput
F-8300B	Coker Furnace No. 2	Coker	83	BQ-522	Increased annual throughput
F-8300C	Coker Furnace No. 3	Coker	83	BQ-523	Increased annual throughput

Table A-6 Affected Combustion Sources Baseline Emissions and Heat Input

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Unit	Plant		Pre-Project Potential Heat Input	Heat Input Baseline		NO_X	SO_2	$PM/PM_{10}/PM_{2.5}$	VOC [g]	CO	H_2SO_4	GHG as CO_2e [f]	
				Jan 2016 - Dec 2017		Jan 2021 - Dec 2022	Jan 2020 - Dec 2021	Jan 2017 - Dec 2018	Jan 2017 - Dec 2018	Jan 2016 - Dec 2017	Jan 2020 - Dec 2021	Jan 2016 - Dec 2017	
	Name	Number	Maximum Heat Input	Annual Avg. Heat Input	Avg. Short-Term Heat Input	Past Actual Emissions (a)	Past Actual Emissions (b)	Past Actual Emissions (c)	Past Actual Emissions (d)	Past Actual Emissions (a)	Past Actual Emissions (e)	Emission Factor	Past Actual Emissions
			(MMBtu/hr)	(MMBtu/yr)	(MMBtu/hr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(lb/MMBtu)	(ton/yr)
F-1101/1102	Crude I	11	611.6	5,057,427	576.5	235.20	37.40	13.61	12.65	2.8	1.72	130.61	330,271
F-1501/1502/1503	Rheniformer I/NHT I	15	493.0	1,284,355	146.4	61.62	4.31	3.14	2.26	1.0	0.20	130.61	83,874
F-2101	Boiler Plant	21	265.0	879,327	100.2	14.83	7.95	3.14	1.61	3.9	0.37	130.61	57,424
F-2201	Hydrofiner	22	48.0	357,890	40.80	16.13	2.12	0.84	1.00	14.7	0.10	130.61	23,372
F-34401	Shipping	45	2.0	10,950	1.25	0.21	48.90	0.02	0.01	0.45	2.25	117.10	641
F-6101/6102	Crude II	61	600.0	4,223,209	481.44	104.15	28.66	8.79	11.81	4.1	1.32	130.61	275,793
F-6410	Hydrogen II	64	730.0	4,928,260	561.82	309.51	39.83	16.27	4.25	5.7	1.83	130.61	321,836
KGT-6410	Hydrogen II	64	217.0	1,582,326	180.38							117.10	92,643
F-8110	RDS	81	65.0	406,962	46.39	11.87	3.14	0.84	1.16	9.2	0.14	130.61	26,576
F-8210	Isodewaxing/ Hydrofinishing	82	51.6	209,383	23.87	2.60	1.70	0.86	0.62	0.04	0.08	130.61	13,674
F-8220	Isodewaxing/ Hydrofinishing	82	86.0	443,593	50.57	5.25	3.41	1.83	1.31	0.2	0.16	130.61	28,968
F-8250	Isodewaxing/ Hydrofinishing	82	44.0	175,109	19.96	2.26	1.31	0.69	0.50	0.2	0.06	130.61	11,435
F-8280	Isodewaxing/ Hydrofinishing	82	70.1	324,444	36.99	4.08	2.59	1.60	0.96	0.1	0.12	130.61	21,188
F-8300A	Coker	83	203.5	1,862,746	212.35	62.67	13.29	3.93	4.55	13.5	0.61	130.61	121,645
F-8300B	Coker	83	203.5	1,947,490	222.01	52.08	12.99	2.67	4.46	13.9	0.60	130.61	127,179
F-8300C	Coker	83	203.5	1,974,483	225.09	74.69	10.74	3.49	4.40	17.0	0.49	130.61	128,942
Total						**957.1**	**218.34**	**61.71**	**51.56**	**86.8**	**10.0**		**1,665,462**

Note: Chevron calculates actual emissions on an hourly basis for those units with emission limits and on a daily basis for those without emission limits. Fuel use is based on volumetric data and heating values. The baseline ton/yr emissions and MMBtu/yr fuel use rates are summations of Chevron's short term records.

(a) Chevron calculates NOx and CO emissions based on fuel use and emission rates from stack testing, continuous emissions monitoring systems (CEMS), or combustion analyzers.

(b) Chevron calculates SO_2 emissions based on actual volumetric fuel use for each process heater and fuel sulfur data.

(c) Chevron calculates $PM/PM_{10}/PM_{2.5}$ emissions based on typical stack test data or AP-42 emission factors.

(d) Chevron calculates VOC emissions based on typical stack test data. A single, typical emission factor is used for all the process heaters.

(e) Chevron calculates emissions based on a 3% conversion rate of the SO_2 emissions, and a molecular weight of 98 for H_2SO4 and 64 for SO_2.

(f) Chevron calculates GHG emissions based on a CO_2e emission factor developed from 40 CFR Part 98 Subpart C fuel gas emission factors, Subpart A global warming potentials, and the baseline annual heat input (MMBtu/yr).

Table A-7 Affected Combustion Sources Post-Project Annual Emissions

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Unit	Plant		Post-Project Heat Input	Annual Utilization Factor (NOx, CO, VOC)	Annual Utilization Factor (GHG)	Annual Utilization Factor (PM) [(a)]	Annual Utilization Factor (SO_2 and H_2SO_4) [(b)]	Annual Heat Input (NOx, CO, VOC)	Annual Heat Input (GHG)	Annual Heat Input (PM) [(a)]	Annual Heat Input (SO_2 and H_2SO_4) [(b)]
	Name	Number	MMBtu/hr					MMBtu/yr	MMBtu/yr	MMBtu/yr	MMBtu/yr
F-1101/1102	Crude I	11	611.6	1.00	1.00	1.00	1.00	5,357,616	5,357,616	5,357,616	5,357,616
F-1501/1502/1503	Rheniformer I/NHT I	15	493.0	1.00	1.00	0.89	0.52	4,318,680	4,318,680	3,848,000	2,244,546
F-2101	Boiler Plant	21	265.0	1.00	1.00	0.85	0.53	2,321,400	2,321,400	1,970,211	1,229,373
F-2201	Hydrofiner	22	48.0	1.00	1.00	0.82	0.93	420,480	420,480	343,243	393,140
F-34401	Shipping	45	3.3	1.00	1.00	1.00	1.00	28,908	28,908	28,908	28,908
F-6101/6102	Crude II	61	600.0	1.00	1.00	1.00	0.88	5,256,000	5,256,000	5,256,000	4,639,174
F-6410	Hydrogen II	64	730.0	1.00	1.00	1.00	0.85	6,394,800	6,394,800	6,394,800	5,413,670
KGT-6410	Hydrogen II	64	217.0	1.00	1.00	1.00	0.91	1,900,920	1,900,920	1,900,920	1,738,178
F-8110	RDS	81	65.0	1.00	1.00	1.00	0.79	569,400	569,400	569,400	447,046
F-8210	Isodewaxing/ Hydrofinishing	82	51.6	1.00	1.00	0.72	0.51	452,279	452,279	325,333	230,006
F-8220	Isodewaxing/ Hydrofinishing	82	86.0	1.00	1.00	0.88	0.65	753,360	753,360	666,667	487,285
F-8250	Isodewaxing/ Hydrofinishing	82	44.0	1.00	1.00	0.71	0.50	385,440	385,440	274,667	192,356
F-8280	Isodewaxing/ Hydrofinishing	82	70.1	1.00	1.00	0.83	0.58	614,339	614,339	509,333	356,401
F-8300A	Coker	83	203.5	1.00	1.25	1.00	1.00	1,782,660	2,228,325	1,782,660	1,782,660
F-8300B	Coker	83	203.5	1.00	1.25	1.00	1.00	1,782,660	2,228,325	1,782,660	1,782,660
F-8300C	Coker	83	203.5	1.00	1.25	1.00	1.00	1,782,660	2,228,325	1,782,660	1,782,660
Total											

Unit	NO_X		SO_2		$PM/PM_{10}/PM_{2.5}$		VOCs		CO	
	Emission Factor [(c),(j)]	PTE	Emission Factor [(d),(j)]	Projected Actuals	Emission Factor [(e),(j)]	PTE	Emission Factor [(f),(j)]	PTE	Emission Factor [(g),(j)]	Projected Actuals
	lb/MMBtu	ton/yr	lb/MMBtu	ton/yr	lb/MMBtu	ton/yr	lb/MMBtu	ton/yr	lb/MMBtu	ton/yr
F-1101/1102	0.098	262.52	0.0156	41.71	0.00745	19.96	0.0054	14.47	0.0013	3.51
F-1501/1502/1503	0.130	280.71	0.0156	17.47	0.00750	14.43	0.0054	11.66	0.0019	4.07
F-2101	0.040	46.43	0.0156	9.57	0.00745	7.34	0.0036	4.18	0.0106	12.31
F-2201	0.140	29.43	0.0156	3.06	0.00740	1.27	0.0054	1.14	0.0989	20.80
F-34401	0.098	1.42	2.1874	31.62	0.00750	0.11	0.0054	0.08	0.0824	1.19
F-6101/6102	0.060	157.68	0.0156	36.12	0.00750	19.71	0.0054	14.19	0.0023	6.09
F-6410	0.111	459.90	0.0125	44.64	0.00525	21.80	0.0014	5.96	0.0021	8.66
KGT-6410										
F-8110	0.110	31.32	0.0156	3.48	0.00750	2.14	0.0054	1.54	0.0541	15.39
F-8210	0.030	6.78	0.0156	1.79	0.00750	1.22	0.0054	1.22	0.0004	0.09
F-8220	0.030	11.30	0.0156	3.79	0.00750	2.50	0.0054	2.03	0.0009	0.33
F-8250	0.030	5.78	0.0156	1.50	0.00750	1.03	0.0054	1.04	0.0021	0.40
F-8280	0.030	9.22	0.0156	2.77	0.00750	1.91	0.0054	1.66	0.0011	0.34
F-8300A	0.098	87.35	0.0156	13.88	0.00745	6.64	0.0054	4.81	0.0174	15.54
F-8300B	0.098	87.35	0.0156	13.88	0.00745	6.64	0.0054	4.81	0.0172	15.32
F-8300C	0.098	87.35	0.0156	13.88	0.00745	6.64	0.0054	4.81	0.0207	18.47
Total		1564.54		239.2		113.3		73.6		122.5
Baseline Emissions		**957.15**		**218.34**		**61.71**		**51.56**		**86.75**
Emission Increase		**607.40**		**20.82**		**51.62**		**22.04**		**35.76**

Unit	H_2SO_4		CO_2		CH_4		N_2O		GHG CO_2e	
	Emission Factor [(h)]	Projected Actuals	Emission Factor [(i)]	PTE	Emission Factor [(i)]	PTE	Emission Factor [(i)]	PTE	Emission Factor [(i)]	PTE
	lb/MMBtu	ton/yr	lb/MMBtu	ton/yr	lb/MMBtu	ton/yr	lb/MMBtu	ton/yr	lb/MMBtu	ton/yr
F-1101/1102	0.00072	1.916	130.1	348,440	0.0066	17.717	0.00132	3.54	130.6	349,875
F-1501/1502/1503	0.00072	0.803	130.1	280,871	0.0066	14.282	0.00132	2.86	130.6	282,028
F-2101	0.00072	0.440	130.1	150,975	0.0066	7.677	0.00132	1.54	130.6	151,597
F-2201	0.00072	0.141	130.1	27,346	0.0066	1.39	0.00132	0.28	130.6	27,459
F-34401	0.10048	1.452	117.0	1,691	0.0022	0.03	0.00022	0.00	117.1	1,693
F-6101/6102	0.00072	1.659	130.1	341,831	0.0066	17.38	0.00132	3.48	130.6	343,239
F-6410	0.00057	2.051	130.1	415,895	0.0066	21.15	0.00132	4.23	130.6	417,607
KGT-6410			117.0	111,182	0.0022	2.10	0.00022	0.21	117.1	111,296
F-8110	0.00072	0.160	130.1	37,032	0.0066	1.88	0.00132	0.38	130.6	37,184
F-8210	0.00072	0.082	130.1	29,415	0.0066	1.50	0.00132	0.30	130.6	29,536
F-8220	0.00072	0.174	130.1	48,996	0.0066	2.49	0.00132	0.50	130.6	49,198
F-8250	0.00072	0.069	130.1	25,068	0.0066	1.27	0.00132	0.25	130.6	25,171
F-8280	0.00072	0.127	130.1	39,954	0.0066	2.03	0.00132	0.41	130.6	40,119
F-8300A	0.00072	0.638	130.1	144,922	0.0066	7.37	0.00132	1.47	130.6	145,519
F-8300B	0.00072	0.638	130.1	144,922	0.0066	7.37	0.00132	1.47	130.6	145,519
F-8300C	0.00072	0.638	130.1	144,922	0.0066	7.37	0.00132	1.47	130.6	145,519
Total		10.99		2,293,462		113.00		22.39		2,302,559
Baseline Emissions		**10.03**								**1,665,462**
Emission Increase		**0.96**								**637,097**

(a) The annual heat input utilization factor for particulate matter emissions is based on post-Project ton per year limits being established as part of this permitting action. See Table A-42 for additional details.
(b) The annual heat input utilization factor for SO_2 and H_2SO_4 is based on projected actual utilization, developed by scaling up the baseline emissions using a ratio of 1.0 to 1.75, depending on the emission unit.
(c) NOx emission factors for heaters firing refinery fuel gas (RFG) are based on those established by previous permitting actions, including the Pascagoula Refinery Improvement Project (PRIP) and the Pascagoula Base Oil Project (PBOP).
(d) SO_2 emission factor for heaters firing RFG is based on an annual average total reduced sulfur content (TRS) of 95 ppm in RFG, and is calculated as follows:

Emissions (lb SO2 / MMBtu) = (ppmv S / 1,000,000 [lb mol gas / lb mol S] / 379 [scf / lb mol gas] x 1 [lb mol SO2 / lb mol S] x 64 [lb SO2 / lb mol SO2] / 1020 [Btu/scf] x 1,000,000 [Btu/MMBtu]) x 0.99

(e) $PM/PM_{10}/PM_{2.5}$ emission factors are based on typical stack test data, AP-42, and past air permitting actions. The emission factors vary because the basis for each process heater varies.
(f) VOC emission factors for heaters firing RFG are based on typical stack test data.
(g) CO emission factors for heaters firing RFG are projected actual values determined from the 2016-2017 baseline annual average emission factors, scaled up by a ratio of the post- and pre-Project crude processing rates and a 10% safety factor.
(h) H_2SO_4 emission factors assume a 3% conversion of SO_2 emissions, and are calculated as follows:

H_2SO_4 emissions (lb/MMBtu) = SO_2 (lb/MMBtu) x 0.01 x MW-H_2SO_4 (lb/lb mole) / MW-SO_2 (lb/lb mol)

(i) Greenhouse gas (GHG) emission factors from 40 CFR Part 98 Subpart C. CO_2e emissions calculated using Part 98 Subpart A global warming potentials.
(j) For the turbine KGT-6410, the NOx, CO, VOC, SO_2 and PM emission factors are referenced from AP-42 Section 3.1 for natural gas firing.

Note: The full increase in steam demand due to the Project is assumed to be met by F-2101.

Table A-8 Affected Combustion Sources Post-Project Short-Term Emissions

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Unit	Plant		Post-Project Heat Input	Heat Input Safety Factor (NO_x) (a)	Heat Input Safety Factor (PM) (a)	Heat Input Safety Factor (CO) (b)	Heat Input Safety Factor (SO_2, VOC, H_2SO_4, GHG) (b)	Short Term Heat Input (NOx)	Short Term Heat Input (PM)	Short Term Heat Input (CO)	Short Term Heat Input (SO_2, VOC, H_2SO_4, GHG)	NO_X		SO_2		$PM/PM_{10}/PM_{2.5}$		VOCs		CO		H_2SO_4		CO_2		CH_4		N_2O		GHG CO_2e	
	Name	Number										Emission Factor (c),(j)	Max. Hourly	Emission Factor (d),(j)	Max. Hourly	Emission Factor (e),(j)	Max. Hourly	Emission Factor (f),(j)	Max. Hourly	Emission Factor (g),(j)	Max. Hourly	Emission Factor (h)	Max. Hourly	Emission Factor (i)	Max. Hourly	Emission Factor (i)	Max. Hourly	Emission Factor (i)	Max. Hourly	Emission Factor (i)	Max. Hourly
			MMBtu/hr					MMBtu/hr	MMBtu/hr	MMBtu/hr	MMBtu/hr	lb/MMBtu	lb/hr	lb/MMBtu	lb/hr	lb/MMBtu	lb/hr	lb/MMBtu	lb/hr	lb/MMBtu	lb/hr	lb/MMBtu	lb/hr	lb/MMBtu	lb/hr	lb/MMBtu	lb/hr	lb/MMBtu	lb/hr	lb/MMBtu	lb/hr
F-1101/1102	Crude I	11	611.6	1.25	1.25	1.5	1.5	764.5	764.5	917.4	917.4	0.098	74.92	0.041	37.59	0.00745	5.70	0.0054	4.95	0.1162	106.56	1.88E-03	1.73	130.1	119,329	6.61E-03	6.07	1.32E-03	1.21	130.6	119,820
F-1501/1502/1503	Rheniformer I/NHT I	15	493.0	1.20	1.20	1.5	1.5	591.6	590.7	739.5	739.5	0.130	76.91	0.041	30.30	0.00750	4.43	0.0054	3.99	0.0783	57.90	1.88E-03	1.39	130.1	96,189	6.61E-03	4.89	1.32E-03	0.98	130.6	96,585
F-2101	Boiler Plant	21	265.0	1.25	1.20	1.5	1.5	331.3	318.0	397.5	397.5	0.040	13.25	0.041	16.29	0.00745	2.37	0.0036	1.43	0.0722	28.70	1.88E-03	0.75	130.1	51,704	6.61E-03	2.63	1.32E-03	0.53	130.6	51,917
F-2201	Hydrofiner	22	48.0	1.25	1.25	1.5	1.5	60.0	60.0	71.6	72.0	0.140	8.40	0.041	2.95	0.00740	0.44	0.0054	0.39	0.0824	5.90	1.88E-03	0.14	130.1	9,365	6.61E-03	0.48	1.32E-03	0.10	130.6	9,404
F-34401	Shipping	45	3.3	1.00	1.00	1.0	1.0	3.3	3.3	3.3	3.3	0.098	0.32	2.187	7.22	0.00750	0.02	0.0054	0.02	0.0824	0.27	1.00E-01	0.33	117.0	386	2.20E-03	0.01	2.20E-04	0.00	117.1	386
F-6101/6102	Crude II	61	600.0	1.10	1.10	1.5	1.5	660.0	660.0	900.0	900.0	0.060	39.60	0.043	33.54	0.00750	4.95	0.0054	4.86	0.4167	375.00	1.96E-03	1.76	130.1	117,065	6.61E-03	5.95	1.32E-03	1.19	130.6	117,548
F-6410	Hydrogen II	64	730.0	1.00	1.25	1.5	1.5	730.0	912.5	1,095.0	1,095.0	0.111	105.00	0.041	58.20	0.00750	8.88	0.0014	2.04	0.0722	102.56	1.88E-03	2.67	130.1	142,430	6.61E-03	7.24	1.32E-03	1.45	130.6	143,016
KGT-6410	Hydrogen II	64	217.0	1.00	1.25	1.5	1.5	217.0	271.3	325.5	325.5													117.0	38,076	2.20E-03	0.72	2.20E-04	0.07	117.1	38,115
F-8110	RDS	81	65.0	1.26	1.25	1.5	1.5	81.8	81.3	97.1	97.5	0.110	9.00	0.041	4.00	0.00750	0.61	0.0054	0.53	0.0824	8.00	1.88E-03	0.18	130.1	12,682	6.61E-03	0.64	1.32E-03	0.13	130.6	12,734
F-8210	Isodewaxing/ Hydrofinishing	82	51.6	1.25	1.25	1.5	1.5	64.5	64.5	77.4	77.4	0.030	1.94	0.041	3.17	0.00750	0.48	0.0054	0.42	0.0369	2.86	1.88E-03	0.15	130.1	10,073	6.61E-03	0.51	1.32E-03	0.10	130.6	10,115
F-8220	Isodewaxing/ Hydrofinishing	82	86.0	1.25	1.25	1.5	1.5	107.5	107.5	129.0	129.0	0.030	3.23	0.041	5.29	0.00750	0.81	0.0054	0.70	0.2955	19.06	1.88E-03	0.24	130.1	16,779	6.61E-03	0.85	1.32E-03	0.17	130.6	16,848
F-8250	Isodewaxing/ Hydrofinishing	82	44.0	1.25	1.25	1.5	1.5	55.0	55.0	66.0	66.0	0.030	1.65	0.041	2.70	0.00750	0.41	0.0054	0.36	0.0369	2.44	1.88E-03	0.12	130.1	8,585	6.61E-03	0.44	1.32E-03	0.09	130.6	8,620
F-8280	Isodewaxing/ Hydrofinishing	82	70.1	1.25	1.25	1.5	1.5	87.7	87.7	105.2	105.2	0.030	2.63	0.041	4.31	0.00750	0.66	0.0054	0.57	0.0370	3.89	1.88E-03	0.20	130.1	13,683	6.61E-03	0.70	1.32E-03	0.14	130.6	13,739
F-8300A	Coker	83	203.5	1.25	1.25	1.5	1.5	254.4	254.4	305.3	305.3	0.098	24.93	0.041	12.51	0.00745	1.90	0.0054	1.65	0.1805	55.10	1.88E-03	0.57	130.1	39,705	6.61E-03	2.02	1.32E-03	0.40	130.6	39,868
F-8300B	Coker	83	203.5	1.25	1.25	1.5	1.5	254.4	254.4	305.3	305.3	0.098	24.93	0.041	12.51	0.00745	1.90	0.0054	1.65	0.1805	55.10	1.88E-03	0.57	130.1	39,705	6.61E-03	2.02	1.32E-03	0.40	130.6	39,868
F-8300C	Coker	83	203.5	1.40	1.25	1.5	1.5	284.9	254.4	305.3	305.3	0.098	27.92	0.041	12.51	0.00745	1.90	0.0054	1.65	0.1805	55.10	1.88E-03	0.57	130.1	39,705	6.61E-03	2.02	1.32E-03	0.40	130.6	39,868
											Total		**414.62**		**243.08**		**35.45**		**25.20**		**878.43**		**11.39**		**755,461**		**37.18**		**7.36**		**758,453**

Notes:

(a) For short-term emission estimates (lb/hr) of NOx and PM, the MMBtu/hr values are scaled to account for short-term variability consistent with current lb/hr limits or post-Project lb/hr limits being established as part of this permitting action. See Table A-42 for additional details.
(b) For short-term emission estimates (lb/hr) of CO, SO2, VOC, H2SO4 and GHG, the maximum heat input values (MMBtu/hr) are scaled to account for short-term variability consistent with current lb/hr limits
(c) NOx emission factors for heaters firing refinery fuel gas (RFG) are based on those established by previous permitting actions, including the Pascagoula Refinery Improvement Project (PRIP) and the Pascagoula Base Oil Project (PBOP).
(d) SO_2 emission factor for heaters firing RFG is based on the short-term average total reduced sulfur content (TRS) of 250 ppm in RFG, and is calculated as follows:

Emissions (lb SO2 / MMBtu) = (ppmv S / 1,000,000 [lb mol gas / lb mol S] / 379 [scf / lb mol gas] x 1 [lb mol SO2 / lb mol S] x 64 [lb SO2 / lb mol SO2] / 1020 [Btu/scf] x 1,000,000 [Btu/MMBtu]) x 0.99

(e) $PM/PM_{10}/PM_{2.5}$ emission factors are based on typical stack test data, AP-42, and past air permitting actions. The emission factors vary because the basis for each process heater varies.
(f) VOC emission factors for heaters firing RFG are based on typical stack test data.
(g) CO emission factors for heaters firing RFG are based on those established by previous permitting actions, including PRIP and PBOP.
(h) H_2SO_4 emission factors assume a 3% conversion of SO_2 emissions, and are calculated as follows:

H_2SO_4 emissions (lb/MMBtu) = SO_2 (lb/MMBtu) x 0.01 x MW-H_2SO_4 (lb/lb mole) / MW-SO_2 (lb/lb mol)

(i) Greenhouse gas (GHG) emission factors from 40 CFR Part 98 Subpart C. CO_2e emissions calculated using Part 98 Subpart A global warming potentials.
(j) For the turbine KGT-6410, the NOx, CO, VOC, SO_2 and PM emission factors are referenced from AP-42 Section 3.1 for natural gas firing.

Note: The full increase in steam demand due to the Project is assumed to be met by F-2101.

Table A-9 Affected Combustion Sources HAP Emission Calculations

Chevron - Pascagoula
Pascagoula Aggregate PSD Project

Unit	Plant Name	Plant Number	Fuel	Baseline Actual Heat Input (MMBtu/hr)	Potential Heat Input (MMBtu/hr)	Change (MMBtu/hr)	Potential HAP Emissions ton/yr	HAP Emissions Change ton/yr
F-1101/1102	Crude I	11	RFG	576.5	611.6	35.1	1.06E+00	6.09E-02
F-1501/1502/1503	Rheniformer I/NHT I	15	RFG	146.4	493.0	346.6	8.56E-01	6.02E-01
F-2101	Boiler Plant	21	RFG	100.2	265.0	164.8	4.60E-01	2.86E-01
F-2201	Hydrofiner	22	RFG	40.8	48.0	7.2	8.34E-02	1.25E-02
F-34401	Shipping	45	NG	1.2	3.3	2.1	2.68E-02	1.66E-02
F-6101/6102	Crude II	61	RFG	481.4	600.0	118.6	1.04E+00	2.06E-01
F-6410	Hydrogen II	64	RFG	561.8	730.0	168.2	1.27E+00	2.92E-01
KGT-6410	Hydrogen II	64	NG	180.4	217.0	36.6	1.76E+00	2.97E-01
F-8110	RDS	81	RFG	46.4	65.0	18.6	1.13E-01	3.23E-02
F-8210	Isodewaxing/ Hydrofinishing	82	RFG	23.9	51.6	27.8	8.97E-02	4.82E-02
F-8220	Isodewaxing/ Hydrofinishing	82	RFG	50.6	86.0	35.4	1.49E-01	6.15E-02
F-8250	Isodewaxing/ Hydrofinishing	82	RFG	20.0	44.0	24.0	7.64E-02	4.17E-02
F-8280	Isodewaxing/ Hydrofinishing	82	RFG	37.0	70.1	33.1	1.22E-01	5.76E-02
F-8300A	Coker	83	RFG	212.4	203.5	-8.9	3.53E-01	-1.54E-02
F-8300B	Coker	83	RFG	222.0	203.5	-18.5	3.53E-01	-3.22E-02
F-8300C	Coker	83	RFG	225.1	203.5	-21.6	3.53E-01	-3.75E-02
			Total	2,926	3,895	969	8.17E+00	1.93E+00
			Total - RFG	2,744	3,675	930	6.38E+00	1.62E+00
			Total - NG	182	220	39	1.79E+00	3.14E-01

Pollutant	RFG Emission Factor (lb/MMBtu)	NG Emission Factor (lb/MMscf)	RFG Potential Emissions (ton/yr)	RFG Emission Change (ton/yr)	NG Potential Emissions (ton/yr)	NG Emission Change (ton/yr)	Total Potential Emissions (ton/yr)	Total Emission Change (ton/yr)
Acetaldehyde	1.53E-05	0.00E+00	2.46E-01	6.23E-02	0.00E+00	0.00E+00	2.46E-01	6.23E-02
Antimony	5.17E-07	0.00E+00	8.32E-03	2.11E-03	0.00E+00	0.00E+00	8.32E-03	2.11E-03
Arsenic	8.50E-07	2.00E-04	1.37E-02	3.46E-03	1.89E-04	3.32E-05	1.39E-02	3.50E-03
Benzene	6.47E-05	2.10E-03	1.04E+00	2.64E-01	1.99E-03	3.49E-04	1.04E+00	2.64E-01
Beryllium	0.00E+00	1.20E-05	0.00E+00	0.00E+00	1.14E-05	1.99E-06	1.14E-05	1.99E-06
Cadmium	9.88E-07	1.10E-03	1.59E-02	4.03E-03	1.04E-03	1.83E-04	1.69E-02	4.21E-03
Chromium	1.07E-06	1.40E-03	1.72E-02	4.36E-03	1.32E-03	2.32E-04	1.85E-02	4.59E-03
Cobalt	0.00E+00	8.40E-05	0.00E+00	0.00E+00	7.95E-05	1.39E-05	7.95E-05	1.39E-05
Dichlorobenzene	0.00E+00	1.20E-03	0.00E+00	0.00E+00	1.14E-03	1.99E-04	1.14E-03	1.99E-04
Ethylbenzene	3.02E-05	0.00E+00	4.86E-01	1.23E-01	0.00E+00	0.00E+00	4.86E-01	1.23E-01
Formaldehyde	1.11E-04	7.50E-02	1.79E+00	4.52E-01	7.09E-02	1.25E-02	1.86E+00	4.65E-01
Hexane	0.00E+00	1.80E+00	0.00E+00	0.00E+00	1.70E+00	2.99E-01	1.70E+00	2.99E-01
Lead	4.89E-06	5.00E-04	7.87E-02	1.99E-02	4.73E-04	8.30E-05	7.92E-02	2.00E-02
Manganese	6.81E-06	3.80E-04	1.10E-01	2.78E-02	3.59E-04	6.31E-05	1.10E-01	2.78E-02
Mercury	1.80E-07	2.60E-04	2.90E-03	7.34E-04	2.46E-04	4.32E-05	3.14E-03	7.77E-04
Naphthalene	3.13E-07	6.10E-04	5.04E-03	1.28E-03	5.77E-04	1.01E-04	5.62E-03	1.38E-03
Nickel	9.42E-06	2.10E-03	1.52E-01	3.84E-02	1.99E-03	3.49E-04	1.54E-01	3.87E-02
Phenol	5.63E-06	0.00E+00	9.06E-02	2.29E-02	0.00E+00	0.00E+00	9.06E-02	2.29E-02
Polycyclic Organic Matter	3.29E-07	8.82E-05	5.29E-03	1.34E-03	8.34E-05	1.46E-05	5.38E-03	1.35E-03
Selenium	1.96E-08	2.40E-05	3.15E-04	7.99E-05	2.27E-05	3.99E-06	3.38E-04	8.39E-05
Toluene	1.07E-04	3.40E-03	1.72E+00	4.36E-01	3.22E-03	5.65E-04	1.73E+00	4.37E-01
Xylenes	3.73E-05	0.00E+00	6.00E-01	1.52E-01	0.00E+00	0.00E+00	6.00E-01	1.52E-01

NG emission factors from AP-42 Table 1.4-3 and Table 1.4-4.
RFG emission factors obtained from Table D-11b in Appendix D of EPA's *Emissions Estimation Protocol for Petroleum Refineries* , Version 3.0, April 20, 2015.

Natural Gas Heat Content: 1,020 Btu/scf
Annual Operating Hours: 8760 hr/yr

Table A-10.1 Incremental Annual Emissions from Unloading Barges (Purchased Feeds)

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Incremental Purchased Feeds

2016-2017 Baseline Period (CO)				
High Sulfur Vacuum Gas Oil	506,403,441	gal/yr	12,057,225	barrels/yr
Low Sulfur Vacuum Gas Oil	(87,438,482)	gal/yr	(2,081,869)	barrels/yr
Liquefied Petroleum Gas (IC4, NC4)	65,968,003	gal/yr	1,570,667	barrels/yr
Naphtha	23,897,134	gal/yr	568,979	barrels/yr
Ethanol	30,023,291	gal/yr	714,840	barrels/yr
Total	538,853,386	gal/yr	12,829,843	barrels/yr
2017-2018 Baseline Period (PM/PM10/PM2.5, VOC)				
High Sulfur Vacuum Gas Oil	317,265,255	gal/yr	7,553,935	barrels/yr
Low Sulfur Vacuum Gas Oil	(121,282,601)	gal/yr	(2,887,681)	barrels/yr
Liquefied Petroleum Gas (IC4, NC4)	64,510,459	gal/yr	1,535,963	barrels/yr
Naphtha	(15,514,492)	gal/yr	(369,393)	barrels/yr
Ethanol	31,919,621	gal/yr	759,991	barrels/yr
Total	276,898,243	gal/yr	6,592,815	barrels/yr
2020-2021 Baseline Period (SO_2)				
High Sulfur Vacuum Gas Oil	426,809,214	gal/yr	10,162,124	barrels/yr
Low Sulfur Vacuum Gas Oil	61,504,445	gal/yr	1,464,392	barrels/yr
Liquefied Petroleum Gas (IC4, NC4)	62,552,938	gal/yr	1,489,356	barrels/yr
Naphtha	28,966,843	gal/yr	689,687	barrels/yr
Ethanol	33,940,398	gal/yr	808,105	barrels/yr
Total	613,773,837	gal/yr	14,613,663	barrels/yr
2021-2022 Baseline Period (NOx)				
High Sulfur Vacuum Gas Oil	460,813,698	gal/yr	10,971,755	barrels/yr
Low Sulfur Vacuum Gas Oil	40,697,751	gal/yr	968,994	barrels/yr
Liquefied Petroleum Gas (IC4, NC4)	69,576,357	gal/yr	1,656,580	barrels/yr
Naphtha	26,640,301	gal/yr	634,293	barrels/yr
Ethanol	32,615,025	gal/yr	776,548	barrels/yr
Total	630,343,132	gal/yr	15,008,170	barrels/yr

Operating Parameters

Maximum Hourly Barge Unloading Rate	7,000	bbl/hr
Maximum Hourly Fuel Consumption Rate [(a)]	19	gal/hr
Approximate Auxiliary Engine Size [(a)]	262	kW
Approximate Auxiliary Engine Size [(a)]	2.6	MMBtu/hr
Sulfur Content [(b)]	0.10	%

Annual Fuel Consumption

2016-2017 Baseline Period (CO)		
Fuel Consumption Rate [(a)]	2.67	gal oil consumed / 1,000 barrels offloaded
Annual Average Purchased Feed Throughp	12,830	kbbl/yr
Annual Fuel Consumed	34.21	kgal/yr
Average Fuel Consumption Rate	4.721	MMBtu/yr
2017-2018 Baseline Period (PM/PM10/PM2.5,VOC)		
Fuel Consumption Rate [(a)]	2.67	gal oil consumed / 1,000 barrels offloaded
Annual Average Purchased Feed Throughp	6,593	kbbl/yr
Annual Fuel Consumed	17.58	kgal/yr
Average Fuel Consumption Rate	2.426	MMBtu/yr
2020-2021 Baseline Period (SO_2)		
Fuel Consumption Rate [(a)]	2.67	gal oil consumed / 1,000 barrels offloaded
Annual Average Purchased Feed Throughp	14,614	kbbl/yr
Annual Fuel Consumed	38.97	kgal/yr
Average Fuel Consumption Rate	5.378	MMBtu/yr
2021-2022 Baseline Period (NOx)		
Fuel Consumption Rate [(a)]	2.67	gal oil consumed / 1,000 barrels offloaded
Annual Average Purchased Feed Throughp	15,008	kbbl/yr
Annual Fuel Consumed	40.02	kgal/yr
Average Fuel Consumption Rate	5.523	MMBtu/yr

Compound	Emission Factor (lb/MMBtu)	Emission Rate (lb/hr/barge)	Emission Rate (ton/yr)
Criteria Pollutant [(b),(c)]			
NO_X	1.63	4.19	4.49
SO_2	0.11	0.28	0.29
PM	0.03	0.09	0.04
PM_{10}	0.03	0.09	0.04
$PM_{2.5}$	0.03	0.09	0.04
VOC	0.36	0.93	0.44
CO	0.95	2.45	2.24
Pb		0.00	-
Greenhouse Gases [(d)]	**(lb/MMBtu)**	**(lb/hr/barge)**	**(ton/yr)**
CO_2	165.57	426.50	390.85
CH_4	6.61E-03	1.70E-02	0.02
N_2O	1.32E-03	3.41E-03	0.00
GHG CO_2e	166.10	427.88	392.12
HAPs/Speciated Organics [(b)]	**(lb/MMBtu)**	**(lb/hr/barge)**	**(ton/yr)**
1,1,1-Trichloroethane			
Acenaphthene	1.42E-06	3.66E-06	1.72E-06
Acenaphythylene	5.06E-06	1.30E-05	6.14E-06
Acetaldehyde	7.67E-04	1.98E-03	9.30E-04
Acrolein	9.25E-05	2.38E-04	1.12E-04
Anthracene	1.87E-06	4.82E-06	2.27E-06
Antimony			
Arsenic			
Benzene	9.33E-04	2.40E-03	1.13E-03
Benzo(a)anthracene	1.68E-06	4.33E-06	2.04E-06
Benzo(a)pyrene	1.88E-07	4.84E-07	2.28E-07
Benzo(b)fluoranthene	9.91E-08	2.55E-07	1.20E-07
Benzo(b,k)fluoranthene			
Benzo(g,h,l)perylene	4.89E-07	1.26E-06	5.93E-07
Benzo(k)fluoranthene	1.55E-07	3.99E-07	1.88E-07
Beryllium			
1,3 Butadiene	3.91E-05	1.01E-04	4.74E-05
Cadmium			
Chromium			
Chromium VI			
Chrysene	3.53E-07	9.09E-07	4.28E-07
Cobalt			
Dibenz(a,h)anthracene	5.83E-07	1.50E-06	7.07E-07
Ethylbenzene			
Fluoranthene	7.61E-06	1.96E-05	9.23E-06
Fluorene	2.92E-05	7.52E-05	3.54E-05
Formaldehyde	1.18E-03	3.04E-03	1.43E-03
Indeno(1,2,3-cd)pyrene	3.75E-07	9.66E-07	4.55E-07
Manganese			
Mercury			
Naphthalene	8.48E-05	2.18E-04	1.03E-04
Nickel			
OCDD			
o-Xylene			
PAH, total	1.68E-04	4.33E-04	2.04E-04
Phenanthrene	2.94E-05	7.57E-05	3.57E-05
Pyrene	4.78E-06	1.23E-05	5.80E-06
Selenium			
Sulfuric Acid (H_2SO_4)	3% of SO_2	1.29E-02	1.34E-02
Toluene	4.09E-04	1.05E-03	4.96E-04
Xylenes	2.85E-04	7.34E-04	3.46E-04

Notes:

(a) The fuel consumption rate is the approximate actual fuel consumption rate for barge auxiliary engines. Fuel consumption in gallons per hour is converted to MMBtu/hr with a HHV of 138,000 Btu/gallon. Engine size is approximated based on fuel consumption rate.

(b) Emission Factors other than NOx and $PM/PM_{10}/PM_{2.5}$ from USEPA AP-42 Tables 3.3-1 and 3.3-2, April 2025.
It is expected that diesel engines operated on barges will use fuel with a sulfur content of 0.1% based on current requirements for marine vessels within Emission Control Areas (ECAs) designated under regulation 13 of MARPOL Annex VI. SO_2 emission factor is calculated from fuel sulfur content assuming all sulfur is converted to SO_2 and an estimated fuel density of 7.5 lb/gallon. It is assumed that 3% of the SO_2 is further oxidized to SO_3, which then forms sulfuric acid mist.
(c) Emission Factors for NOx and $PM/PM_{10}/PM_{2.5}$ are estimated fleet averages based on a median life of 17 years for auxiliary marine diesel engines from *EPA Regulatory Impact Analysis*, EPA420-R-08-001, March 2008 along with United States Uncontrolled, Tier 2 and Tier 3 marine diesel engine emission factors from Appendix H of *Ports Emissions Inventory Guidance*, EPA-420-B-22-011, April 2022.

(d) lb/MMBtu factors are based on the EPA rule "Mandatory Reporting of Greenhouse Gases", Tables C-1 and C-2. Global Warming Potentials from 89 FR 31894, Apr. 25, 2024.

Table A-10.2 Incremental Annual Emissions from Unloading Ships and Barges (Purchased Feeds)

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Incremental Purchased Feeds				
2016-2017 Baseline Period (CO)				
High Sulfur Vacuum Gas Oil	506,403,441	gal/yr	12,057,225	barrels/yr
Low Sulfur Vacuum Gas Oil	(87,438,482)	gal/yr	(2,081,869)	barrels/yr
Crude Oil	80,177,941	gal/yr	1,908,999	barrels/yr
Total	499,142,900	gal/yr	11,884,355	barrels/yr
2017-2018 Baseline Period (PM/PM10/PM2.5,VOC)				
High Sulfur Vacuum Gas Oil	317,265,255	gal/yr	7,553,935	barrels/yr
Low Sulfur Vacuum Gas Oil	(121,282,601)	gal/yr	(2,887,681)	barrels/yr
Crude Oil	1,837,710,467	gal/yr	43,755,011	barrels/yr
Total	2,033,693,121	gal/yr	48,421,265	barrels/yr
2020-2021 Baseline Period (SO_2)				
High Sulfur Vacuum Gas Oil	426,809,214	gal/yr	10,162,124	barrels/yr
Low Sulfur Vacuum Gas Oil	61,504,445	gal/yr	1,464,392	barrels/yr
Crude Oil	4,260,316,680	gal/yr	101,436,111	barrels/yr
Total	4,748,630,339	gal/yr	113,062,627	barrels/yr
2021-2022 Baseline Period (NOx)				
High Sulfur Vacuum Gas Oil	460,813,698	gal/yr	10,971,755	barrels/yr
Low Sulfur Vacuum Gas Oil	40,697,751	gal/yr	968,994	barrels/yr
Crude Oil	4,750,601,916	gal/yr	113,109,569	barrels/yr
Total	5,252,113,365	gal/yr	125,050,318	barrels/yr

Operating Parameters				
Fuel Consumption Rate for Ship Offloading [(a)]	5.5	gal oil consumed / 1,000 bbl offloaded		
Hourly Fuel Consumption				
Maximum Hourly Throughput	29	kbbl/hr/ship		
Hourly Fuel Consumed	0.160	kgal/hr/ship		
Hourly Fuel Consumption Rate	23.9	MMBtu/hr/ship		
Annual Fuel Consumption				
2016-2017 Baseline Period (CO)	Crude		VGO	
Annual Average Throughput	11,884	kbbl/yr	9,975	kbbl/yr
Annual Fuel Consumed	65.4	kgal/yr	54.9	kgal/yr
Average Fuel Consumption Rate	1.12	MMBtu/hr	0.94	MMBtu/hr
2017-2018 Baseline Period (PM/PM10/PM2.5,VOC)	Crude		VGO	
Annual Average Throughput	43,755	kbbl/yr	4,666	kbbl/yr
Annual Fuel Consumed	240.7	kgal/yr	25.7	kgal/yr
Average Fuel Consumption Rate	4.12	MMBtu/hr	0.44	MMBtu/hr
2020-2021 Baseline Period (SO_2)	Crude		VGO	
Annual Average Throughput	101,436	kbbl/yr	11,627	kbbl/yr
Annual Fuel Consumed	557.9	kgal/yr	63.9	kgal/yr
Average Fuel Consumption Rate	9.55	MMBtu/hr	1.09	MMBtu/hr
2021-2022 Baseline Period (NOx)	Crude		VGO	
Annual Average Throughput	113,110	kbbl/yr	11,941	kbbl/yr
Annual Fuel Consumed	622.1	kgal/yr	65.7	kgal/yr
Average Fuel Consumption Rate	10.65	MMBtu/hr	1.12	MMBtu/hr
Sulfur Content [(b)]	0.10	%		

Compound	Ships (not including VGO)			Barges (not including VGO)	Ships (VGO)	Barges (VGO)	Maximum (Unloading VGO to All Barges or Ships and Barges) [f]
	Emission Factor [c]	Emission Rate	Emission Rate	Emission Rate	Emission Rate	Emission Rate	Emission Rate
Criteria Pollutants	**(lb/kgal)**	**(lb/hr/ship)**	**(ton/yr)**	**(ton/yr)**	**(ton/yr)**	**(ton/yr)**	**(ton/yr)**
NOx	55	8.8	17.11	0.92	1.81	3.57	21.60
SO2	157S	2.5	4.38	0.06	0.50	0.23	4.94
PM	9.19S+3.22 +1.5	0.9	0.68	0.01	0.07	0.03	0.76
PM10	0.86FPM +1.5	0.8	0.61	0.01	0.06	0.03	0.69
PM2.5	0.56FPM +1.5	0.6	0.46	0.01	0.05	0.03	0.52
VOC	0.76	0.12	0.09	0.13	0.01	0.31	0.53
CO	5.0	0.80	0.16	0.50	0.14	1.74	2.41
Pb	1.51E-03	2.41E-04	1.82E-04	0.00E+00	1.94E-05	0.00E+00	0.00
Greenhouse Gases	**lb/MMBtu**	**(lb/hr/ship)**	**(ton/yr)**	**(ton/yr)**	**(ton/yr)**	**(ton/yr)**	**(ton/yr)**
CO_2	165.57 (d)	3961.2	811.66	87.0	681.28	303.9	1,579.9
CH_4	0.0066 (d)	0.158	0.0324	0.0035	0.0272	0.0121	0.0631
N_2O	0.0013 (d)	0.032	0.0065	0.0007	0.0054	0.0024	0.0126
GHG CO_2e	166.10 (e)	3974.0	814.29	87.2	683.49	304.9	1,585.0
HAPs/Speciated Organics	**(lb/kgal)**	**(lb/hr/ship)**	**(ton/yr)**	**(ton/yr)**	**(ton/yr)**	**(ton/yr)**	**(ton/yr)**
1,1,1-Trichloroethane	2.36E-04	3.76E-05	2.84E-05	0.00E+00	3.03E-06	0.00E+00	3.14E-05
Acenaphthene	2.11E-05	3.37E-06	2.54E-06	5.03E-07	2.71E-07	1.22E-06	4.26E-06
Acenaphythylene	2.53E-07	4.04E-08	3.04E-08	1.79E-06	3.25E-09	4.34E-06	6.17E-06
Acetaldehyde				2.72E-04	0.00E+00	6.59E-04	9.30E-04
Acrolein				3.28E-05	0.00E+00	7.94E-05	1.12E-04
Anthracene	1.22E-06	1.95E-07	1.47E-07	6.63E-07	1.57E-08	1.61E-06	2.42E-06
Antimony	5.25E-03	8.37E-04	6.32E-04	0.00E+00	6.74E-05	0.00E+00	6.99E-04
Arsenic	1.32E-03	2.11E-04	1.59E-04	0.00E+00	1.69E-05	0.00E+00	1.76E-04
Benzene	2.14E-04	3.41E-05	2.57E-05	3.31E-04	2.75E-06	8.01E-04	1.16E-03
Benz(a)anthracene	4.01E-06	6.40E-07	4.83E-07	5.96E-07	5.15E-08	1.44E-06	2.52E-06
Benzo(a)pyrene				6.66E-08	0.00E+00	1.61E-07	2.28E-07
Benzo(b)fluoranthene				3.51E-08	0.00E+00	8.51E-08	1.20E-07
Benzo(b,k)fluoranthene	1.48E-06	2.36E-07	1.78E-07	0.00E+00	1.90E-08	0.00E+00	1.97E-07
Benzo(g,h,i)perylene	2.26E-06	3.60E-07	2.72E-07	1.73E-07	2.90E-08	4.20E-07	8.65E-07
Benzo(k)fluoranthene				5.49E-08	0.00E+00	1.33E-07	1.88E-07
Beryllium	2.78E-05	4.43E-06	3.35E-06	0.00E+00	3.57E-07	0.00E+00	3.70E-06
1,3 Butadiene				1.39E-05	0.00E+00	3.36E-05	4.74E-05
Cadmium	3.98E-04	6.35E-05	4.79E-05	0.00E+00	5.11E-06	0.00E+00	5.30E-05
Chromium	8.45E-04	1.35E-04	1.02E-04	0.00E+00	1.08E-05	0.00E+00	1.13E-04
Chromium VI	2.48E-04	3.96E-05	2.98E-05	0.00E+00	3.18E-06	0.00E+00	3.30E-05
Chrysene	2.38E-06	3.80E-07	2.86E-07	1.25E-07	3.05E-08	3.03E-07	7.15E-07
Cobalt	6.02E-03	9.60E-04	7.24E-04	0.00E+00	7.72E-05	0.00E+00	8.02E-04
Dibenz(a,h)anthracene	1.67E-06	2.66E-07	2.01E-07	2.07E-07	2.14E-08	5.01E-07	9.08E-07
Ethylbenzene	6.36E-05	1.01E-05	7.65E-06	0.00E+00	8.16E-07	0.00E+00	8.47E-06
Fluoranthene	4.84E-06	7.72E-07	5.82E-07	2.70E-06	6.21E-08	6.53E-06	9.81E-06
Fluorene	4.47E-06	7.13E-07	5.38E-07	1.04E-05	5.74E-08	2.51E-05	3.60E-05
Formaldehyde	3.30E-02	5.26E-03	3.97E-03	4.18E-04	4.23E-04	1.01E-03	5.40E-03
Indo(1,2,3-cd) pyrene	2.14E-06	3.41E-07	2.57E-07	1.33E-07	2.75E-08	3.22E-07	7.12E-07
Manganese	3.00E-03	4.79E-04	3.61E-04	0.00E+00	3.85E-05	0.00E+00	3.99E-04
Mercury	1.13E-04	1.80E-05	1.36E-05	0.00E+00	1.45E-06	0.00E+00	1.50E-05
Naphthalene	1.13E-03	1.80E-04	1.36E-04	3.01E-05	1.45E-05	7.28E-05	2.39E-04
Nickel	8.45E-02	1.35E-02	1.02E-02	0.00E+00	1.08E-03	0.00E+00	1.13E-02
OCDD	3.10E-09	4.94E-10	3.73E-10	0.00E+00	3.98E-11	0.00E+00	4.13E-10
o-Xylene	1.09E-04	1.74E-05	1.31E-05	0.00E+00	1.40E-06	0.00E+00	1.45E-05
PAH, total	1.19E-03	1.90E-04	1.43E-04	5.96E-05	1.53E-05	1.44E-04	3.47E-04
Phenanthrene	1.05E-05	1.67E-06	1.26E-06	1.04E-05	1.35E-07	2.52E-05	3.69E-05
Pyrene	4.25E-06	6.78E-07	5.11E-07	1.69E-06	5.45E-08	4.10E-06	6.31E-06
Selenium	6.83E-04	1.09E-04	8.22E-05	0.00E+00	8.76E-06	0.00E+00	9.09E-05
Sulfuric Acid (H_2SO_4)	2S*98/80	3.91E-02	2.95E-02	3.92E-03	3.14E-03	9.50E-03	4.29E-02
Toluene	6.20E-03	9.89E-04	7.46E-04	1.45E-04	7.96E-05	3.51E-04	1.24E-03
Xylenes	1.09E-04	1.74E-05	1.31E-05	1.01E-04	1.40E-06	2.45E-04	3.59E-04

Notes:

(a) Unloading rate based on historical actual fuel consumption data for barges adjusted for the efficiency of ship pump offloading.

(b) The average fuel sulfur content of 0.1% for ships is based on current Requirements for marine vessels within Emission Control Areas (ECAs) designated under regulation 13 of MARPOL Annex VI.

(c) Emission Factors referenced from USEPA AP-42 Tables 1.3-1 through 1.3-3, 1.3-5, 13.9 and 1.3-11, May 2010. 100% of the SO_3 is assumed to react with water vapor to form sulfuric acid mist.

(d) lb/MMBtu factors are based on the EPA rule "Mandatory Reporting of Greenhouse Gases", Tables C-1 and C-2.

(e) Global Warming Potentials from 89 FR 31894, Apr. 25, 2024.

(f) Vacuum Gas Oil can be offloaded via ships or barges. The maximum emissions are determined from either offloading all Vacuum Gas Oil via barges as presented in 'Table A-10.1 Incremental Annual Emissions from Unloading Barges (Purchased Feeds)' or offloading all Vacuum Gas Oil via ships as presented in this table.

Table A-11 Summary of PM Emissions from Fugitive Dust

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

PM Emission Estimates

Product	Baseline PM Emissions (ton/yr)	Future PM Emissions (ton/yr)	PM Emissions Increase (ton/yr)
Truck Loading at Marketing Terminal	9.96E+00	3.73E-01	-9.59E+00
Coker Trucking (Entry Into Facility)	3.39E-03	2.98E-02	2.64E-02
Coker Trucking (Inside Plant)	7.41E-02	2.24E+00	2.17E+00
Coker Trucking (Exit to HWY611)	1.00E-03	1.13E-02	1.03E-02
Coke Pile Wind Erosion	2.32E+00	1.38E+00	-9.45E-01
Coke Transfer Points	3.93E+00	4.57E+00	6.37E-01
Coke Pile Bulldozing	1.45E+01	9.55E+00	-5.00E+00
Total	3.08E+01	1.81E+01	-1.27E+01

PM_{10} Emission Estimates

Product	Baseline PM_{10} Emissions (ton/yr)	Future PM_{10} Emissions (ton/yr)	PM_{10} Emissions Increase (ton/yr)
Truck Loading at Marketing Terminal	1.99E+00	7.45E-02	-1.92E+00
Coker Trucking (Entry Into Facility)	6.77E-04	5.96E-03	5.28E-03
Coker Trucking (Inside Plant)	1.48E-02	4.48E-01	4.33E-01
Coker Trucking (Exit to HWY611)	2.00E-04	2.26E-03	2.06E-03
Coke Pile Wind Erosion	1.16E+00	6.88E-01	-4.73E-01
Coke Transfer Points	1.86E+00	2.16E+00	3.01E-01
Coke Pile Bulldozing	3.98E+00	2.63E+00	-1.35E+00
Total	9.01E+00	6.01E+00	-2.99E+00

$PM_{2.5}$ Emission Estimates

Product	Baseline $PM_{2.5}$ Emissions (ton/yr)	Future $PM_{2.5}$ Emissions (ton/yr)	$PM_{2.5}$ Emissions Increase (ton/yr)
Truck Loading at Marketing Terminal	4.89E-01	1.83E-02	-4.71E-01
Coker Trucking (Entry Into Facility)	1.66E-04	1.46E-03	1.30E-03
Coker Trucking (Inside Plant)	3.64E-03	1.10E-01	1.06E-01
Coker Trucking (Exit to HWY611)	4.92E-05	5.54E-04	5.05E-04
Coke Pile Wind Erosion	1.74E-01	1.03E-01	-7.09E-02
Coke Transfer Points	2.82E-01	3.27E-01	4.56E-02
Coke Pile Bulldozing	3.20E-01	2.10E-01	-1.10E-01
Total	1.27E+00	7.71E-01	-4.98E-01

Table A-12 Baseline Fugitive Dust Emissions for Trucks at the Marketing Terminal

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Haul Truck Route: **Product Truck Loading**

PARAMETERS			
Baseline Annual Product Rate	359,131,262	gal/yr	Based on the baseline throughput of gasoline, ethanol, diesel, and jet fuel for the PMT to be shipped offsite via trucks
Approximate Combined Density of all the products	6.2	lb/gal	Based on product mix
Baseline Annual Product Rate	1,111,175	tons/year	= gal/year * lb/gal * ton/2,000 lb
Truck Capacity	17	tons	Truck with max. load minus truck tare weight
Daily number of trucks	175	trucks per day	Annual number of trucks divided by 365 days per year
Annual number of trucks	63,751	trucks per year	Annual product tonnage divided by the truck capacity
Mean Vehicle Weight:	26	tons	Based on the average of the full weight and tare weight of the trucks
Total distance traveled	0.34	miles	Sum of ENT01, 02, 04, 05, 06 and REL01.

Uncontrolled emission factor from AP-42, Section 13.2.1: *Paved Roadways* (01/11), Equations (1) and (2)

For short-term emissions (Eqn. 1):

$$E = k\,(sL)^{0.91} \times (W)^{1.02}$$

For annual emissions (Eqn. 2):

$$E_{ext} = [\,k\,(sL)^{0.91} \times (W)^{1.02}\,]\,(1 - P/4N)$$

where:

k= 0.011 [lb/VMT - Particle size multiplier for PM_{30} from AP-42 Table 13.2.1-1]
k= 0.0022 [lb/VMT - Particle size multiplier for PM_{10} from AP-42 Table 13.2.1-1]
k= 0.00054 [lb/VMT - Particle size multiplier for $PM_{2.5}$ from AP-42 Table 13.2.1-1]
sL= 21.58 [g/m2; sampling conducted on the PMT roads at the Refinery]
P= 110 [Number of days with at least 0.01 inches of precipitation annually, AP-42 Figure 13.2.1-2]
N= 365 [Total No. of Days per year]
Control Efficiency = 80%

Road Information	Incremental Truck Traffic Information				Short Term Emission Factors			Annual Emission Factors			Control Efficiency (%)	Short Term Emissions			Annual Emissions		
	Truck Trips/Year	Mean Truck Weight (tons)	Max Daily Vehicle Miles Travelled (VMT/day)	Annual Vehicle Miles Travelled (VMT/year)	E (lb PM/VMT)	E (lb PM_{10}/VMT)	E (lb $PM_{2.5}$/VMT)	E (lb PM/VMT)	E (lb PM_{10}/VMT)	E (lb $PM_{2.5}$/VMT)		24-hour Average PM Emissions (lb/hr)	24-hour Average PM_{10} Emissions (lb/hr)	24-hour Average $PM_{2.5}$ Emissions (lb/hr)	Annual PM Emissions (tpy)	Annual PM_{10} Emissions (tpy)	Annual $PM_{2.5}$ Emissions (tpy)
PMT Roads	63,751	26.15	58.75	21,442.21	5.025	1.005	0.247	4.646	0.929	0.228	80%	2.460	0.492	0.121	9.962	1.992	0.489

1). For truck travel at the marketing terminal, a control efficiency of 80% was assumed based on broom sweeping twice per week. This efficiency reflects more frequent sweeping than the New York State Department of Environmental Conservation's (NYSDEC) analysis, but a similar control efficiency, as NYSDEC estimated fugitive dust emissions from paved road traffic for PM10 based on a control efficiency of 79 percent for vacuum sweeping twice per month.

Table A-13 Post-Project Fugitive Dust Emissions for Trucks at the Marketing Terminal

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Haul Truck Route: **Product Truck Loading**

PARAMETERS			
Future Actual Annual Product Rate	600,000,000	gal/yr	Based on the baseline throughput of gasoline, ethanol, diesel, and jet fuel for the PMT to be shipped offsite via trucks
Approximate Combined Density of all the products	6.2	lb/gal	Based on product mix
Future Actual Annual Product Rate	1,856,438	tons/year	= gal/year * lb/gal * ton/2,000 lb
Truck Capacity	17	tons	Truck with max. load minus truck tare weight
Daily number of trucks	350	trucks per day	Annual number of trucks divided by 365 days per year with a 20% safety factor
Annual number of trucks	106,508	trucks per year	Annual product tonnage divided by the truck capacity
Mean Vehicle Weight:	26	tons	Based on the average of the full weight and tare weight of the trucks
Total distance traveled	0.34	miles	Sum of ENT01, 02, 04, 05, 06 and REL01.

Uncontrolled emission factor from AP-42, Section 13.2.1: *Paved Roadways* (01/11), Equations (1) and (2)

For short-term emissions (Eqn. 1):

$$E = k\,(sL)^{0.91} \times (W)^{1.02}$$

For annual emissions (Eqn. 2):

$$E_{ext} = [\,k\,(sL)^{0.91} \times (W)^{1.02}\,]\,(1 - P/4N)$$

where:

k= 0.011 [lb/VMT - Particle size multiplier for PM_{30} from AP-42 Table 13.2.1-1]
k= 0.0022 [lb/VMT - Particle size multiplier for PM_{10} from AP-42 Table 13.2.1-1]
k= 0.00054 [lb/VMT - Particle size multiplier for $PM_{2.5}$ from AP-42 Table 13.2.1-1]
sL= 0.33 [g/m2; sampling conducted for PMT roads at the Refinery]
P= 110 [Number of days with at least 0.01 inches of precipitation annually, AP-42 Figure 13.2.1-2]
N= 365 [Total No. of Days per year]
Control Efficiency = 80% Control efficiency for twice per week street sweeping

Road Information	Incremental Truck Traffic Information				Short Term Emission Factors			Annual Emission Factors			Control Efficiency (%) [1]	Short Term Emissions			Annual Emissions		
	Truck Trips/Year	Mean Truck Weight (tons)	Max Daily Vehicle Miles Travelled (VMT/day)	Annual Vehicle Miles Travelled (VMT/year)	E (lb PM/VMT)	E (lb PM_{10}/VMT)	E (lb $PM_{2.5}$/VMT)	E (lb PM/VMT)	E (lb PM_{10}/VMT)	E (lb $PM_{2.5}$/VMT)		24-hour Average PM Emissions (lb/hr)	24-hour Average PM_{10} Emissions (lb/hr)	24-hour Average $PM_{2.5}$ Emissions (lb/hr)	Annual PM Emissions (tpy)	Annual PM_{10} Emissions (tpy)	Annual $PM_{2.5}$ Emissions (tpy)
PMT Roads	106,508	26.15	117.78	35,823.46	0.113	0.023	0.006	0.104	0.021	0.005	80%	0.110	0.022	0.005	0.373	0.075	0.018
											Baseline Emissions	2.460	0.492	0.121	9.962	1.992	0.489
											Emission Increase	(2.349)	(0.470)	(0.115)	(9.590)	(1.918)	(0.471)

1). For truck travel at the marketing terminal, a control efficiency of 80% was assumed based on broom sweeping twice per week. This efficiency reflects more frequent sweeping than the New York State Department of Environmental Conservation's (NYSDEC) analysis, but a similar control efficiency, as NYSDEC estimated fugitive dust emissions from paved road traffic for PM10 based on a control efficiency of 79 percent for vacuum sweeping twice per month.

Table A-14 Fugitive Dust Emissions for Coker Trucking Paved Roads (Entry into Facility)

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Paved Road Emissions - Coker Trucking (Entry Into Facility)

Post Project Emissions

PARAMETERS			
Maximum Operating Rate	10	Trucks/day	Assume 10 trucks to maintain daily production
Average Operating Rate	300	Trucks/yr	Period of 30-days that trucks may be used.
Mean Vehicle Weight:	33,000	lbs	Based on maximum empty weight of haul trucks

Uncontrolled emission factor from AP-42, Section 13.2.1: *Paved Roadways* (01/11), Equations (1) and (2)

Eqn. 1:

$$E = k\,(sL)^{0.91} \times (W)^{1.02}$$

Eqn. 2:

$$E_{ext} = [\,k\,(sL)^{0.91} \times (W)^{1.02}\,]\,(1 - P/4N)$$

where:
k= 0.011 [lb/VMT - Particle size multiplier for PM_{30} from AP-42 Table 13.2.1-1]
k= 0.0022 [lb/VMT - Particle size multiplier for PM_{10} from AP-42 Table 13.2.1-1]
k= 0.00054 [lb/VMT - Particle size multiplier for $PM_{2.5}$ from AP-42 Table 13.2.1-1]
sL= Varies by path [g/m2; sampling conducted on the roads at the Refinery]
P= 110 [Number of days with at least 0.01 inches of precipitation annually, AP-42 Figure 13.2.1-2]
N= 365 [Total No. of Days per year]

Coker Trucking (Entry Into Facility)			Silt Loading	Number of Wet Days	Max Daily Vehicle Miles Travelled (VMT/day)	Annual Vehicle Miles Travelled (VMT/year)	Short Term Emission Factors			Annual Emission Factors			Control Efficiency (%)	Short Term Emissions (lb/hr)			Annual Emissions (tpy)		
Portion of Route Segment Indentifier	Sample Number	Distance (ft)	g/m^2 sL	>0.01" Precip. P			E (lb PM/VMT)	E (lb PM_{10}/VMT)	E (lb $PM_{2.5}$/VMT)	E (lb PM/VMT)	E (lb PM_{10}/VMT)	E (lb $PM_{2.5}$/VMT)		24-hour Average PM Emissions	24-hour Average PM_{10} Emissions	24-hour Average $PM_{2.5}$ Emissions	Annual PM Emissions	Annual PM_{10} Emissions	Annual $PM_{2.5}$ Emissions
ENT_01	#8	429.00	0.33	110	0.813	24.38	0.07	0.01	0.003	0.07	0.01	0.003	80.00	4.76E-04	9.53E-05	2.34E-05	1.59E-04	3.17E-05	7.78E-06
ENT_04	#8	183.00	0.33	110	0.347	10.40	0.07	0.01	0.003	0.07	0.01	0.003	80.00	2.03E-04	4.06E-05	9.97E-06	6.76E-05	1.35E-05	3.32E-06
ENT_05	#8	128.00	0.33	110	0.242	7.27	0.07	0.01	0.003	0.07	0.01	0.003	80.00	1.42E-04	2.84E-05	6.98E-06	4.73E-05	9.46E-06	2.32E-06
REL_01	#8	185.00	0.33	110	0.350	10.51	0.07	0.01	0.003	0.07	0.01	0.003	80.00	2.05E-04	4.11E-05	1.01E-05	6.84E-05	1.37E-05	3.36E-06
REL_02	#13	396.00	1.25	110	0.750	22.50	0.23	0.05	0.012	0.22	0.04	0.011	-	7.33E-03	1.47E-03	3.60E-04	2.44E-03	4.88E-04	1.20E-04
REL_03	#13	134.00	1.25	110	0.254	7.61	0.23	0.05	0.012	0.22	0.04	0.011	-	2.48E-03	4.96E-04	1.22E-04	8.25E-04	1.65E-04	4.05E-05
REL_04	#14	986.00	1.19	110	1.867	56.02	0.22	0.04	0.011	0.21	0.04	0.010	-	1.75E-02	3.50E-03	8.59E-04	5.83E-03	1.17E-03	2.86E-04
REL_05	#14	151.00	1.19	110	0.286	8.58	0.22	0.04	0.011	0.21	0.04	0.010	-	2.68E-03	5.36E-04	1.32E-04	8.92E-04	1.78E-04	4.38E-05
REL_06	#14	153.00	1.19	110	0.290	8.69	0.22	0.04	0.011	0.21	0.04	0.010	-	2.72E-03	5.43E-04	1.33E-04	9.04E-04	1.81E-04	4.44E-05
REL_07	#14	309.00	1.19	110	0.585	17.56	0.22	0.04	0.011	0.21	0.04	0.010	-	5.49E-03	1.10E-03	2.69E-04	1.83E-03	3.65E-04	8.96E-05
REL_08	#15	345.00	1.64	110	0.653	19.60	0.30	0.06	0.015	0.28	0.06	0.014	-	8.21E-03	1.64E-03	4.03E-04	2.73E-03	5.47E-04	1.34E-04
AND_09	#15	358.00	1.64	110	0.678	20.34	0.30	0.06	0.015	0.28	0.06	0.014	-	8.52E-03	1.70E-03	4.18E-04	2.84E-03	5.67E-04	1.39E-04
AND_10	#15	501.00	1.64	110	0.949	28.47	0.30	0.06	0.015	0.28	0.06	0.014	-	1.19E-02	2.38E-03	5.85E-04	3.97E-03	7.94E-04	1.95E-04
AND_11	#15	748.00	1.64	110	1.417	42.50	0.30	0.06	0.015	0.28	0.06	0.014	-	1.78E-02	3.56E-03	8.74E-04	5.93E-03	1.19E-03	2.91E-04
AP_06	#19	465.00	0.51	365	0.881	26.42	0.08	0.02	0.004	0.08	0.02	0.004	-	2.87E-03	5.74E-04	1.41E-04	1.03E-03	2.07E-04	5.07E-05
AP_07	#19	109.00	0.51	365	0.206	6.19	0.08	0.02	0.004	0.08	0.02	0.004	-	6.73E-04	1.35E-04	3.30E-05	2.42E-04	4.84E-05	1.19E-05
Totals					10.57	317.05								8.92E-02	1.78E-02	4.38E-03	2.98E-02	5.96E-03	1.46E-03

NOTES:

(1) Silt loading samples from on site dust sampling at the Chevron Pascagoula Refinery.
(2) Mean Vehicle Weight, W, is based on maximum empty weight of haul trucks.
(3) Number of wet days taken from Figure 13.2.1-2 (1/11) in AP-42 Section 13.2.1, except for segments AP_06 and AP_07, which assume twice daily watering on the paved roads when coker trucking is occurring.
(4) A control efficiency of 80% was assumed for road segments within the marketing terminal loop based on broom sweeping twice per week. See 'Emissions for Trucks at the Marking Terminal' calculations for further details.

2017-2018 Actual Emissions

PARAMETERS			
Maximum Operating Rate	7	Trucks/day	Approximately 7 trucks at a time used historically.
Average Operating Rate	25	Trucks/yr	4,467 tons of coke moved on June 4, 2017; 3910 tons of coke trucked from May 16 to May 19, 2018 and 4398 tons of coke trucked from December 1 to December 2, 2018.
Mean Vehicle Weight:	33,000	lbs	Based on maximum empty weight of haul trucks

Uncontrolled emission factor from AP-42, Section 13.2.1: *Paved Roadways* (01/11), Equations (1) and (2)

For short-term emissions (Eqn. 1):

$$E = k\,(sL)^{0.91} \times (W)^{1.02}$$

For annual emissions (Eqn. 2):

$$E_{ext} = [\,k\,(sL)^{0.91} \times (W)^{1.02}\,]\,(1 - P/4N)$$

where:
k= 0.011 [lb/VMT - Particle size multiplier for PM_{30} from AP-42 Table 13.2.1-1]
k= 0.0022 [lb/VMT - Particle size multiplier for PM_{10} from AP-42 Table 13.2.1-1]
k= 0.00054 [lb/VMT - Particle size multiplier for $PM_{2.5}$ from AP-42 Table 13.2.1-1]
sL= Varies by path [g/m2; sampling conducted on the roads at the Refinery]
P= 110 [Number of days with at least 0.01 inches of precipitation annually, AP-42 Figure 13.2.1-2]
N= 365 [Total No. of Days per year]

Coker Trucking (Entry Into Facility)			Silt Loading	Number of Wet Days	Max Daily Vehicle Miles Travelled (VMT/day)	Annual Vehicle Miles Travelled (VMT/year)	Short Term Emission Factors			Annual Emission Factors			Control Efficiency (%)	Short Term Emissions (lb/hr)			Annual Emissions (tpy)		
Portion of Route Segment Indentifier	Sample Number	Distance (ft)	g/m^2 sL	>0.01" Precip. P			E (lb PM/VMT)	E (lb PM_{10}/VMT)	E (lb $PM_{2.5}$/VMT)	E (lb PM/VMT)	E (lb PM_{10}/VMT)	E (lb $PM_{2.5}$/VMT)		24-hour Average PM Emissions	24-hour Average PM_{10} Emissions	24-hour Average $PM_{2.5}$ Emissions	Annual PM Emissions	Annual PM_{10} Emissions	Annual $PM_{2.5}$ Emissions
ENT_01	#8	429.00	21.58	110	0.569	1.99	3.14	0.63	0.154	2.91	0.58	0.143	80.00	1.49E-02	2.98E-03	7.31E-04	5.78E-04	1.16E-04	2.84E-05
ENT_04	#8	183.00	21.58	110	0.243	0.85	3.14	0.63	0.154	2.91	0.58	0.143	80.00	6.35E-03	1.27E-03	3.12E-04	2.47E-04	4.93E-05	1.21E-05
ENT_05	#8	128.00	21.58	110	0.170	0.59	3.14	0.63	0.154	2.91	0.58	0.143	80.00	4.44E-03	8.89E-04	2.18E-04	1.73E-04	3.45E-05	8.47E-06
REL_01	#8	185.00	21.58	110	0.245	0.86	3.14	0.63	0.154	2.91	0.58	0.143	80.00	6.42E-03	1.28E-03	3.15E-04	2.49E-04	4.99E-05	1.22E-05
REL_02	#13	396.00	1.08	110	0.525	1.84	0.21	0.04	0.010	0.19	0.04	0.009	-	4.52E-03	9.03E-04	2.22E-04	1.75E-04	3.51E-05	8.61E-06
REL_03	#13	134.00	1.08	110	0.178	0.62	0.21	0.04	0.010	0.19	0.04	0.009	-	1.53E-03	3.06E-04	7.50E-05	5.93E-05	1.19E-05	2.91E-06
REL_04	#14	986.00	1.04	110	1.307	4.58	0.20	0.04	0.010	0.18	0.04	0.009	-	1.08E-02	2.16E-03	5.30E-04	4.19E-04	8.38E-05	2.06E-05
REL_05	#14	151.00	1.04	110	0.200	0.70	0.20	0.04	0.010	0.18	0.04	0.009	-	1.65E-03	3.30E-04	8.11E-05	6.42E-05	1.28E-05	3.15E-06
REL_06	#14	153.00	1.04	110	0.203	0.71	0.20	0.04	0.010	0.18	0.04	0.009	-	1.67E-03	3.35E-04	8.22E-05	6.50E-05	1.30E-05	3.19E-06
REL_07	#14	309.00	1.04	110	0.410	1.43	0.20	0.04	0.010	0.18	0.04	0.009	-	3.38E-03	6.76E-04	1.66E-04	1.31E-04	2.63E-05	6.45E-06
REL_08	#15	345.00	1.43	110	0.457	1.60	0.27	0.05	0.013	0.25	0.05	0.012	-	5.06E-03	1.01E-03	2.48E-04	1.97E-04	3.93E-05	9.65E-06
AND_09	#15	358.00	1.43	110	0.475	1.66	0.27	0.05	0.013	0.25	0.05	0.012	-	5.25E-03	1.05E-03	2.58E-04	2.04E-04	4.08E-05	1.00E-05
AND_10	#15	501.00	1.43	110	0.664	2.32	0.27	0.05	0.013	0.25	0.05	0.012	-	7.35E-03	1.47E-03	3.61E-04	2.85E-04	5.71E-05	1.40E-05
AND_11	#15	748.00	1.43	110	0.992	3.47	0.27	0.05	0.013	0.25	0.05	0.012	-	1.10E-02	2.19E-03	5.39E-04	4.26E-04	8.52E-05	2.09E-05
AP_06	#19	465.00	0.44	110	0.616	2.16	0.09	0.02	0.005	0.08	0.02	0.004	-	2.36E-03	4.72E-04	1.16E-04	9.16E-05	1.83E-05	4.50E-06
AP_07	#19	109.00	0.44	110	0.145	0.51	0.09	0.02	0.005	0.08	0.02	0.004	-	5.53E-04	1.11E-04	2.71E-05	2.15E-05	4.30E-06	1.05E-06
Totals					7.40	25.89								8.72E-02	1.74E-02	4.28E-03	3.39E-03	6.77E-04	1.66E-04

NOTES:

(1) Silt loading samples from on site dust sampling at the Chevron Pascagoula Refinery.
(2) Mean Vehicle Weight, W, is based on maximum empty weight of haul trucks.
(3) Number of wet days taken from Figure 13.2.1-2 in AP-42 Section 13.2.1 (1/11).
(4) A control efficiency of 80% was assumed for road segments within the marketing terminal loop based on broom sweeping twice per week. See 'Emissions for Trucks at the Marking Terminal' calculations for further details.

Table A-15 Fugitive Dust Emissions for Coker Trucking Paved Roads (Inside Plant)

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Paved Road Emissions - Coker Trucking (Inside Plant)

Post Project Emissions

PARAMETERS			
Maximum Operating Rate	7,000	tons/day	Based on the maximum production from the coke pit.
	280	trips/day	Based on the tonnage operating rate divided by the truck load weight of 50,000 pounds (rounded up).
Average Operating Rate	210,000	tons/yr	Maximum Production is limited to 30-days/year. Trucks are used when the conveyor belt is down, no more than 30 days per year.
	8,400	trips/yr	Based on the tonnage operating rate divided by the truck load weight of 50,000 pounds (rounded up).
Mean Vehicle Weight:	58,000	lbs	Based on mean of empty+max load weight, the maximum across truck types

Uncontrolled emission factor from AP-42, Section 13.2.1: *Paved Roadways* (01/11), Equations (1) and (2)

Eqn. 1:

$$E = k\,(sL)^{0.91} \times (W)^{1.02}$$

Eqn. 2:

$$E_{ext} = [\,k\,(sL)^{0.91} \times (W)^{1.02}\,]\,(1 - P/4N)$$

where:

k= 0.011 [lb/VMT - Particle size multiplier for PM_{30} from AP-42 Table 13.2.1-1]
k= 0.0022 [lb/VMT - Particle size multiplier for PM_{10} from AP-42 Table 13.2.1-1]
k= 0.00054 [lb/VMT - Particle size multiplier for $PM_{2.5}$ from AP-42 Table 13.2.1-1]
sL= Varies by path [g/m2; sampling conducted on the roads at the Refinery]
P= 365 [Number of days with at least 0.01 inches of precipitation annually, accounts for twice daily watering on the paved roads when coker trucking is occurring.]
N= 365 [Total No. of Days per year]

Coker Trucking (Inside Plant)			Silt Loading	Number of Wet Days	Max Daily	Annual Vehicle	Short Term Emission Factors			Annual Emission Factors			Control	Short Term Emissions (lb/hr)			Annual Emissions (tpy)		
Portion of Route Segment Indentifier	Sample Number	Distance (ft)	g/m^2 sL	>0.01" Precip. P	Vehicle Miles Travelled (VMT/day)	Miles Travelled (VMT/year)	E (lb PM/VMT)	E (lb PM_{10}/VMT)	E (lb $PM_{2.5}$/VMT)	E (lb PM/VMT)	E (lb PM_{10}/VMT)	E (lb $PM_{2.5}$/VMT)	Efficiency (%)	24-hour Average PM Emissions	24-hour Average PM_{10} Emissions	24-hour Average $PM_{2.5}$ Emissions	Annual PM Emissions	Annual PM_{10} Emissions	Annual $PM_{2.5}$ Emissions
AP_07	#19	109.00	0.51	365	5.780	173.41	0.14	0.03	0.007	0.14	0.0278	0.0068	-	3.35E-02	6.70E-03	1.64E-03	1.21E-02	2.41E-03	5.92E-04
PEG_01	#22	3,040.00	0.55	365	161.21	4,836.36	0.15	0.03	0.007	0.15	0.0296	0.0073	-	9.94E-01	1.99E-01	4.88E-02	3.58E-01	7.16E-02	1.76E-02
H_06	#22	546.00	0.55	365	28.95	868.64	0.15	0.03	0.007	0.15	0.0296	0.0073	-	1.78E-01	3.57E-02	8.76E-03	6.43E-02	1.29E-02	3.15E-03
H_05	#22	1,443.00	0.55	365	76.52	2,295.68	0.15	0.03	0.007	0.15	0.0296	0.0073	-	4.72E-01	9.43E-02	2.32E-02	1.70E-01	3.40E-02	8.34E-03
H_04	#23	1,577.00	0.52	365	83.63	2,508.86	0.14	0.03	0.007	0.14	0.0281	0.0069	-	4.89E-01	9.78E-02	2.40E-02	1.76E-01	3.52E-02	8.64E-03
H_03	#23	947.00	0.52	365	50.22	1,506.59	0.14	0.03	0.007	0.14	0.0281	0.0069	-	2.94E-01	5.87E-02	1.44E-02	1.06E-01	2.11E-02	5.19E-03
H_02	#24	1,467.00	0.67	365	77.80	2,333.86	0.18	0.04	0.009	0.18	0.0354	0.0087	-	5.74E-01	1.15E-01	2.82E-02	2.07E-01	4.13E-02	1.01E-02
H_01	#25	469.00	0.75	365	24.87	746.14	0.20	0.04	0.010	0.20	0.0395	0.0097	-	2.05E-01	4.09E-02	1.00E-02	7.37E-02	1.47E-02	3.62E-03
H_01	#25	469.00	0.75	365	24.87	746.14	0.20	0.04	0.010	0.20	0.0395	0.0097	-	2.05E-01	4.09E-02	1.00E-02	7.37E-02	1.47E-02	3.62E-03
H_02	#24	1,467.00	0.67	365	77.80	2,333.86	0.18	0.04	0.009	0.18	0.0354	0.0087	-	5.74E-01	1.15E-01	2.82E-02	2.07E-01	4.13E-02	1.01E-02
H_03	#23	947.00	0.52	365	50.22	1,506.59	0.14	0.03	0.007	0.14	0.0281	0.0069	-	2.94E-01	5.87E-02	1.44E-02	1.06E-01	2.11E-02	5.19E-03
H_04	#23	1,577.00	0.52	365	83.63	2,508.86	0.14	0.03	0.007	0.14	0.0281	0.0069	-	4.89E-01	9.78E-02	2.40E-02	1.76E-01	3.52E-02	8.64E-03
H_05	#22	1,443.00	0.55	365	76.52	2,295.68	0.15	0.03	0.007	0.15	0.0296	0.0073	-	4.72E-01	9.43E-02	2.32E-02	1.70E-01	3.40E-02	8.34E-03
H_06	#22	546.00	0.55	365	28.95	868.64	0.15	0.03	0.007	0.15	0.0296	0.0073	-	1.78E-01	3.57E-02	8.76E-03	6.43E-02	1.29E-02	3.15E-03
H_07	#21	725.00	0.10	365	38.45	1,153.41	0.03	0.01	0.002	0.03	0.0064	0.0016	-	5.15E-02	1.03E-02	2.53E-03	1.85E-02	3.71E-03	9.10E-04
H_08	#21	945.00	0.10	365	50.11	1,503.41	0.03	0.01	0.002	0.03	0.0064	0.0016	-	6.71E-02	1.34E-02	3.29E-03	2.42E-02	4.83E-03	1.19E-03
AP_03	#20	210.00	1.01	365	11.14	334.09	0.26	0.05	0.013	0.26	0.0519	0.0127	-	1.20E-01	2.41E-02	5.91E-03	4.33E-02	8.66E-03	2.13E-03
AP_04	#20	176.00	1.01	365	9.33	280.00	0.26	0.05	0.013	0.26	0.0519	0.0127	-	1.01E-01	2.02E-02	4.95E-03	3.63E-02	7.26E-03	1.78E-03
AP_05	#20	448.00	1.01	365	23.76	712.73	0.26	0.05	0.013	0.26	0.0519	0.0127	-	2.57E-01	5.13E-02	1.26E-02	9.24E-02	1.85E-02	4.54E-03
AP_06	#19	465.00	0.51	365	24.66	739.77	0.14	0.03	0.007	0.14	0.0278	0.0068	-	1.43E-01	2.86E-02	7.01E-03	5.14E-02	1.03E-02	2.52E-03
AP_07	#19	109.00	0.51	365	5.78	173.41	0.14	0.03	0.007	0.14	0.0278	0.0068	-	3.35E-02	6.70E-03	1.64E-03	1.21E-02	2.41E-03	5.92E-04
Totals					1,014	30,426								6.22E+00	1.24E+00	3.06E-01	2.24E+00	4.48E-01	1.10E-01

NOTES:

(1) Silt loading samples from on site dust sampling at the Chevron Pascagoula Refinery.
(2) Mean Vehicle Weight, W, is based on the mean of the empty and max load weights.
(3) Number of wet days accounts for twice daily watering on the paved roads when coker trucking is occurring.
(4) Control efficiency is already accounted for in the number of wet days. No further control will be applied.

2017-2018 Actual Emissions

PARAMETERS			
Maximum Operating Rate	1,065	tons/day	Total tonnage for 2017-2018 divided by number of days of trucking in 2017-2018.
	43	trips/day	Based on the tonnage operating rate divided by the truck load weight of 50,000 pounds (rounded up).
Average Operating Rate	6,388	tons/yr	4,467 tons of coke moved on June 4, 2017; 3910 tons of coke trucked from May 16 to May 19, 2018 and 4398 tons of coke trucked from December 1 to December 2, 2018.
	256	trips/yr	Based on the tonnage operating rate divided by the truck load weight of 50,000 pounds (rounded up).
Mean Vehicle Weight:	58,000	lbs	Based on mean of empty+max load weight, the maximum across truck types

Uncontrolled emission factor from AP-42, Section 13.2.1: *Paved Roadways* (01/11), Equations (1) and (2)

Eqn. 1:

$$E = k\,(sL)^{0.91} \times (W)^{1.02}$$

Eqn. 2:

$$E_{ext} = [\,k\,(sL)^{0.91} \times (W)^{1.02}\,]\,(1 - P/4N)$$

where:

k= 0.011 [lb/VMT - Particle size multiplier for PM_{30} from AP-42 Table 13.2.1-1]

k= 0.0022 [lb/VMT - Particle size multiplier for PM_{10} from AP-42 Table 13.2.1-1]

k= 0.00054 [lb/VMT - Particle size multiplier for $PM_{2.5}$ from AP-42 Table 13.2.1-1]

sL= Varies by path [g/m2; sampling conducted on the roads at the Refinery]

P= 110 [Number of days with at least 0.01 inches of precipitation annually, AP-42 Figure 13.2.1-2]

N= 365 [Total No. of Days per year]

Coker Trucking (Inside Plant)			Silt Loading	Number of Wet Days	Max Daily Vehicle Miles Travelled	Annual Vehicle Miles Travelled	Short Term Emission Factors			Annual Emission Factors			Control Efficiency (%)	Short Term Emissions (lb/hr)			Annual Emissions (tpy)		
Portion of Route Segment Indentifier	Sample Number	Distance (ft)	g/m^2 sL	>0.01" Precip. P	(VMT/day)	(VMT/year)	E (lb PM/VMT)	E (lb PM_{10}/VMT)	E (lb $PM_{2.5}$/VMT)	E (lb PM/VMT)	E (lb PM_{10}/VMT)	E (lb $PM_{2.5}$/VMT)		24-hour Average PM Emissions	24-hour Average PM_{10} Emissions	24-hour Average $PM_{2.5}$ Emissions	Annual PM Emissions	Annual PM_{10} Emissions	Annual $PM_{2.5}$ Emissions
AP_07	#19	109.00	0.44	110	0.888	5.28	0.16	0.03	0.008	0.15	0.0302	0.0074	-	6.04E-03	1.21E-03	2.96E-04	3.99E-04	7.98E-05	1.96E-05
PEG_01	#22	3,040.00	0.48	110	24.758	147.39	0.17	0.03	0.009	0.16	0.0321	0.0079	-	1.79E-01	3.58E-02	8.80E-03	1.18E-02	2.37E-03	5.81E-04
H_06	#22	546.00	0.48	110	4.447	26.47	0.17	0.03	0.009	0.16	0.0321	0.0079	-	3.22E-02	6.44E-03	1.58E-03	2.13E-03	4.25E-04	1.04E-04
H_05	#22	1,443.00	0.48	110	11.752	69.96	0.17	0.03	0.009	0.16	0.0321	0.0079	-	8.51E-02	1.70E-02	4.18E-03	5.62E-03	1.12E-03	2.76E-04
H_04	#23	1,577.00	0.45	110	12.843	76.46	0.16	0.03	0.008	0.15	0.0305	0.0075	-	8.82E-02	1.76E-02	4.33E-03	5.83E-03	1.17E-03	2.86E-04
H_03	#23	947.00	0.45	110	7.712	45.92	0.16	0.03	0.008	0.15	0.0305	0.0075	-	5.30E-02	1.06E-02	2.60E-03	3.50E-03	7.00E-04	1.72E-04
H_02	#24	1,467.00	0.58	110	11.947	71.13	0.21	0.04	0.010	0.19	0.0384	0.0094	-	1.03E-01	2.07E-02	5.08E-03	6.84E-03	1.37E-03	3.36E-04
H_01	#25	469.00	0.65	110	3.820	22.74	0.23	0.05	0.011	0.21	0.0429	0.0105	-	3.69E-02	7.38E-03	1.81E-03	2.44E-03	4.87E-04	1.20E-04
H_01	#25	469.00	0.65	110	3.820	22.74	0.23	0.05	0.011	0.21	0.0429	0.0105	-	3.69E-02	7.38E-03	1.81E-03	2.44E-03	4.87E-04	1.20E-04
H_02	#24	1,467.00	0.58	110	11.947	71.13	0.21	0.04	0.010	0.19	0.0384	0.0094	-	1.03E-01	2.07E-02	5.08E-03	6.84E-03	1.37E-03	3.36E-04
H_03	#23	947.00	0.45	110	7.712	45.92	0.16	0.03	0.008	0.15	0.0305	0.0075	-	5.30E-02	1.06E-02	2.60E-03	3.50E-03	7.00E-04	1.72E-04
H_04	#23	1,577.00	0.45	110	12.843	76.46	0.16	0.03	0.008	0.15	0.0305	0.0075	-	8.82E-02	1.76E-02	4.33E-03	5.83E-03	1.17E-03	2.86E-04
H_05	#22	1,443.00	0.48	110	11.752	69.96	0.17	0.03	0.009	0.16	0.0321	0.0079	-	8.51E-02	1.70E-02	4.18E-03	5.62E-03	1.12E-03	2.76E-04
H_06	#22	546.00	0.48	110	4.447	26.47	0.17	0.03	0.009	0.16	0.0321	0.0079	-	3.22E-02	6.44E-03	1.58E-03	2.13E-03	4.25E-04	1.04E-04
H_07	#21	725.00	0.09	110	5.904	35.15	0.04	0.01	0.002	0.03	0.0070	0.0017	-	9.28E-03	1.86E-03	4.56E-04	6.13E-04	1.23E-04	3.01E-05
H_08	#21	945.00	0.09	110	7.696	45.82	0.04	0.01	0.002	0.03	0.0070	0.0017	-	1.21E-02	2.42E-03	5.94E-04	7.99E-04	1.60E-04	3.92E-05
AP_03	#20	210.00	0.88	110	1.710	10.18	0.30	0.06	0.015	0.28	0.0563	0.0138	-	2.17E-02	4.34E-03	1.06E-03	1.43E-03	2.87E-04	7.03E-05
AP_04	#20	176.00	0.88	110	1.433	8.53	0.30	0.06	0.015	0.28	0.0563	0.0138	-	1.82E-02	3.64E-03	8.92E-04	1.20E-03	2.40E-04	5.90E-05
AP_05	#20	448.00	0.88	110	3.648	21.72	0.30	0.06	0.015	0.28	0.0563	0.0138	-	4.63E-02	9.26E-03	2.27E-03	3.06E-03	6.11E-04	1.50E-04
AP_06	#19	465.00	0.44	110	3.787	22.55	0.16	0.03	0.008	0.15	0.0302	0.0074	-	2.58E-02	5.15E-03	1.26E-03	1.70E-03	3.40E-04	8.35E-05
AP_07	#19	109.00	0.44	110	0.888	5.28	0.16	0.03	0.008	0.15	0.0302	0.0074	-	6.04E-03	1.21E-03	2.96E-04	3.99E-04	7.98E-05	1.96E-05
Totals					156	927								1.12E+00	2.24E-01	5.51E-02	7.41E-02	1.48E-02	3.64E-03

NOTES:

(1) Silt loading samples from on site dust sampling at the Chevron Pascagoula Refinery.

(2) Mean Vehicle Weight, W, is based on the mean of the empty and max load weights.

(3) Number of wet days taken from Figure 13.2.1-2 in AP-42 Section 13.2.1 (1/11).

(4) Control efficiency is already accounted for in the number of wet days. No further control will be applied.

Table A-16 Fugitive Dust Emissions for Coker Trucking Paved Roads (Exit to HWY611)

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Paved Road Emissions - Coker Trucking (Exit to HWY611)

Post Project Emissions

PARAMETERS			
Maximum Operating Rate	10	Trucks/day	Assume 10 trucks to maintain daily production
Average Operating Rate	300	Trucks/yr	Period of 30-days that trucks may be used.
Mean Vehicle Weight:	33,000	lbs	Based on maximum empty weight of haul trucks

Uncontrolled emission factor from AP-42, Section 13.2.1: *Paved Roadways* (01/11), Equations (1) and (2)

Eqn. 1:

$$E = k\,(sL)^{0.91} \times (W)^{1.02}$$

Eqn. 2:

$$E_{ext} = [\,k\,(sL)^{0.91} \times (W)^{1.02}\,]\,(1 - P/4N)$$

where:
k= 0.011 [lb/VMT - Particle size multiplier for PM_{30} from AP-42 Table 13.2.1-1]
k= 0.0022 [lb/VMT - Particle size multiplier for PM_{10} from AP-42 Table 13.2.1-1]
k= 0.00054 [lb/VMT - Particle size multiplier for $PM_{2.5}$ from AP-42 Table 13.2.1-1]
sL= Varies by path [g/m2; sampling conducted on the roads at the Refinery]
P= 365 [Number of days with at least 0.01 inches of precipitation annually, accounts for twice daily watering on the paved roads when coker trucking is occurring.]
N= 365 [Total No. of Days per year]

Coker Trucking (Exit to HWY611)			Silt Loading	Number of Wet Days	Max Daily Vehicle Miles Travelled	Annual Vehicle Miles Travelled	Short Term Emission Factors			Annual Emission Factors			Control Efficiency	Short Term Emissions (lb/hr)			Annual Emissions (tpy)		
Portion of Route Segment Indentifier	Sample Number	Distance (ft)	g/m^2 sL	>0.01" Precip. P	(VMT/day)	(VMT/year)	E (lb PM/VMT)	E (lb PM_{10}/VMT)	E (lb $PM_{2.5}$/VMT)	E (lb PM/VMT)	E (lb PM_{10}/VMT)	E (lb $PM_{2.5}$/VMT)	(%)	24-hour Average PM Emissions	24-hour Average PM_{10} Emissions	24-hour Average $PM_{2.5}$ Emissions	Annual PM Emissions	Annual PM_{10} Emissions	Annual $PM_{2.5}$ Emissions
H_01	#25	469.00	0.75	365	0.888	26.65	0.11	0.02	0.005	0.11	0.02	0.005	-	4.11E-03	8.22E-04	2.02E-04	1.48E-03	2.96E-04	7.27E-05
H_02	#24	1,467.00	0.67	365	2.778	83.35	0.10	0.02	0.005	0.10	0.02	0.005	-	1.15E-02	2.31E-03	5.66E-04	4.15E-03	8.30E-04	2.04E-04
H_03	#23	947.00	0.52	365	1.794	53.81	0.08	0.02	0.004	0.08	0.02	0.004	-	5.90E-03	1.18E-03	2.90E-04	2.12E-03	4.25E-04	1.04E-04
H_04	#23	1,577.00	0.52	365	2.987	89.60	0.08	0.02	0.004	0.08	0.02	0.004	-	9.83E-03	1.97E-03	4.82E-04	3.54E-03	7.08E-04	1.74E-04
Totals					8.45	253.41								3.14E-02	6.27E-03	1.54E-03	1.13E-02	2.26E-03	5.54E-04

NOTES:
(1) Silt loading samples from on site dust sampling at the Chevron Pascagoula Refinery.
(2) Mean Vehicle Weight, W, is based on maximum empty weight of haul trucks.
(3) Number of wet days accounts for twice daily watering on the paved roads when coker trucking is occurring.
(4) Control efficiency is already accounted for in the number of wet days. No further control will be applied.

2017-2018 Actual Emissions

PARAMETERS			
Maximum Operating Rate	7	Trucks/day	Approximately 7 trucks at a time used historically.
Average Operating Rate	25	Trucks/yr	4,467 tons of coke moved on June 4, 2017; 3910 tons of coke trucked from May 16 to May 19, 2018 and 4398 tons of coke trucked from December 1 to December 2, 2018.
Mean Vehicle Weight:	33,000	lbs	Based on maximum empty weight of haul trucks

Uncontrolled emission factor from AP-42, Section 13.2.1: *Paved Roadways* (01/11), Equations (1) and (2)

Eqn. 1:

$$E = k\,(sL)^{0.91} \times (W)^{1.02}$$

Eqn. 2:

$$E_{ext} = [\,k\,(sL)^{0.91} \times (W)^{1.02}\,]\,(1 - P/4N)$$

where:
k= 0.011 [lb/VMT - Particle size multiplier for PM_{30} from AP-42 Table 13.2.1-1]
k= 0.0022 [lb/VMT - Particle size multiplier for PM_{10} from AP-42 Table 13.2.1-1]
k= 0.00054 [lb/VMT - Particle size multiplier for $PM_{2.5}$ from AP-42 Table 13.2.1-1]
sL= Varies by path [g/m2; sampling conducted on the roads at the Refinery]
P= 110 [Number of days with at least 0.01 inches of precipitation annually, AP-42 Figure 13.2.1-2]
N= 365 [Total No. of Days per year]

Coker Trucking (Exit to HWY611)			Silt Loading	Number of Wet Days	Max Daily Vehicle Miles Travelled	Annual Vehicle Miles Travelled	Short Term Emission Factors			Annual Emission Factors			Control Efficiency	Short Term Emissions (lb/hr)			Annual Emissions (tpy)		
Portion of Route Segment Indentifier	Sample Number	Distance (ft)	g/m^2 sL	>0.01" Precip. P	(VMT/day)	(VMT/year)	E (lb PM/VMT)	E (lb PM_{10}/VMT)	E (lb $PM_{2.5}$/VMT)	E (lb PM/VMT)	E (lb PM_{10}/VMT)	E (lb $PM_{2.5}$/VMT)	(%)	24-hour Average PM Emissions	24-hour Average PM_{10} Emissions	24-hour Average $PM_{2.5}$ Emissions	Annual PM Emissions	Annual PM_{10} Emissions	Annual $PM_{2.5}$ Emissions
H_01	#25	469.00	0.65	110	0.622	2.18	0.13	0.03	0.006	0.12	0.02	0.006	-	3.38E-03	6.76E-04	1.66E-04	1.31E-04	2.62E-05	6.44E-06
H_02	#24	1,467.00	0.58	110	1.945	6.81	0.12	0.02	0.006	0.11	0.02	0.005	-	9.48E-03	1.90E-03	4.65E-04	3.68E-04	7.36E-05	1.81E-05
H_03	#23	947.00	0.45	110	1.255	4.39	0.09	0.02	0.005	0.09	0.02	0.004	-	4.85E-03	9.70E-04	2.38E-04	1.88E-04	3.77E-05	9.25E-06
H_04	#23	1,577.00	0.45	110	2.091	7.32	0.09	0.02	0.005	0.09	0.02	0.004	-	8.08E-03	1.62E-03	3.97E-04	3.14E-04	6.27E-05	1.54E-05
Totals					5.91	20.70								2.58E-02	5.16E-03	1.27E-03	1.00E-03	2.00E-04	4.92E-05

NOTES:
(1) Silt loading samples from on site dust sampling at the Chevron Pascagoula Refinery.
(2) Mean Vehicle Weight, W, is based on maximum empty weight of haul trucks.
(3) Number of wet days taken from Figure 13.2.1-2 in AP-42 Section 13.2.1 (1/11).
(4) Control efficiency is already accounted for in the number of wet days. No further control will be applied.

Table A-17 Baseline Fugitive Dust Emissions for Wind Erosion from the Coke Pile

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Coke Pile Surface Area Assoicated Wind Erosion

Pile	Surface Area	Total Surface Area	
	ft^2	ft^2	m^2
Stock Pile	369,800	419,900	39,024
Overflow	50,100		

Based on two areas of Coke Stock pile and Overflow pile as provided by Hargrove Engineering drawings and calculations.

Coke Pile Physical Attributes and Wind Speed Data

Input Parameters	Value	UOM	Reference
Threshold Friction Velocity, u_t	1.12	m/s	AP-42 Table 13.2.5-2 for uncrusted coal pile
Roughness Height, z_o	0.3	cm	AP-42 Table 13.2.5-2 for uncrusted coal pile
Fastest Mile Windspeed, u^+	16.98	m/s	Conservatively Assumed to approach Tropical Storm Strength (38 mph)
Height of wind above test surface, z	1000	cm	Local climatology data (assumed anemometer at 10 m)
Control Efficiency, CE	90	%	Occasional application of wet suppression with chemicals.
Calculated Parameters	Value	UOM	Reference
Fastest Mile Windspeed corrected to 10 meters, u_{10}^+	16.98	m/s	AP-42, Section 13.2.5, Equation (5)
Surface wind speed, u_s^+	See Below	m/s	AP-42, Section 13.2.5, Equation (6)
Friction velocity, u*	See Below	m/s	AP-42, Section 13.2.5, Equation (7)

Wind Erosion Potential of Coke Stock Pile and Overflow Pile

Pile Subarea	u_s/u_r [1]	Percent[2]	Total Surface Area	u_{10}^+	u_s^+	u*	u_t	Is u* < u_t?	Pi[3]
			m^2	m/s	m/s	m/s	m/s		g/m^2
0.2a	0.2	5%	1,951	16.98	3.40	0.340	1.12	Yes	0
0.2b	0.2	2%	780	16.98	3.40	0.340	1.12	Yes	0
0.2c	0.2	29%	11,317	16.98	3.40	0.340	1.12	Yes	0
0.6a	0.6	26%	10,146	16.98	10.19	1.019	1.12	Yes	0
0.6b	0.6	24%	9,366	16.98	10.19	1.019	1.12	Yes	0
0.9	0.9	14%	5,463	16.98	15.28	1.528	1.12	No	19.9
1.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Erosion Potential Total =									19.9

[1]Ratio of surface wind speed and approach wind speed as observed for Pile B1 from AP-42, Figure 13.2.5-2.
[2]Based on Percent of Pile Surface Area observed from AP-42, Table 13.2.5-3 for Pile B1.
[3]Calculated from AP-42, Section 13.2.5, Equation (3).

Baseline Uncontrolled Emission Associated with Wind Erosion

Pollutant	0.9 Pile Subarea	Control	Control Efficiency	Erosion Potential	k[4]	Maximum Uncontrolled Emission[5]	
	m^2		%	g/m^2		lb/hr	ton/yr
TSP	5,463	Watering/ Chemical Wetting	0	19.9	1.000	5.30	23.21
PM_{10}	5,463		0	19.9	0.500	2.65	11.61
$PM_{2.5}$	5,463		0	19.9	0.075	0.40	1.74

[4] Aerodynamic Particle Size Mutiplier from Equation 2 of AP-42, Section 13.2.5.2.
[5] Based on a coking cycle per day of 194 ,per dozing hours.

Baseline Controlled Emission Assoicated with Wind Erosion

Pollutant	0.9 Pile Subarea	Control	Control Efficiency	Erosion Potential	k[4]	Controlled Emission[5]	
	m^2		%	g/m^2		lb/hr	ton/yr
TSP	5,463	Watering/ Chemical Wetting	90	19.9	1.000	0.53	2.32
PM_{10}	5,463		90	19.9	0.500	0.265	1.16
$PM_{2.5}$	5,463		90	19.9	0.075	0.040	0.17

[4] Aerodynamic Particle Size Mutiplier from Equation 2 of AP-42, Section 13.2.5.2.
[5] Based on a coking cycle per day of 194 ,per dozing hours.

Table A-18 Post-Project Fugitive Dust Emissions for Wind Erosion from the Coke Pile

Chevron - Pascagoula Refinery

Pascagoula Aggregate PSD Project

Coke Pile Surface Area Assoicated Wind Erosion

Pile	Surface Area	Total Surface Area	
	ft^2	ft^2	m^2
Stock Pile	369,800	419,900	39,024
Overflow	50,100		

Based on two areas of Coke Stock pile and Overflow pile as provided by Hargrove Engineering drawings and calculations.

Coke Pile Physical Attributes and Wind Speed Data

Input Parameters	Value	UOM	Reference
Threshold Friction Velocity, u_t	1.12	m/s	AP-42 Table 13.2.5-2 for uncrusted coal pile
Roughness Height, z_o	0.3	cm	AP-42 Table 13.2.5-2 for uncrusted coal pile
Fastest Mile Windspeed, u^+	16.98	m/s	Conservatively Assumed to approach Tropical Storm Strength (38 mph)
Height of wind above test surface, z	1000	cm	Local climatology data (assumed anemometer at 10 m)
Control Efficiency, CE	95	%	WMA Air Pollution Engineering Manual Second Edition page 694, Table 4 (wet suppression with chemicals).
Calculated Parameters	Value	UOM	Reference
Fastest Mile Windspeed corrected to 10 meters, u_{10}^+	16.98	m/s	AP-42, Section 13.2.5, Equation (5)
Surface wind speed, u_s^+	See Below	m/s	AP-42, Section 13.2.5, Equation (6)
Friction velocity, u*	See Below	m/s	AP-42, Section 13.2.5, Equation (7)

Wind Erosion Potential of Coke Stock Pile and Overflow Pile

Pile Subarea	u_s/u_r[1]	Percent[2]	Total Surface Area	u_{10}^+	u_s^+	u*	u_t	Is u* < u_t?	Pi[3]
			m^2	m/s	m/s	m/s	m/s		g/m^2
0.2a	0.2	5%	1,951	16.98	3.40	0.340	1.12	Yes	0
0.2b	0.2	2%	780	16.98	3.40	0.340	1.12	Yes	0
0.2c	0.2	29%	11,317	16.98	3.40	0.340	1.12	Yes	0
0.6a	0.6	26%	10,146	16.98	10.19	1.019	1.12	Yes	0
0.6b	0.6	24%	9,366	16.98	10.19	1.019	1.12	Yes	0
0.9	0.9	14%	5,463	16.98	15.28	1.528	1.12	No	19.9
1.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Erosion Potential Total =									19.9

[1]Ratio of surface wind speed and approach wind speed as observed for Pile B1 from AP-42, Figure 13.2.5-2.

[2]Based on Percent of Pile Surface Area observed from AP-42, Table 13.2.5-3 for Pile B1.

[3]Calculated from AP-42, Section 13.2.5, Equation (3).

Maximum Uncontrolled Emission Associated with Wind Erosion

Pollutant	0.9 Pile Subarea	Control	Control Efficiency	Erosion Potential	k[4]	Maximum Uncontrolled Emission[5]	
	m^2		%	g/m^2		lb/hr	ton/yr
TSP	5,463	Watering/ Chemical Wetting	0	19.9	1.000	6.28	27.52
PM_{10}	5,463		0	19.9	0.500	3.14	13.76
$PM_{2.5}$	5,463		0	19.9	0.075	0.47	2.07

[4] Aerodynamic Particle Size Mutiplier from Equation 2 of AP-42, Section 13.2.5.2.

[5] Based on a coking cycle per day of 230 ,per dozing hours.

Proposed Allowable Emission Assoicated with Wind Erosion

Pollutant	0.9 Pile Subarea	Control	Control Efficiency	Erosion Potential	k[4]	Controlled Emission[5]	
	m^2		%	g/m^2		lb/hr	ton/yr
TSP	5,463	Watering/ Chemical Wetting	95	19.9	1.000	0.31	1.38
PM_{10}	5,463		95	19.9	0.500	0.16	0.69
$PM_{2.5}$	5,463		95	19.9	0.075	0.024	0.10

[4] Aerodynamic Particle Size Mutiplier from Equation 2 of AP-42, Section 13.2.5.2.

[5] Based on a coking cycle per day of 230 ,per dozing hours.

Table A-19 Baseline Fugitive Dust Emissions from Coke Transfers, 2017

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

No. of Drop Point	Description	Throughput Usage (%)	Operating Hours/Day	Hourly Operating Rate (tons/hour)	Moisture Content (%)	Operating Days/Year	Annual Operating Rate (tons/year)	Moisture Content (%)	Wind Speed (mph)	Control Efficiency #1 (%)	Control Efficiency #2 (%)	Control % Notes
1	Coke Drum to Pit	100%	24	320.8	10.00	365	2,279,672	10.00	5.4	0%	0%	Watering
2	Coke Pit to Conveyor (via clamshell/crusher)	100%	24	320.8	10.00	365	2,119,024	10.00	5.4	0%	0%	Watering
C1	Open Conveyor from Pit to T1	100%	24	320.8	10.00	365	2,119,024	10.00	5.4	0%	0%	
3	Coke Conveyor Transfer 1	100%	24	320.8	10.00	365	2,119,024	10.00	5.4	70%	0%	Enclosure
C2	Open Conveyor from T1 to T2	100%	24	320.8	10.00	365	2,119,024	10.00	5.4	0%	0%	
4	Coke Conveyor Transfer 2	100%	24	320.8	10.00	365	2,119,024	10.00	5.4	70%	90%	Enclosure, Chemical Dust Suppression
5	Coke Conveyor Transfer 3	100%	24	320.8	10.00	365	2,119,024	10.00	5.4	70%	90%	Enclosure, Chemical Dust Suppression
6	Coke Conveyor Transfer 4	100%	24	320.8	10.00	365	2,119,024	10.00	5.4	70%	90%	Enclosure, Chemical Dust Suppression
7	Coke Conveyor Transfer 5	100%	24	320.8	10.00	365	2,119,024	10.00	5.4	70%	90%	Enclosure, Chemical Dust Suppression
8	Coke Conveyor Transfer 6 (50% to TS 7, 50% to East Stacker)	100%	24	320.8	10.00	365	2,119,024	10.00	5.4	70%	90%	Enclosure, Chemical Dust Suppression
C6E	Open Conveyor from T6 to East Stacker	50%	24	160.4	10.00	365	1,059,512	10.00	5.4	90%	0%	Chemical Dust Suppression
9	Coke Transfer to East Stacker	50%	24	160.4	10.00	365	1,059,512	10.00	5.4	90%	0%	Chemical Dust Suppression
C6S	Open Conveyor from East Stacker to Pile	50%	24	160.4	10.00	365	1,059,512	10.00	5.4	90%	0%	Chemical Dust Suppression
10	East Stacker Out to Pile	50%	24	160.4	10.00	365	1,059,512	10.00	5.4	75%	0%	Chemical Dust Suppression
C6TO7	Open Conveyor from T6 to T7	50%	24	160.4	10.00	365	1,059,512	10.00	5.4	90%	0%	Chemical Dust Suppression
11	Coke Conveyor Transfer 7	50%	24	160.4	10.00	365	1,059,512	10.00	5.4	70%	90%	Enclosure, Chemical Dust Suppression
C7W	Open Conveyor from T7 to West Stacker	50%	24	160.4	10.00	365	1,059,512	10.00	5.4	90%	0%	Chemical Dust Suppression
12	Coke Transfer to West Stacker	50%	24	160.4	10.00	365	1,059,512	10.00	5.4	90%	0%	Chemical Dust Suppression
C7S	Open Conveyor from West Stacker to Pile	50%	24	160.4	10.00	365	1,059,512	10.00	5.4	90%	0%	Chemical Dust Suppression
13	West Stacker Out to Pile	50%	24	160.4	10.00	365	1,059,512	10.00	5.4	75%	0%	Chemical Dust Suppression
WESTREC	West Reclaim	50%	24	160.4	10.00	365	1,059,512	10.00	5.4	0%	0%	
EASTREC	East Reclaim	50%	24	160.4	10.00	365	1,059,512	10.00	5.4	0%	0%	
WRECTO9	Open Conveyor from West Reclaim to T9	50%	24	160.4	10.00	365	1,059,512	10.00	5.4	0%	0%	
ERECTO8	Open Conveyor from East Reclaim to T8	50%	24	160.4	10.00	365	1,059,512	10.00	5.4	0%	0%	
14	Coke Conveyor Transfer 8	50%	24	1100.4	10.00	365	1,059,512	10.00	5.4	70%	0%	Enclosure
C8TO9	Open Conveyor from T8 to T9	50%	24	1100.4	10.00	365	1,059,512	10.00	5.4	0%	0%	
15	Coke Conveyor Transfer 9	100%	24	2200.8	10.00	365	2,119,024	10.00	5.4	70%	0%	Enclosure
C9TO10	Open Conveyor from T9 to T10	100%	24	2200.8	10.00	365	2,119,024	10.00	5.4	0%	0%	
16	Coke Conveyor Transfer 10	100%	24	2200.8	10.00	365	2,119,024	10.00	5.4	70%	0%	Enclosure
17	Coke Conveyor Transfer 12	100%	24	2200.8	10.00	365	2,119,024	10.00	5.4	70%	0%	Enclosure
18	Coke Conveyor Transfer 13	100%	24	2200.8	10.00	365	2,119,024	10.00	5.4	70%	0%	Enclosure
C13TOSHP	Open Conveyor from T13 to Tanker Ship	100%	24	2200.8	10.00	365	2,119,024	10.00	5.4	0%	0%	
19	Coke to Tanker Ship	100%	24	2200.8	10.00	365	2,119,024	10.00	5.4	75%	0%	Telescopic Chute

Notes:

Coke Conveyor Belt and Transfer 11 - Not in service. Belt does not exist.

Operating rate for 2017 (2,072,429), plus moisture content.
Maximum daily and annual conveyor throughput from coke pit to pile is 7,000 tons/day (dry), plus moisture content.
Maximum hourly conveyor throughput from pile to ship is 1815 metric tons/hour (dry), plus moisture content.
Control efficiencies from AWMA Air Pollution Engineering Manual Second Edition page 694, Table 4.
Mean Wind Speed, U, based on MET data utilized for TankESP.
10% M - Moisture content for 2017.

Source	Particle Size Multiplier, k[2]
TSP	0.74
PM10	0.35
PM2.5	0.053

[2]Particle size multiplier, k, obtained from AP-42, Section 13.2.4.3

No. of Drop Point	Description	Short Term (Hourly) Emission Factors						Annual Average Emission Factors					
		TSP Uncontrolled Emission Factor (lb/ton)	PM10 Uncontrolled Emission Factor (lb/ton)	PM2.5 Uncontrolled Emission Factor (lb/ton)	TSP Controlled Emission Factor (lb/ton)	PM10 Controlled Emission Factor (lb/ton)	PM2.5 Controlled Emission Factor (lb/ton)	TSP Uncontrolled Emission Factor (lb/ton)	PM10 Uncontrolled Emission Factor (lb/ton)	PM2.5 Uncontrolled Emission Factor (lb/ton)	TSP Controlled Emission Factor (lb/ton)	PM10 Controlled Emission Factor (lb/ton)	PM2.5 Controlled Emission Factor (lb/ton)
1	Coke Drum to Pit	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05
2	Coke Pit to Conveyor (via clamshell/crusher)	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05
C1	Open Conveyor from Pit to T1	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05
3	Coke Conveyor Transfer 1	2.7496E-04	1.3005E-04	1.9693E-05	8.2489E-05	3.9015E-05	5.9080E-06	2.7496E-04	1.3005E-04	1.9693E-05	8.2489E-05	3.9015E-05	5.9080E-06
C2	Open Conveyor from T1 to T2	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05
4	Coke Conveyor Transfer 2	2.7496E-04	1.3005E-04	1.9693E-05	8.2489E-06	3.9015E-06	5.9080E-07	2.7496E-04	1.3005E-04	1.9693E-05	8.2489E-06	3.9015E-06	5.9080E-07
5	Coke Conveyor Transfer 3	2.7496E-04	1.3005E-04	1.9693E-05	8.2489E-06	3.9015E-06	5.9080E-07	2.7496E-04	1.3005E-04	1.9693E-05	8.2489E-06	3.9015E-06	5.9080E-07
6	Coke Conveyor Transfer 4	2.7496E-04	1.3005E-04	1.9693E-05	8.2489E-06	3.9015E-06	5.9080E-07	2.7496E-04	1.3005E-04	1.9693E-05	8.2489E-06	3.9015E-06	5.9080E-07
7	Coke Conveyor Transfer 5	2.7496E-04	1.3005E-04	1.9693E-05	8.2489E-06	3.9015E-06	5.9080E-07	2.7496E-04	1.3005E-04	1.9693E-05	8.2489E-06	3.9015E-06	5.9080E-07
8	Coke Conveyor Transfer 6 (50% to TS 7, 50% to East Stacker)	2.7496E-04	1.3005E-04	1.9693E-05	8.2489E-06	3.9015E-06	5.9080E-07	2.7496E-04	1.3005E-04	1.9693E-05	8.2489E-06	3.9015E-06	5.9080E-07
C6E	Open Conveyor from T6 to East Stacker	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-05	1.3005E-05	1.9693E-06	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-05	1.3005E-05	1.9693E-06
9	Coke Transfer to East Stacker	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-05	1.3005E-05	1.9693E-06	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-05	1.3005E-05	1.9693E-06
C6S	Open Conveyor from East Stacker to Pile	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-05	1.3005E-05	1.9693E-06	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-05	1.3005E-05	1.9693E-06
10	East Stacker Out to Pile	2.7496E-04	1.3005E-04	1.9693E-05	6.8741E-05	3.2513E-05	4.9233E-06	2.7496E-04	1.3005E-04	1.9693E-05	6.8741E-05	3.2513E-05	4.9233E-06
C6TO7	Open Conveyor from T6 to T7	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-05	1.3005E-05	1.9693E-06	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-05	1.3005E-05	1.9693E-06
11	Coke Conveyor Transfer 7	2.7496E-04	1.3005E-04	1.9693E-05	8.2489E-06	3.9015E-06	5.9080E-07	2.7496E-04	1.3005E-04	1.9693E-05	8.2489E-06	3.9015E-06	5.9080E-07
C7W	Open Conveyor from T7 to West Stacker	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-05	1.3005E-05	1.9693E-06	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-05	1.3005E-05	1.9693E-06
12	Coke Transfer to West Stacker	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-05	1.3005E-05	1.9693E-06	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-05	1.3005E-05	1.9693E-06
C7S	Open Conveyor from West Stacker to Pile	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-05	1.3005E-05	1.9693E-06	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-05	1.3005E-05	1.9693E-06
13	West Stacker Out to Pile	2.7496E-04	1.3005E-04	1.9693E-05	6.8741E-05	3.2513E-05	4.9233E-06	2.7496E-04	1.3005E-04	1.9693E-05	6.8741E-05	3.2513E-05	4.9233E-06
WESTREC	West Reclaim	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05
EASTREC	East Reclaim	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05
WRECTO9	Open Conveyor from West Reclaim to T9	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05
ERECTO8	Open Conveyor from East Reclaim to T8	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05
14	Coke Conveyor Transfer 8	2.7496E-04	1.3005E-04	1.9693E-05	8.2489E-05	3.9015E-05	5.9080E-06	2.7496E-04	1.3005E-04	1.9693E-05	8.2489E-05	3.9015E-05	5.9080E-06
C8TO9	Open Conveyor from T8 to T9	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05
15	Coke Conveyor Transfer 9	2.7496E-04	1.3005E-04	1.9693E-05	8.2489E-05	3.9015E-05	5.9080E-06	2.7496E-04	1.3005E-04	1.9693E-05	8.2489E-05	3.9015E-05	5.9080E-06
C9TO10	Open Conveyor from T9 to T10	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05
16	Coke Conveyor Transfer 10	2.7496E-04	1.3005E-04	1.9693E-05	8.2489E-05	3.9015E-05	5.9080E-06	2.7496E-04	1.3005E-04	1.9693E-05	8.2489E-05	3.9015E-05	5.9080E-06
17	Coke Conveyor Transfer 12	2.7496E-04	1.3005E-04	1.9693E-05	8.2489E-05	3.9015E-05	5.9080E-06	2.7496E-04	1.3005E-04	1.9693E-05	8.2489E-05	3.9015E-05	5.9080E-06
18	Coke Conveyor Transfer 13	2.7496E-04	1.3005E-04	1.9693E-05	8.2489E-05	3.9015E-05	5.9080E-06	2.7496E-04	1.3005E-04	1.9693E-05	8.2489E-05	3.9015E-05	5.9080E-06
C13TOSHP	Open Conveyor from T13 to Tanker Ship	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05	2.7496E-04	1.3005E-04	1.9693E-05
19	Coke to Tanker Ship	2.7496E-04	1.3005E-04	1.9693E-05	6.8741E-05	3.2513E-05	4.9233E-06	2.7496E-04	1.3005E-04	1.9693E-05	6.8741E-05	3.2513E-05	4.9233E-06

Formula: AP-42, Section 13.2.4.3

No. of Drop Point	Description	TSP Uncontrolled Emission Rate (lb/hr)	PM10 Uncontrolled Emission Rate (lb/hr)	PM2.5 Uncontrolled Emission Rate (lb/hr)	TSP Uncontrolled Emission Rate (tons/year)	PM10 Uncontrolled Emission Rate (tons/year)	PM2.5 Uncontrolled Emission Rate (tons/year)	TSP Controlled Emission Rate (lb/hr)	PM10 Controlled Emission Rate (lb/hr)	PM2.5 Controlled Emission Rate (lb/hr)	TSP Controlled Emission Rate (tons/year)	PM10 Controlled Emission Rate (tons/year)	PM2.5 Controlled Emission Rate (tons/year)
1	Coke Drum to Pit	0.088217	0.041724	0.006318	0.313413	0.148236	0.022447	0.088217	0.041724	0.006318	0.313413	0.148236	0.022447
2	Coke Pit to Conveyor (via clamshell/crusher)	0.088217	0.041724	0.006318	0.291327	0.137790	0.020865	0.088217	0.041724	0.006318	0.291327	0.137790	0.020865
C1	Open Conveyor from Pit to T1	0.088217	0.041724	0.006318	0.291327	0.137790	0.020865	0.088217	0.041724	0.006318	0.291327	0.137790	0.020865
3	Coke Conveyor Transfer 1	0.088217	0.041724	0.006318	0.291327	0.137790	0.020865	0.026465	0.012517	0.001895	0.087398	0.041337	0.006260
C2	Open Conveyor from T1 to T2	0.088217	0.041724	0.006318	0.291327	0.137790	0.020865	0.088217	0.041724	0.006318	0.291327	0.137790	0.020865
4	Coke Conveyor Transfer 2	0.088217	0.041724	0.006318	0.291327	0.137790	0.020865	0.002647	0.001252	0.000190	0.008740	0.004134	0.000626
5	Coke Conveyor Transfer 3	0.088217	0.041724	0.006318	0.291327	0.137790	0.020865	0.002647	0.001252	0.000190	0.008740	0.004134	0.000626
6	Coke Conveyor Transfer 4	0.088217	0.041724	0.006318	0.291327	0.137790	0.020865	0.002647	0.001252	0.000190	0.008740	0.004134	0.000626
7	Coke Conveyor Transfer 5	0.088217	0.041724	0.006318	0.291327	0.137790	0.020865	0.002647	0.001252	0.000190	0.008740	0.004134	0.000626
8	Coke Conveyor Transfer 6 (50% to TS 7, 50% to East Stacker)	0.088217	0.041724	0.006318	0.291327	0.137790	0.020865	0.002647	0.001252	0.000190	0.008740	0.004134	0.000626
C6E	Open Conveyor from T6 to East Stacker	0.044109	0.020862	0.003159	0.145663	0.068895	0.010433	0.004411	0.002086	0.000316	0.014566	0.006889	0.001043
9	Coke Transfer to East Stacker	0.044109	0.020862	0.003159	0.145663	0.068895	0.010433	0.004411	0.002086	0.000316	0.014566	0.006889	0.001043
C6S	Open Conveyor from East Stacker to Pile	0.044109	0.020862	0.003159	0.145663	0.068895	0.010433	0.004411	0.002086	0.000316	0.014566	0.006889	0.001043
10	East Stacker Out to Pile	0.044109	0.020862	0.003159	0.145663	0.068895	0.010433	0.011027	0.005216	0.000790	0.036416	0.017224	0.002608
C6TO7	Open Conveyor from T6 to T7	0.044109	0.020862	0.003159	0.145663	0.068895	0.010433	0.004411	0.002086	0.000316	0.014566	0.006889	0.001043
11	Coke Conveyor Transfer 7	0.044109	0.020862	0.003159	0.145663	0.068895	0.010433	0.001323	0.000626	0.000095	0.004370	0.002067	0.000313
C7W	Open Conveyor from T7 to West Stacker	0.044109	0.020862	0.003159	0.145663	0.068895	0.010433	0.004411	0.002086	0.000316	0.014566	0.006889	0.001043
12	Coke Transfer to West Stacker	0.044109	0.020862	0.003159	0.145663	0.068895	0.010433	0.004411	0.002086	0.000316	0.014566	0.006889	0.001043
C7S	Open Conveyor from West Stacker to Pile	0.044109	0.020862	0.003159	0.145663	0.068895	0.010433	0.004411	0.002086	0.000316	0.014566	0.006889	0.001043
13	West Stacker Out to Pile	0.044109	0.020862	0.003159	0.145663	0.068895	0.010433	0.011027	0.005216	0.000790	0.036416	0.017224	0.002608
WESTREC	West Reclaim	0.044109	0.020862	0.003159	0.145663	0.068895	0.010433	0.044109	0.020862	0.003159	0.145663	0.068895	0.010433
EASTREC	East Reclaim	0.044109	0.020862	0.003159	0.145663	0.068895	0.010433	0.044109	0.020862	0.003159	0.145663	0.068895	0.010433
WRECTO9	Open Conveyor from West Reclaim to T9	0.044109	0.020862	0.003159	0.145663	0.068895	0.010433	0.044109	0.020862	0.003159	0.145663	0.068895	0.010433
ERECTO8	Open Conveyor from East Reclaim to T8	0.044109	0.020862	0.003159	0.145663	0.068895	0.010433	0.044109	0.020862	0.003159	0.145663	0.068895	0.010433
14	Coke Conveyor Transfer 8	0.302564	0.143105	0.021670	0.145663	0.068895	0.010433	0.090769	0.042931	0.006501	0.043699	0.020668	0.003130
C8TO9	Open Conveyor from T8 to T9	0.302564	0.143105	0.021670	0.145663	0.068895	0.010433	0.302564	0.143105	0.021670	0.145663	0.068895	0.010433
15	Coke Conveyor Transfer 9	0.605129	0.286209	0.043340	0.291327	0.137790	0.020865	0.181539	0.085863	0.013002	0.087398	0.041337	0.006260
C9TO10	Open Conveyor from T9 to T10	0.605129	0.286209	0.043340	0.291327	0.137790	0.020865	0.605129	0.286209	0.043340	0.291327	0.137790	0.020865
16	Coke Conveyor Transfer 10	0.605129	0.286209	0.043340	0.291327	0.137790	0.020865	0.181539	0.085863	0.013002	0.087398	0.041337	0.006260
17	Coke Conveyor Transfer 12	0.605129	0.286209	0.043340	0.291327	0.137790	0.020865	0.181539	0.085863	0.013002	0.087398	0.041337	0.006260
18	Coke Conveyor Transfer 13	0.605129	0.286209	0.043340	0.291327	0.137790	0.020865	0.181539	0.085863	0.013002	0.087398	0.041337	0.006260
C13TOSHP	Open Conveyor from T13 to Tanker Ship	0.605129	0.286209	0.043340	0.291327	0.137790	0.020865	0.605129	0.286209	0.043340	0.291327	0.137790	0.020865
19	Coke to Tanker Ship	0.605129	0.286209	0.043340	0.291327	0.137790	0.020865	0.151282	0.071552	0.010835	0.072832	0.034447	0.005216
	Total	**6.34**	**3.00**	**0.45**	**7.31**	**3.46**	**0.52**	**3.10**	**1.47**	**0.22**	**3.27**	**1.55**	**0.23**

Table A-20 Baseline Fugitive Dust Emissions from Coke Transfers, 2018

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

No. of Drop Point	Description	Throughput Usage (%)	Operating Hours/Day	Hourly Operating Rate (tons/hour)	Moisture Content (%)	Operating Days/Year	Annual Operating Rate (tons/year)	Moisture Content (%)	Wind Speed (mph)	Control Efficiency #1 (%)	Control Efficiency #2 (%)	Control % Notes
1	Coke Drum to Pit	100%	24	313.1	7.35	365	2,101,958	7.35	5.4	0%	0%	Watering
2	Coke Pit to Conveyor (via clamshell/crusher)	100%	24	313.1	7.35	365	1,927,514	7.35	5.4	0%	0%	Watering
C1	Open Conveyor from Pit to T1	100%	24	313.1	7.35	365	1,927,514	7.35	5.4	0%	0%	
3	Coke Conveyor Transfer 1	100%	24	313.1	7.35	365	1,927,514	7.35	5.4	70%	0%	Enclosure
C2	Open Conveyor from T1 to T2	100%	24	313.1	7.35	365	1,927,514	7.35	5.4	0%	0%	
4	Coke Conveyor Transfer 2	100%	24	313.1	7.35	365	1,927,514	7.35	5.4	70%	90%	Enclosure, Chemical Dust Suppression
5	Coke Conveyor Transfer 3	100%	24	313.1	7.35	365	1,927,514	7.35	5.4	70%	90%	Enclosure, Chemical Dust Suppression
6	Coke Conveyor Transfer 4	100%	24	313.1	7.35	365	1,927,514	7.35	5.4	70%	90%	Enclosure, Chemical Dust Suppression
7	Coke Conveyor Transfer 5	100%	24	313.1	7.35	365	1,927,514	7.35	5.4	70%	90%	Enclosure, Chemical Dust Suppression
8	Coke Conveyor Transfer 6 (50% to TS 7, 50% to East Stacker)	100%	24	313.1	7.35	365	1,927,514	7.35	5.4	70%	90%	Enclosure, Chemical Dust Suppression
C6E	Open Conveyor from T6 to East Stacker	50%	24	156.6	7.35	365	963,757	7.35	5.4	90%	0%	Chemical Dust Suppression
9	Coke Transfer to East Stacker	50%	24	156.6	7.35	365	963,757	7.35	5.4	90%	0%	Chemical Dust Suppression
C6S	Open Conveyor from East Stacker to Pile	50%	24	156.6	7.35	365	963,757	7.35	5.4	90%	0%	Chemical Dust Suppression
10	East Stacker Out to Pile	50%	24	156.6	7.35	365	963,757	7.35	5.4	75%	0%	Chemical Dust Suppression
C6TO7	Open Conveyor from T6 to T7	50%	24	156.6	7.35	365	963,757	7.35	5.4	90%	0%	Chemical Dust Suppression
11	Coke Conveyor Transfer 7	50%	24	156.6	7.35	365	963,757	7.35	5.4	70%	90%	Enclosure, Chemical Dust Suppression
C7W	Open Conveyor from T7 to West Stacker	50%	24	156.6	7.35	365	963,757	7.35	5.4	90%	0%	Chemical Dust Suppression
12	Coke Transfer to West Stacker	50%	24	156.6	7.35	365	963,757	7.35	5.4	90%	0%	Chemical Dust Suppression
C7S	Open Conveyor from West Stacker to Pile	50%	24	156.6	7.35	365	963,757	7.35	5.4	90%	0%	Chemical Dust Suppression
13	West Stacker Out to Pile	50%	24	156.6	7.35	365	963,757	7.35	5.4	75%	0%	Chemical Dust Suppression
WESTREC	West Reclaim	50%	24	156.6	7.35	365	963,757	7.35	5.4	0%	0%	
EASTREC	East Reclaim	50%	24	156.6	7.35	365	963,757	7.35	5.4	0%	0%	
WRECTO9	Open Conveyor from West Reclaim to T9	50%	24	156.6	7.35	365	963,757	7.35	5.4	0%	0%	
ERECTO8	Open Conveyor from East Reclaim to T8	50%	24	156.6	7.35	365	963,757	7.35	5.4	0%	0%	
14	Coke Conveyor Transfer 8	50%	24	1073.9	7.35	365	963,757	7.35	5.4	70%	0%	Enclosure
C8TO9	Open Conveyor from T8 to T9	50%	24	1073.9	7.35	365	963,757	7.35	5.4	0%	0%	
15	Coke Conveyor Transfer 9	100%	24	2147.8	7.35	365	1,927,514	7.35	5.4	70%	0%	Enclosure
C9TO10	Open Conveyor from T9 to T10	100%	24	2147.8	7.35	365	1,927,514	7.35	5.4	0%	0%	
16	Coke Conveyor Transfer 10	100%	24	2147.8	7.35	365	1,927,514	7.35	5.4	70%	0%	Enclosure
17	Coke Conveyor Transfer 12	100%	24	2147.8	7.35	365	1,927,514	7.35	5.4	70%	0%	Enclosure
18	Coke Conveyor Transfer 13	100%	24	2147.8	7.35	365	1,927,514	7.35	5.4	70%	0%	Enclosure
C13TOSHP	Open Conveyor from T13 to Tanker Ship	100%	24	2147.8	7.35	365	1,927,514	7.35	5.4	0%	0%	
19	Coke to Tanker Ship	100%	24	2147.8	7.35	365	1,927,514	7.35	5.4	75%	0%	Telescopic Chute

Notes:

Coke Conveyor Belt and Transfer 11 - Not in service. Belt does not exist.

Annual operating rate for 2018 (1,957,970), plus moisture content.

Maximum daily and annual conveyor throughput from coke pit to pile is 7,000 tons/day (dry), plus moisture content.

Maximum hourly conveyor throughput from pile to ship is 1815 metric tons/hour (dry), plus moisture content.

Control efficiencies from AWMA Air Pollution Engineering Manual Second Edition page 694, Table 4.

Mean Wind Speed, U, based on MET data utilized for TankESP.

7.35% M - Average moisture content for 2018.

Source	Particle Size Multiplier, k[2]
TSP	0.74
PM10	0.35
PM2.5	0.053

[2]Particle size multiplier, k, obtained from AP-42, Section 13.2.4.3

No. of Drop Point	Description	Short Term (Hourly) Emission Factors						Annual Average Emission Factors					
		TSP Uncontrolled Emission Factor (lb/ton)	PM10 Uncontrolled Emission Factor (lb/ton)	PM2.5 Uncontrolled Emission Factor (lb/ton)	TSP Controlled Emission Factor (lb/ton)	PM10 Controlled Emission Factor (lb/ton)	PM2.5 Controlled Emission Factor (lb/ton)	TSP Uncontrolled Emission Factor (lb/ton)	PM10 Uncontrolled Emission Factor (lb/ton)	PM2.5 Uncontrolled Emission Factor (lb/ton)	TSP Controlled Emission Factor (lb/ton)	PM10 Controlled Emission Factor (lb/ton)	PM2.5 Controlled Emission Factor (lb/ton)
1	Coke Drum to Pit	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05
2	Coke Pit to Conveyor (via clamshell/crusher)	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05
C1	Open Conveyor from Pit to T1	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05
3	Coke Conveyor Transfer 1	4.2281E-04	1.9998E-04	3.0282E-05	1.2684E-04	5.9993E-05	9.0847E-06	4.2281E-04	1.9998E-04	3.0282E-05	1.2684E-04	5.9993E-05	9.0847E-06
C2	Open Conveyor from T1 to T2	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05
4	Coke Conveyor Transfer 2	4.2281E-04	1.9998E-04	3.0282E-05	1.2684E-05	5.9993E-06	9.0847E-07	4.2281E-04	1.9998E-04	3.0282E-05	1.2684E-05	5.9993E-06	9.0847E-07
5	Coke Conveyor Transfer 3	4.2281E-04	1.9998E-04	3.0282E-05	1.2684E-05	5.9993E-06	9.0847E-07	4.2281E-04	1.9998E-04	3.0282E-05	1.2684E-05	5.9993E-06	9.0847E-07
6	Coke Conveyor Transfer 4	4.2281E-04	1.9998E-04	3.0282E-05	1.2684E-05	5.9993E-06	9.0847E-07	4.2281E-04	1.9998E-04	3.0282E-05	1.2684E-05	5.9993E-06	9.0847E-07
7	Coke Conveyor Transfer 5	4.2281E-04	1.9998E-04	3.0282E-05	1.2684E-05	5.9993E-06	9.0847E-07	4.2281E-04	1.9998E-04	3.0282E-05	1.2684E-05	5.9993E-06	9.0847E-07
8	Coke Conveyor Transfer 6 (50% to TS 7, 50% to East Stacker)	4.2281E-04	1.9998E-04	3.0282E-05	1.2684E-05	5.9993E-06	9.0847E-07	4.2281E-04	1.9998E-04	3.0282E-05	1.2684E-05	5.9993E-06	9.0847E-07
C6E	Open Conveyor from T6 to East Stacker	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-05	1.9998E-05	3.0282E-06	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-05	1.9998E-05	3.0282E-06
9	Coke Transfer to East Stacker	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-05	1.9998E-05	3.0282E-06	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-05	1.9998E-05	3.0282E-06
C6S	Open Conveyor from East Stacker to Pile	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-05	1.9998E-05	3.0282E-06	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-05	1.9998E-05	3.0282E-06
10	East Stacker Out to Pile	4.2281E-04	1.9998E-04	3.0282E-05	1.0570E-04	4.9994E-05	7.5706E-06	4.2281E-04	1.9998E-04	3.0282E-05	1.0570E-04	4.9994E-05	7.5706E-06
C6TO7	Open Conveyor from T6 to T7	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-05	1.9998E-05	3.0282E-06	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-05	1.9998E-05	3.0282E-06
11	Coke Conveyor Transfer 7	4.2281E-04	1.9998E-04	3.0282E-05	1.2684E-05	5.9993E-06	9.0847E-07	4.2281E-04	1.9998E-04	3.0282E-05	1.2684E-05	5.9993E-06	9.0847E-07
C7W	Open Conveyor from T7 to West Stacker	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-05	1.9998E-05	3.0282E-06	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-05	1.9998E-05	3.0282E-06
12	Coke Transfer to West Stacker	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-05	1.9998E-05	3.0282E-06	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-05	1.9998E-05	3.0282E-06
C7S	Open Conveyor from West Stacker to Pile	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-05	1.9998E-05	3.0282E-06	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-05	1.9998E-05	3.0282E-06
13	West Stacker Out to Pile	4.2281E-04	1.9998E-04	3.0282E-05	1.0570E-04	4.9994E-05	7.5706E-06	4.2281E-04	1.9998E-04	3.0282E-05	1.0570E-04	4.9994E-05	7.5706E-06
WESTREC	West Reclaim	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05
EASTREC	East Reclaim	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05
WRECTO9	Open Conveyor from West Reclaim to T9	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05
ERECTO8	Open Conveyor from East Reclaim to T8	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05
14	Coke Conveyor Transfer 8	4.2281E-04	1.9998E-04	3.0282E-05	1.2684E-04	5.9993E-05	9.0847E-06	4.2281E-04	1.9998E-04	3.0282E-05	1.2684E-04	5.9993E-05	9.0847E-06
C8TO9	Open Conveyor from T8 to T9	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05
15	Coke Conveyor Transfer 9	4.2281E-04	1.9998E-04	3.0282E-05	1.2684E-04	5.9993E-05	9.0847E-06	4.2281E-04	1.9998E-04	3.0282E-05	1.2684E-04	5.9993E-05	9.0847E-06
C9TO10	Open Conveyor from T9 to T10	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05
16	Coke Conveyor Transfer 10	4.2281E-04	1.9998E-04	3.0282E-05	1.2684E-04	5.9993E-05	9.0847E-06	4.2281E-04	1.9998E-04	3.0282E-05	1.2684E-04	5.9993E-05	9.0847E-06
17	Coke Conveyor Transfer 12	4.2281E-04	1.9998E-04	3.0282E-05	1.2684E-04	5.9993E-05	9.0847E-06	4.2281E-04	1.9998E-04	3.0282E-05	1.2684E-04	5.9993E-05	9.0847E-06
18	Coke Conveyor Transfer 13	4.2281E-04	1.9998E-04	3.0282E-05	1.2684E-04	5.9993E-05	9.0847E-06	4.2281E-04	1.9998E-04	3.0282E-05	1.2684E-04	5.9993E-05	9.0847E-06
C13TOSHP	Open Conveyor from T13 to Tanker Ship	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05	4.2281E-04	1.9998E-04	3.0282E-05
19	Coke to Tanker Ship	4.2281E-04	1.9998E-04	3.0282E-05	1.0570E-04	4.9994E-05	7.5706E-06	4.2281E-04	1.9998E-04	3.0282E-05	1.0570E-04	4.9994E-05	7.5706E-06

Formula: AP-42, Section 13.2.4.3

No. of Drop Point	Description	TSP Uncontrolled Emission Rate (lb/hr)	PM10 Uncontrolled Emission Rate (lb/hr)	PM2.5 Uncontrolled Emission Rate (lb/hr)	TSP Uncontrolled Emission Rate (tons/year)	PM10 Uncontrolled Emission Rate (tons/year)	PM2.5 Uncontrolled Emission Rate (tons/year)	TSP Controlled Emission Rate (lb/hr)	PM10 Controlled Emission Rate (lb/hr)	PM2.5 Controlled Emission Rate (lb/hr)	TSP Controlled Emission Rate (tons/year)	PM10 Controlled Emission Rate (tons/year)	PM2.5 Controlled Emission Rate (tons/year)
1	Coke Drum to Pit	0.132389	0.062616	0.009482	0.444365	0.210173	0.031826	0.132389	0.062616	0.009482	0.444365	0.210173	0.031826
2	Coke Pit to Conveyor (via clamshell/crusher)	0.132389	0.062616	0.009482	0.407487	0.192730	0.029185	0.132389	0.062616	0.009482	0.407487	0.192730	0.029185
C1	Open Conveyor from Pit to T1	0.132389	0.062616	0.009482	0.407487	0.192730	0.029185	0.132389	0.062616	0.009482	0.407487	0.192730	0.029185
3	Coke Conveyor Transfer 1	0.132389	0.062616	0.009482	0.407487	0.192730	0.029185	0.039717	0.018785	0.002845	0.122246	0.057819	0.008755
C2	Open Conveyor from T1 to T2	0.132389	0.062616	0.009482	0.407487	0.192730	0.029185	0.132389	0.062616	0.009482	0.407487	0.192730	0.029185
4	Coke Conveyor Transfer 2	0.132389	0.062616	0.009482	0.407487	0.192730	0.029185	0.003972	0.001878	0.000284	0.012225	0.005782	0.000876
5	Coke Conveyor Transfer 3	0.132389	0.062616	0.009482	0.407487	0.192730	0.029185	0.003972	0.001878	0.000284	0.012225	0.005782	0.000876
6	Coke Conveyor Transfer 4	0.132389	0.062616	0.009482	0.407487	0.192730	0.029185	0.003972	0.001878	0.000284	0.012225	0.005782	0.000876
7	Coke Conveyor Transfer 5	0.132389	0.062616	0.009482	0.407487	0.192730	0.029185	0.003972	0.001878	0.000284	0.012225	0.005782	0.000876
8	Coke Conveyor Transfer 6 (50% to TS 7, 50% to East Stacker)	0.132389	0.062616	0.009482	0.407487	0.192730	0.029185	0.003972	0.001878	0.000284	0.012225	0.005782	0.000876
C6E	Open Conveyor from T6 to East Stacker	0.066194	0.031308	0.004741	0.203743	0.096365	0.014592	0.006619	0.003131	0.000474	0.020374	0.009637	0.001459
9	Coke Transfer to East Stacker	0.066194	0.031308	0.004741	0.203743	0.096365	0.014592	0.006619	0.003131	0.000474	0.020374	0.009637	0.001459
C6S	Open Conveyor from East Stacker to Pile	0.066194	0.031308	0.004741	0.203743	0.096365	0.014592	0.006619	0.003131	0.000474	0.020374	0.009637	0.001459
10	East Stacker Out to Pile	0.066194	0.031308	0.004741	0.203743	0.096365	0.014592	0.016549	0.007827	0.001185	0.050936	0.024091	0.003648
C6TO7	Open Conveyor from T6 to T7	0.066194	0.031308	0.004741	0.203743	0.096365	0.014592	0.006619	0.003131	0.000474	0.020374	0.009637	0.001459
11	Coke Conveyor Transfer 7	0.066194	0.031308	0.004741	0.203743	0.096365	0.014592	0.001986	0.000939	0.000142	0.006112	0.002891	0.000438
C7W	Open Conveyor from T7 to West Stacker	0.066194	0.031308	0.004741	0.203743	0.096365	0.014592	0.006619	0.003131	0.000474	0.020374	0.009637	0.001459
12	Coke Transfer to West Stacker	0.066194	0.031308	0.004741	0.203743	0.096365	0.014592	0.006619	0.003131	0.000474	0.020374	0.009637	0.001459
C7S	Open Conveyor from West Stacker to Pile	0.066194	0.031308	0.004741	0.203743	0.096365	0.014592	0.006619	0.003131	0.000474	0.020374	0.009637	0.001459
13	West Stacker Out to Pile	0.066194	0.031308	0.004741	0.203743	0.096365	0.014592	0.016549	0.007827	0.001185	0.050936	0.024091	0.003648
WESTREC	West Reclaim	0.066194	0.031308	0.004741	0.203743	0.096365	0.014592	0.066194	0.031308	0.004741	0.203743	0.096365	0.014592
EASTREC	East Reclaim	0.066194	0.031308	0.004741	0.203743	0.096365	0.014592	0.066194	0.031308	0.004741	0.203743	0.096365	0.014592
WRECTO9	Open Conveyor from West Reclaim to T9	0.066194	0.031308	0.004741	0.203743	0.096365	0.014592	0.066194	0.031308	0.004741	0.203743	0.096365	0.014592
ERECTO8	Open Conveyor from East Reclaim to T8	0.066194	0.031308	0.004741	0.203743	0.096365	0.014592	0.066194	0.031308	0.004741	0.203743	0.096365	0.014592
14	Coke Conveyor Transfer 8	0.454061	0.214759	0.032521	0.203743	0.096365	0.014592	0.136218	0.064428	0.009756	0.061123	0.028910	0.004378
C8TO9	Open Conveyor from T8 to T9	0.454061	0.214759	0.032521	0.203743	0.096365	0.014592	0.454061	0.214759	0.032521	0.203743	0.096365	0.014592
15	Coke Conveyor Transfer 9	0.908122	0.429517	0.065041	0.407487	0.192730	0.029185	0.272437	0.128855	0.019512	0.122246	0.057819	0.008755
C9TO10	Open Conveyor from T9 to T10	0.908122	0.429517	0.065041	0.407487	0.192730	0.029185	0.908122	0.429517	0.065041	0.407487	0.192730	0.029185
16	Coke Conveyor Transfer 10	0.908122	0.429517	0.065041	0.407487	0.192730	0.029185	0.272437	0.128855	0.019512	0.122246	0.057819	0.008755
17	Coke Conveyor Transfer 12	0.908122	0.429517	0.065041	0.407487	0.192730	0.029185	0.272437	0.128855	0.019512	0.122246	0.057819	0.008755
18	Coke Conveyor Transfer 13	0.908122	0.429517	0.065041	0.407487	0.192730	0.029185	0.272437	0.128855	0.019512	0.122246	0.057819	0.008755
C13TOSHP	Open Conveyor from T13 to Tanker Ship	0.908122	0.429517	0.065041	0.407487	0.192730	0.029185	0.908122	0.429517	0.065041	0.407487	0.192730	0.029185
19	Coke to Tanker Ship	0.908122	0.429517	0.065041	0.407487	0.192730	0.029185	0.227031	0.107379	0.016260	0.101872	0.048183	0.007296
	Total	**9.52**	**4.50**	**0.68**	**10.22**	**4.84**	**0.73**	**4.66**	**2.20**	**0.33**	**4.59**	**2.17**	**0.33**

Table A-21 Post-Project Fugitive Dust Emissions from Coke Transfers

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

No. of Drop Point	Description	Throughput Usage (%)	Operating Hours/Day	Hourly Operating Rate (tons/hour)	Minimum Moisture Content (%)	Operating Days/Year	Annual Operating Rate (tons/year)	Annual Average Moisture Content (%)	Wind Speed (mph)	Control Efficiency #1 (%)	Control Efficiency #2 (%)	Control % Notes
1	Coke Drum to Pit	100%	24	320.8	5	365	2,887,150	8	5.4	0%	0%	Watering
2	Coke Pit to Conveyor (via clamshell/crusher)	100%	24	320.8	5	365	2,887,150	8	5.4	0%	0%	Watering
C1	Open Conveyor from Pit to T1	100%	24	320.8	5	365	2,887,150	8	5.4	0%	0%	
3	Coke Conveyor Transfer 1	100%	24	320.8	5	365	2,887,150	8	5.4	70%	0%	Enclosure
C2	Open Conveyor from T1 to T2	100%	24	320.8	5	365	2,887,150	8	5.4	0%	0%	
4	Coke Conveyor Transfer 2	100%	24	320.8	5	365	2,887,150	8	5.4	70%	90%	Enclosure, Chemical Dust Suppression
5	Coke Conveyor Transfer 3	100%	24	320.8	5	365	2,887,150	8	5.4	70%	90%	Enclosure, Chemical Dust Suppression
6	Coke Conveyor Transfer 4	100%	24	320.8	5	365	2,887,150	8	5.4	70%	90%	Enclosure, Chemical Dust Suppression
7	Coke Conveyor Transfer 5	100%	24	320.8	5	365	2,887,150	8	5.4	70%	90%	Enclosure, Chemical Dust Suppression
8	Coke Conveyor Transfer 6 (50% to TS 7, 50% to East Stacker)	100%	24	320.8	5	365	2,887,150	8	5.4	70%	90%	Enclosure, Chemical Dust Suppression
C6E	Open Conveyor from T6 to East Stacker	50%	24	160.4	5	365	1,443,575	8	5.4	90%	0%	Chemical Dust Suppression
9	Coke Transfer to East Stacker	50%	24	160.4	5	365	1,443,575	8	5.4	90%	0%	Chemical Dust Suppression
C6S	Open Conveyor from East Stacker to Pile	50%	24	160.4	5	365	1,443,575	8	5.4	90%	0%	Chemical Dust Suppression
10	East Stacker Out to Pile	50%	24	160.4	5	365	1,443,575	8	5.4	75%	0%	Chemical Dust Suppression
C6TO7	Open Conveyor from T6 to T7	50%	24	160.4	5	365	1,443,575	8	5.4	90%	0%	Chemical Dust Suppression
11	Coke Conveyor Transfer 7	50%	24	160.4	5	365	1,443,575	8	5.4	70%	90%	Enclosure, Chemical Dust Suppression
C7W	Open Conveyor from T7 to West Stacker	50%	24	160.4	5	365	1,443,575	8	5.4	90%	0%	Chemical Dust Suppression
12	Coke Transfer to West Stacker	50%	24	160.4	5	365	1,443,575	8	5.4	90%	0%	Chemical Dust Suppression
C7S	Open Conveyor from West Stacker to Pile	50%	24	160.4	5	365	1,443,575	8	5.4	90%	0%	Chemical Dust Suppression
13	West Stacker Out to Pile	50%	24	160.4	5	365	1,443,575	8	5.4	75%	0%	Chemical Dust Suppression
WESTREC	West Reclaim	50%	24	160.4	5	365	1,443,575	8	5.4	45%	0%	Dust Suppression reactivated with water
EASTREC	East Reclaim	50%	24	160.4	5	365	1,443,575	8	5.4	45%	0%	Dust Suppression reactivated with water
WRECTO9	Open Conveyor from West Reclaim to T9	50%	24	160.4	5	365	1,443,575	8	5.4	45%	0%	Dust Suppression reactivated with water
ERECTO8	Open Conveyor from East Reclaim to T8	50%	24	160.4	5	365	1,443,575	8	5.4	45%	0%	Dust Suppression reactivated with water
14	Coke Conveyor Transfer 8	50%	24	1100.4	5	365	1,443,575	8	5.4	70%	45%	Enclosure; Dust Suppression reactivated with water
C8TO9	Open Conveyor from T8 to T9	50%	24	1100.4	5	365	1,443,575	8	5.4	45%	0%	Dust Suppression reactivated with water
15	Coke Conveyor Transfer 9	100%	24	2200.8	5	365	2,887,150	8	5.4	70%	45%	Enclosure; Dust Suppression reactivated with water
C9TO10	Open Conveyor from T9 to T10	100%	24	2200.8	5	365	2,887,150	8	5.4	45%	0%	Dust Suppression reactivated with water
16	Coke Conveyor Transfer 10	100%	24	2200.8	5	365	2,887,150	8	5.4	70%	45%	Enclosure; Dust Suppression reactivated with water
17	Coke Conveyor Transfer 12	100%	24	2200.8	5	365	2,887,150	8	5.4	70%	45%	Enclosure; Dust Suppression reactivated with water
18	Coke Conveyor Transfer 13	100%	24	2200.8	5	365	2,887,150	8	5.4	70%	45%	Enclosure; Dust Suppression reactivated with water
C13TOSHP	Open Conveyor from T13 to Tanker Ship	100%	24	2200.8	5	365	2,887,150	8	5.4	45%	0%	Dust Suppression reactivated with water
19	Coke to Tanker Ship	100%	24	2200.8	5	365	2,887,150	8	5.4	75%	45%	Telescopic Chute; Dust Suppression reactivated w/ water

Notes:

Dust suppressant reactivated via water spray at reclaims.

Coke Conveyor Belt and Transfer 11 - Not in service. Belt does not exist.

Maximum daily conveyor throughput from coke pit to pile is 7,000 tons/day (dry), used for 24-hour and annual, plus moisture content and a 5% safety factor.

Maximum hourly conveyor throughput from pile to ship is 1815 metric tons/hour (dry), plus moisture content and a 5% safety factor.

Control efficiencies from AWMA Air Pollution Engineering Manual Second Edition page 694, Table 4.

Mean Wind Speed, U, based on MET data utilized for TankESP.

5% M minimum and 8% M annual average moisture content.

Source	Particle Size Multiplier, k[2]
TSP	0.74
PM10	0.35
PM2.5	0.053

[2]Particle size multiplier, k, obtained from AP-42, Section 13.2.4.3

No. of Drop Point	Description	Short Term (Hourly) Emission Factors						Annual Average Emission Factors					
		TSP Uncontrolled Emission Factor (lb/ton)	PM10 Uncontrolled Emission Factor (lb/ton)	PM2.5 Uncontrolled Emission Factor (lb/ton)	TSP Controlled Emission Factor (lb/ton)	PM10 Controlled Emission Factor (lb/ton)	PM2.5 Controlled Emission Factor (lb/ton)	TSP Uncontrolled Emission Factor (lb/ton)	PM10 Uncontrolled Emission Factor (lb/ton)	PM2.5 Uncontrolled Emission Factor (lb/ton)	TSP Controlled Emission Factor (lb/ton)	PM10 Controlled Emission Factor (lb/ton)	PM2.5 Controlled Emission Factor (lb/ton)
1	Coke Drum to Pit	7.2563E-04	3.4320E-04	5.1971E-05	7.2563E-04	3.4320E-04	5.1971E-05	3.7579E-04	1.7774E-04	2.6915E-05	3.7579E-04	1.7774E-04	2.6915E-05
2	Coke Pit to Conveyor (via clamshell/crusher)	7.2563E-04	3.4320E-04	5.1971E-05	7.2563E-04	3.4320E-04	5.1971E-05	3.7579E-04	1.7774E-04	2.6915E-05	3.7579E-04	1.7774E-04	2.6915E-05
C1	Open Conveyor from Pit to T1	7.2563E-04	3.4320E-04	5.1971E-05	7.2563E-04	3.4320E-04	5.1971E-05	3.7579E-04	1.7774E-04	2.6915E-05	3.7579E-04	1.7774E-04	2.6915E-05
3	Coke Conveyor Transfer 1	7.2563E-04	3.4320E-04	5.1971E-05	2.1769E-04	1.0296E-04	1.5591E-05	3.7579E-04	1.7774E-04	2.6915E-05	1.1274E-04	5.3322E-05	8.0745E-06
C2	Open Conveyor from T1 to T2	7.2563E-04	3.4320E-04	5.1971E-05	7.2563E-04	3.4320E-04	5.1971E-05	3.7579E-04	1.7774E-04	2.6915E-05	3.7579E-04	1.7774E-04	2.6915E-05
4	Coke Conveyor Transfer 2	7.2563E-04	3.4320E-04	5.1971E-05	2.1769E-05	1.0296E-05	1.5591E-06	3.7579E-04	1.7774E-04	2.6915E-05	1.1274E-05	5.3322E-06	8.0745E-07
5	Coke Conveyor Transfer 3	7.2563E-04	3.4320E-04	5.1971E-05	2.1769E-05	1.0296E-05	1.5591E-06	3.7579E-04	1.7774E-04	2.6915E-05	1.1274E-05	5.3322E-06	8.0745E-07
6	Coke Conveyor Transfer 4	7.2563E-04	3.4320E-04	5.1971E-05	2.1769E-05	1.0296E-05	1.5591E-06	3.7579E-04	1.7774E-04	2.6915E-05	1.1274E-05	5.3322E-06	8.0745E-07
7	Coke Conveyor Transfer 5	7.2563E-04	3.4320E-04	5.1971E-05	2.1769E-05	1.0296E-05	1.5591E-06	3.7579E-04	1.7774E-04	2.6915E-05	1.1274E-05	5.3322E-06	8.0745E-07
8	Coke Conveyor Transfer 6 (50% to TS 7, 50% to East Stacker)	7.2563E-04	3.4320E-04	5.1971E-05	2.1769E-05	1.0296E-05	1.5591E-06	3.7579E-04	1.7774E-04	2.6915E-05	1.1274E-05	5.3322E-06	8.0745E-07
C6E	Open Conveyor from T6 to East Stacker	7.2563E-04	3.4320E-04	5.1971E-05	7.2563E-05	3.4320E-05	5.1971E-06	3.7579E-04	1.7774E-04	2.6915E-05	3.7579E-05	1.7774E-05	2.6915E-06
9	Coke Transfer to East Stacker	7.2563E-04	3.4320E-04	5.1971E-05	7.2563E-05	3.4320E-05	5.1971E-06	3.7579E-04	1.7774E-04	2.6915E-05	3.7579E-05	1.7774E-05	2.6915E-06
C6S	Open Conveyor from East Stacker to Pile	7.2563E-04	3.4320E-04	5.1971E-05	7.2563E-05	3.4320E-05	5.1971E-06	3.7579E-04	1.7774E-04	2.6915E-05	3.7579E-05	1.7774E-05	2.6915E-06
10	East Stacker Out to Pile	7.2563E-04	3.4320E-04	5.1971E-05	1.8141E-04	8.5801E-05	1.2993E-05	3.7579E-04	1.7774E-04	2.6915E-05	9.3948E-05	4.4435E-05	6.7287E-06
C6TO7	Open Conveyor from T6 to T7	7.2563E-04	3.4320E-04	5.1971E-05	7.2563E-05	3.4320E-05	5.1971E-06	3.7579E-04	1.7774E-04	2.6915E-05	3.7579E-05	1.7774E-05	2.6915E-06
11	Coke Conveyor Transfer 7	7.2563E-04	3.4320E-04	5.1971E-05	2.1769E-05	1.0296E-05	1.5591E-06	3.7579E-04	1.7774E-04	2.6915E-05	1.1274E-05	5.3322E-06	8.0745E-07
C7W	Open Conveyor from T7 to West Stacker	7.2563E-04	3.4320E-04	5.1971E-05	7.2563E-05	3.4320E-05	5.1971E-06	3.7579E-04	1.7774E-04	2.6915E-05	3.7579E-05	1.7774E-05	2.6915E-06
12	Coke Transfer to West Stacker	7.2563E-04	3.4320E-04	5.1971E-05	7.2563E-05	3.4320E-05	5.1971E-06	3.7579E-04	1.7774E-04	2.6915E-05	3.7579E-05	1.7774E-05	2.6915E-06
C7S	Open Conveyor from West Stacker to Pile	7.2563E-04	3.4320E-04	5.1971E-05	7.2563E-05	3.4320E-05	5.1971E-06	3.7579E-04	1.7774E-04	2.6915E-05	3.7579E-05	1.7774E-05	2.6915E-06
13	West Stacker Out to Pile	7.2563E-04	3.4320E-04	5.1971E-05	1.8141E-04	8.5801E-05	1.2993E-05	3.7579E-04	1.7774E-04	2.6915E-05	9.3948E-05	4.4435E-05	6.7287E-06
WESTREC	West Reclaim	7.2563E-04	3.4320E-04	5.1971E-05	3.9910E-04	1.8876E-04	2.8584E-05	3.7579E-04	1.7774E-04	2.6915E-05	2.0669E-04	9.7757E-05	1.4803E-05
EASTREC	East Reclaim	7.2563E-04	3.4320E-04	5.1971E-05	3.9910E-04	1.8876E-04	2.8584E-05	3.7579E-04	1.7774E-04	2.6915E-05	2.0669E-04	9.7757E-05	1.4803E-05
WRECTO9	Open Conveyor from West Reclaim to T9	7.2563E-04	3.4320E-04	5.1971E-05	3.9910E-04	1.8876E-04	2.8584E-05	3.7579E-04	1.7774E-04	2.6915E-05	2.0669E-04	9.7757E-05	1.4803E-05
ERECTO8	Open Conveyor from East Reclaim to T8	7.2563E-04	3.4320E-04	5.1971E-05	3.9910E-04	1.8876E-04	2.8584E-05	3.7579E-04	1.7774E-04	2.6915E-05	2.0669E-04	9.7757E-05	1.4803E-05
14	Coke Conveyor Transfer 8	7.2563E-04	3.4320E-04	5.1971E-05	1.1973E-04	5.6629E-05	8.5752E-06	3.7579E-04	1.7774E-04	2.6915E-05	6.2006E-05	2.9327E-05	4.4410E-06
C8TO9	Open Conveyor from T8 to T9	7.2563E-04	3.4320E-04	5.1971E-05	3.9910E-04	1.8876E-04	2.8584E-05	3.7579E-04	1.7774E-04	2.6915E-05	2.0669E-04	9.7757E-05	1.4803E-05
15	Coke Conveyor Transfer 9	7.2563E-04	3.4320E-04	5.1971E-05	1.1973E-04	5.6629E-05	8.5752E-06	3.7579E-04	1.7774E-04	2.6915E-05	6.2006E-05	2.9327E-05	4.4410E-06
C9TO10	Open Conveyor from T9 to T10	7.2563E-04	3.4320E-04	5.1971E-05	3.9910E-04	1.8876E-04	2.8584E-05	3.7579E-04	1.7774E-04	2.6915E-05	2.0669E-04	9.7757E-05	1.4803E-05
16	Coke Conveyor Transfer 10	7.2563E-04	3.4320E-04	5.1971E-05	1.1973E-04	5.6629E-05	8.5752E-06	3.7579E-04	1.7774E-04	2.6915E-05	6.2006E-05	2.9327E-05	4.4410E-06
17	Coke Conveyor Transfer 12	7.2563E-04	3.4320E-04	5.1971E-05	1.1973E-04	5.6629E-05	8.5752E-06	3.7579E-04	1.7774E-04	2.6915E-05	6.2006E-05	2.9327E-05	4.4410E-06
18	Coke Conveyor Transfer 13	7.2563E-04	3.4320E-04	5.1971E-05	1.1973E-04	5.6629E-05	8.5752E-06	3.7579E-04	1.7774E-04	2.6915E-05	6.2006E-05	2.9327E-05	4.4410E-06
C13TOSHP	Open Conveyor from T13 to Tanker Ship	7.2563E-04	3.4320E-04	5.1971E-05	3.9910E-04	1.8876E-04	2.8584E-05	3.7579E-04	1.7774E-04	2.6915E-05	2.0669E-04	9.7757E-05	1.4803E-05
19	Coke to Tanker Ship	7.2563E-04	3.4320E-04	5.1971E-05	9.9774E-05	4.7191E-05	7.1460E-06	3.7579E-04	1.7774E-04	2.6915E-05	5.1672E-05	2.4439E-05	3.7008E-06

Formula: AP-42, Section 13.2.4.3

No. of Drop Point	Description	TSP Uncontrolled Emission Rate (lb/hr)	PM10 Uncontrolled Emission Rate (lb/hr)	PM2.5 Uncontrolled Emission Rate (lb/hr)	TSP Uncontrolled Emission Rate (tons/year)	PM10 Uncontrolled Emission Rate (tons/year)	PM2.5 Uncontrolled Emission Rate (tons/year)	TSP Controlled Emission Rate (lb/hr)	PM10 Controlled Emission Rate (lb/hr)	PM2.5 Controlled Emission Rate (lb/hr)	TSP Controlled Emission Rate (tons/year)	PM10 Controlled Emission Rate (tons/year)	PM2.5 Controlled Emission Rate (tons/year)
1	Coke Drum to Pit	0.232807	0.110111	0.016674	0.542485	0.256581	0.038854	0.232807	0.110111	0.016674	0.542485	0.256581	0.038854
2	Coke Pit to Conveyor (via clamshell/crusher)	0.232807	0.110111	0.016674	0.542485	0.256581	0.038854	0.232807	0.110111	0.016674	0.542485	0.256581	0.038854
C1	Open Conveyor from Pit to T1	0.232807	0.110111	0.016674	0.542485	0.256581	0.038854	0.232807	0.110111	0.016674	0.542485	0.256581	0.038854
3	Coke Conveyor Transfer 1	0.232807	0.110111	0.016674	0.542485	0.256581	0.038854	0.069842	0.033033	0.005002	0.162746	0.076974	0.011656
C2	Open Conveyor from T1 to T2	0.232807	0.110111	0.016674	0.542485	0.256581	0.038854	0.232807	0.110111	0.016674	0.542485	0.256581	0.038854
4	Coke Conveyor Transfer 2	0.232807	0.110111	0.016674	0.542485	0.256581	0.038854	0.006984	0.003303	0.000500	0.016275	0.007697	0.001166
5	Coke Conveyor Transfer 3	0.232807	0.110111	0.016674	0.542485	0.256581	0.038854	0.006984	0.003303	0.000500	0.016275	0.007697	0.001166
6	Coke Conveyor Transfer 4	0.232807	0.110111	0.016674	0.542485	0.256581	0.038854	0.006984	0.003303	0.000500	0.016275	0.007697	0.001166
7	Coke Conveyor Transfer 5	0.232807	0.110111	0.016674	0.542485	0.256581	0.038854	0.006984	0.003303	0.000500	0.016275	0.007697	0.001166
8	Coke Conveyor Transfer 6 (50% to TS 7, 50% to East Stacker)	0.232807	0.110111	0.016674	0.542485	0.256581	0.038854	0.006984	0.003303	0.000500	0.016275	0.007697	0.001166
C6E	Open Conveyor from T6 to East Stacker	0.116404	0.055056	0.008337	0.271243	0.128290	0.019427	0.011640	0.005506	0.000834	0.027124	0.012829	0.001943
9	Coke Transfer to East Stacker	0.116404	0.055056	0.008337	0.271243	0.128290	0.019427	0.011640	0.005506	0.000834	0.027124	0.012829	0.001943
C6S	Open Conveyor from East Stacker to Pile	0.116404	0.055056	0.008337	0.271243	0.128290	0.019427	0.011640	0.005506	0.000834	0.027124	0.012829	0.001943
10	East Stacker Out to Pile	0.116404	0.055056	0.008337	0.271243	0.128290	0.019427	0.029101	0.013764	0.002084	0.067811	0.032073	0.004857
C6TO7	Open Conveyor from T6 to T7	0.116404	0.055056	0.008337	0.271243	0.128290	0.019427	0.011640	0.005506	0.000834	0.027124	0.012829	0.001943
11	Coke Conveyor Transfer 7	0.116404	0.055056	0.008337	0.271243	0.128290	0.019427	0.003492	0.001652	0.000250	0.008137	0.003849	0.000583
C7W	Open Conveyor from T7 to West Stacker	0.116404	0.055056	0.008337	0.271243	0.128290	0.019427	0.011640	0.005506	0.000834	0.027124	0.012829	0.001943
12	Coke Transfer to West Stacker	0.116404	0.055056	0.008337	0.271243	0.128290	0.019427	0.011640	0.005506	0.000834	0.027124	0.012829	0.001943
C7S	Open Conveyor from West Stacker to Pile	0.116404	0.055056	0.008337	0.271243	0.128290	0.019427	0.011640	0.005506	0.000834	0.027124	0.012829	0.001943
13	West Stacker Out to Pile	0.116404	0.055056	0.008337	0.271243	0.128290	0.019427	0.029101	0.013764	0.002084	0.067811	0.032073	0.004857
WESTREC	West Reclaim	0.116404	0.055056	0.008337	0.271243	0.128290	0.019427	0.064022	0.030281	0.004585	0.149183	0.070560	0.010685
EASTREC	East Reclaim	0.116404	0.055056	0.008337	0.271243	0.128290	0.019427	0.064022	0.030281	0.004585	0.149183	0.070560	0.010685
WRECTO9	Open Conveyor from West Reclaim to T9	0.116404	0.055056	0.008337	0.271243	0.128290	0.019427	0.064022	0.030281	0.004585	0.149183	0.070560	0.010685
ERECTO8	Open Conveyor from East Reclaim to T8	0.116404	0.055056	0.008337	0.271243	0.128290	0.019427	0.064022	0.030281	0.004585	0.149183	0.070560	0.010685
14	Coke Conveyor Transfer 8	0.798472	0.377656	0.057188	0.271243	0.128290	0.019427	0.131748	0.062313	0.009436	0.044755	0.021168	0.003205
C8TO9	Open Conveyor from T8 to T9	0.798472	0.377656	0.057188	0.271243	0.128290	0.019427	0.439160	0.207711	0.031453	0.149183	0.070560	0.010685
15	Coke Conveyor Transfer 9	1.596944	0.755311	0.114376	0.542485	0.256581	0.038854	0.263496	0.124626	0.018872	0.089510	0.042336	0.006411
C9TO10	Open Conveyor from T9 to T10	1.596944	0.755311	0.114376	0.542485	0.256581	0.038854	0.878319	0.415421	0.062907	0.298367	0.141119	0.021370
16	Coke Conveyor Transfer 10	1.596944	0.755311	0.114376	0.542485	0.256581	0.038854	0.263496	0.124626	0.018872	0.089510	0.042336	0.006411
17	Coke Conveyor Transfer 12	1.596944	0.755311	0.114376	0.542485	0.256581	0.038854	0.263496	0.124626	0.018872	0.089510	0.042336	0.006411
18	Coke Conveyor Transfer 13	1.596944	0.755311	0.114376	0.542485	0.256581	0.038854	0.263496	0.124626	0.018872	0.089510	0.042336	0.006411
C13TOSHP	Open Conveyor from T13 to Tanker Ship	1.596944	0.755311	0.114376	0.542485	0.256581	0.038854	0.878319	0.415421	0.062907	0.298367	0.141119	0.021370
19	Coke to Tanker Ship	1.596944	0.755311	0.114376	0.542485	0.256581	0.038854	0.219580	0.103855	0.015727	0.074592	0.035280	0.005342
	Total	**16.73**	**7.91**	**1.20**	**13.56**	**6.41**	**0.97**	**5.04**	**2.38**	**0.36**	**4.57**	**2.16**	**0.33**

Table A-22 Fugitive Dust Emissions for Coker Pile Bulldozing Activities

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Potential Emissions
PARAMETERS

Maximum Operating Rate	24	hr/day	
Average Operating Rate	5500	hr/yr	2022 dozing hours + 10% safety factor
Control Efficiency (%)	95	%	WMA Air Pollution Engineering Manual Second Edition page 694, Table 4 (wet suppression with chemicals).

EMISSION CALCULATIONS

Source	Material Silt Content[1]	Minimum Material Moisture Content[2]	Annual Average Material Moisture Content[2]	Calculated Short Term Uncontrolled Emission Factor[2]	Calculated Annual Uncontrolled Emission Factor[3]	Maximum Operating Rate	Average Annual Operating Rate	Control Efficiency	Maximum Hourly Emissions	Annual Emissions
	(%)	(%)	(%)	(lb/hr)	(lb/hr)	(hr/day)	(hr/yr)	(%)	(lb/hr)	(tons/yr)
	s	M	M	E	E	ORmax	ORavg	ce		
TSP										
Coke Pile Bulldozing	8.60	5.00	8.00	127.95	69.45	24	5500	95	6.40	9.55
PM_{10}										
Coke Pile Bulldozing	8.60	5.00	8.00	36.96	19.14	24	5500	95	1.85	2.63
$PM_{2.5}$										
Coke Pile Bulldozing	8.60	5.00	8.00	2.81	1.53	24	5500	95	0.14	0.21

NOTES:
[1] Material Silt Content, s, is obtained from AP-42, Table 11.9-3.
[2] Moisture Content, M, is based on the moisture content utilized for coke transfer.
[3] Uncontrolled emission factor, E, based on specified particle size emission factor equation listed in AP-42, Table 11.9-1.

2017-2018 Actual Emissions
PARAMETERS

Maximum Operating Rate	24	hr/day	
Average Operating Rate	4656	hr/yr	Based on average of 2017 and 2018 dozing hours
Control Efficiency (%)	90	%	Occasional application of dust suppressant.

EMISSION CALCULATIONS

Source	Material Silt Content[1]	Material Moisture Content[2]	Calculated Uncontrolled Emission Factor[3]	Maximum Operating Rate	Average Annual Operating Rate	Control Efficiency	Maximum Hourly Emissions	Annual Emissions
	(%)	(%)	(lb/hr)	(hr/day)	(hr/yr)	(%)	(lb/hr)	(tons/yr)
	s	M	E	ORmax	ORavg	ce		
TSP								
Coke Pile Bulldozing	8.60	8.68	62.49	24	4656	90	6.25	14.55
PM_{10}								
Coke Pile Bulldozing	8.60	8.68	17.08	24	4656	90	1.71	3.98
$PM_{2.5}$								
Coke Pile Bulldozing	8.60	8.68	1.37	24	4656	90	0.14	0.32

NOTES:
[1] Material Silt Content, s, is obtained from AP-42, Table 11.9-3.
[2] Moisture Content, M, is based on the moisture content utilized for coke transfer.
[3] Uncontrolled emission factor, E, based on specified particle size emission factor equation listed in AP-42, Table 11.9-1.

EXAMPLE CALCULATIONS:

Emission Factor, E (lb/hr) $E = 78.4\ (s)^{1.2} / (M)^{1.3}$
E=78.4 (8.6)^1.2 / (8)^1.3
E = 24 lb/ton

Maximum Hourly Emissions (lb/hr) TSP = E x ORmax x (100-CE)/100
TSP = (69.45 lb/ton x 24 ton/hr) x (100-95/100)
TSP = 6.4 lb/hr

Average Annual Emissions (tons/yr) TSP = E x ORavg x (100-CE)/100
TSP = (69.45 lb/ton x 5500 ton/yr) x (100-95/100) x / 2000 lb/ton
TSP = 9.55 tons/yr

Table A-23 VOC Emissions from the Coke Pit

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Potential Emissions

PARAMETERS

Percent VOC	10.18	%	Based on average Chevron coke compositional analysis

EMISSION CALCULATIONS

Source	Maximum Hourly Emissions	Annual Emissions
	(lb/hr)	(tons/yr)
VOC		
Coke Pit Offgassing	0.64	2.80

NOTES:
Assumes 100% of the VOC present in the coke is offgassed at the coke pit at a rate consistent with the uncontrolled wind erosion rate for stockpiles.

2017-2018 Actual Emissions

PARAMETERS

Percent VOC	10.18	%	Based on average Chevron coke compositional analysis

EMISSION CALCULATIONS

Source	Maximum Hourly Emissions	Annual Emissions
	(lb/hr)	(tons/yr)
VOC		
Coke Pit Offgassing	0.54	2.36

NOTES:
Assumes 100% of the VOC present in the coke is offgassed at the coke pit at a rate consistent with the uncontrolled wind erosion rate for stockpiles.

Table A-24 Summary of VOC Emissions from Loading Trucks, Rail Tank Cars, Ships, and Barges

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

VOC Emission Estimates - Trucks and Rail Tank Cars

Product	Baseline VOC Emissions (ton/yr)	Future VOC Emissions (ton/yr)	VOC Emissions Increase (ton/yr)
Base Oils	0.005	0.091	0.086
Gasoline	19.5	28.3	8.8
Ethanol	1.2	1.7	0.5
Jet A	0.3	0.6	0.3
Diesel	1.3	3.1	1.7
Total	22.4	33.8	11.4

VOC Emission Estimates - Ships and Barges

Product	Baseline VOC Emissions (ton/yr)	Future VOC Emissions (ton/yr)	VOC Emissions Increase (ton/yr)
Base Oils [1]	0.023	0.040	0.017
Gasoline	80.0	97.5	17.5
Jet A	3.5	5.5	2.0
Diesel	4.1	4.6	0.4
Aviation Gas	1.5	1.6	0.1
Total	89.1	109.2	20.1

Total VOC Emissions

Product	Baseline VOC Emissions (ton/yr)	Future VOC Emissions (ton/yr)	VOC Emissions Increase (ton/yr)
Base Oils [1]	0.028	0.091	0.103
Gasoline	99.56	125.82	26.26
Ethanol	1.20	1.74	0.54
Jet A	3.76	6.07	2.31
Diesel	5.44	7.63	2.19
Aviation Gas	1.52	1.63	0.11
Total	111.5	143.0	31.51

1. Base Oils assumes maximum of worst case, loading all to ships and barges or trucks and rail cars.

Table A-25 Baseline VOC Emissions from Loading Trucks and Rail Tank Cars

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Loading Rates

Product	Vapor Pressure (psia)	Annual Throughput (1,000 gal/yr) (1)	Saturation Factor, S (unitless) (2)	Mol. Weight, M (lb/lb mole)	Liquid Density (lb/gallon)	Temp., T (°R)	Liquid Loss, L_L (lb/1,000 gal) (3)
Base Oils	0.00019	23,046	0.6	150	7.3	535	0.0004
Gasoline (4)	6.84	233,038	1.0	66	5.6	535	10.52
Ethanol	1.066	25,893	1.0	46	6.61	535	1.143
Jet A	0.013	15,806	1.0	130	7	535	0.04
Diesel	0.0104	84,394	1.0	130	7	535	0.032

Notes:

(1) Baseline emissions for the 2017 - 2018 time period.

(2) Saturation factors from AP-42 Table 5.2-1 for Petroleum Liquid Loading Losses. Vapor pressure, molecular weight, density and temperature are referenced from the Title V permit calculations. VOC emission rates are based on AP-42, Section 5.2, January 1995.

(3) VOC Emission Factor (lb/kgal) = 12.46 x Saturation Factor x Liquid Vapor Pressure (psia) x Vapor Molecular Weight (lb/lb-mole) / Liquid Bulk Temperature (°R)

(4) "Gasoline" in this table does not include ethanol. Ethanol (presented as a separate line item) is blended into gasoline as the product is loaded.

VOC Emission Estimates - Not Captured

Product	Capture Efficiency (%)	VOC Emissions (ton/yr) (1)
Base Oils	0.0%	0.005
Gasoline	99.2%	9.81
Ethanol	99.2%	0.12
Jet A	0.0%	0.31
Diesel	0.0%	1.33

Notes:

(1) Annual VOC Emissions (ton/yr) = VOC Emission Factor (lb/kgal) x Annual Loading Rate kgal/yr) * (1-CE %) / 2000 lb/ton

VOC Emission Estimates - Captured / Controlled

Product	Vapor Collection System Rating (mg/L) (1)	VOC Emissions (ton/yr)
Base Oils		
Gasoline	10	9.72
Ethanol	10	1.08
Jet A		
Diesel		

Note:

(1) The VCU rating is based on the 40 CFR 63 Subpart R emission limit for VOC.

Baseline VOC Emissions - Total

Product	VOC Emissions (ton/yr)
Base Oils	0.0047
Gasoline	19.5
Ethanol	1.2
Jet A	0.3
Diesel	1.3
Totals	**22.4**

Table A-26 Post Project VOC Emissions from Loading of Trucks and Rail Tank Cars

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Loading Rates

Product	Vapor Pressure (psia)	Annual Throughput (1,000 gal/yr) [1]	Saturation Factor, S (unitless) [2]	Mol. Weight, M (lb/lb mole)	Liquid Density (lb/gallon)	Temp., T (°R)	Liquid Loss, L_L (lb/1,000 gal) [3]
Base Oils	0.00019	447,636	0.6	150	7.3	535	0.0004
Gasoline [4]	6.84	337,500	1.0	66	5.6	535	10.52
Ethanol	1.066	37,500	1.0	46	6.61	535	1.143
Jet A	0.0130	30,000	1.0	130	7	535	0.04
Diesel	0.0104	195,000	1.0	130	7	535	0.03

Notes:

(1) Total post project throughputs are based post-project projected refinery operations. Gasoline, Jet A, and diesel are assumed to be shipped by truck at the marketing terminal within proposed permit limits (375,000,000 gal/yr for gasoline with ethanol and aviation gas combined, 30,000,000 gal/yr for Jet A, and 195,000,000 gal/yr for diesel) because marketing terminal emissions are higher than emission from other shipping methods. The remaining or excess gasoline, Jet A and diesel are allocated to the wharf. For Base Oils, the expected loading rate is 10,658,000 barrels per year (29,200 barrels per day average * 365 days). The full amount is assumed to be shipped by via rail tank cars because rail tank car emissions are higher than emission from other shipping methods.

(2) Saturation factors from AP-42 Table 5.2-1 for Petroleum Liquid Loading Losses. Vapor pressure, molecular weight, density and temperature are referenced from the Title V permit calculations. VOC emission rates are based on AP-42, Section 5.2, January 1995.

(3) VOC Emission Factor (lb/kgal) = 12.46 x Saturation Factor x Liquid Vapor Pressure (psia) x Vapor Molecular Weight (lb/lb-mole) / Liquid Bulk Temperature (°R)

(4) "Gasoline" in this table does not include ethanol. Ethanol (presented as a separate line item) is blended into gasoline as the product is loaded.

VOC Emission Estimates - Not Captured

Product	Capture Efficiency (%)	VOC Emissions (ton/yr) [1]
Base Oils	0.0%	0.091
Gasoline	99.2%	14.20
Ethanol	99.2%	0.17
Jet A	0.0%	0.59
Diesel	0.0%	3.07

Notes:

(1) Annual VOC Emissions (ton/yr) = VOC Emission Factor (lb/kgal) x Annual Loading Rate kgal/yr) * (1-CE %) / 2000 lb/ton

VOC Emission Estimates - Captured / Controlled

Product	Vapor Collection System Rating (mg/L) [1]	VOC Emissions (ton/yr)
Base Oils		
Gasoline	10	14.1
Ethanol	10	1.6
Jet A		
Diesel		

Note:

(1) The VCU rating is based on the 40 CFR 63 Subpart R emission limit for VOC.

VOC Emission Estimates - Total

Product	Baseline VOC Emissions (ton/yr)	Future VOC Emissions (ton/yr)	VOC Emissions Increase (ton/yr)
Base Oils	0.005	0.091	0.086
Gasoline	19.5	28.3	8.8
Ethanol	1.2	1.7	0.5
Jet A	0.3	0.6	0.3
Diesel	1.3	3.1	1.7
Totals	**22.4**	**33.8**	**11.4**

Table A-27 Baseline VOC Emissions from Product Loading in Ships and Barges

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Loading Rates

Product	Ship Loading Throughput (1,000 gal/yr) [1]	Pipeline Loading Throughput (1,000 gal/yr) [1]	Barge Loading Throughput (1,000 gal/yr) [1]	Total Throughput (1,000 gal/yr) [1]
Base Oils	201,446	0	58,406	259,852
Gasoline	1,174,115	619,651	319,894	2,113,660
Jet A	611,114	321,810	106,146	1,039,071
Diesel	1,005,104	164,097	120,340	1,289,541
Aviation Gas	18,664	0	9,892	28,556

(1) Baseline loading rates are based on the 2017 - 2018 time period.

Throughput Allocations [1]

Product	Ship Loading (%)	Pipeline Loading (%)	Barge Loading (%)
Base Oils	77.5%	0.0%	22.5%
Gasoline	55.5%	29.3%	15.1%
Jet A	58.8%	31.0%	10.2%
Diesel	77.9%	12.7%	9.3%
Aviation Gas	65.4%	0.0%	34.6%

Notes:

(1) Calculated loading percentages based on the 2017 - 2018 time period.

Calculated Loading Loss Factors

Product	Vapor Pressure (psia)	Saturation Factor, S (unitless)	Mol. Weight, M (lb/lb mole)	Temp., T (°R)	Ship Liquid Loss, L_L (lb/1,000 gal)	Barge Liquid Loss, L_L (lb/1,000 gal)
Base Oils	0.0002	0.2 for ships and 0.5 for barges	150	535	0.00013	0.00034
Gasoline	6.84		66	535	1.8	3.4
Jet A	0.0130		130	535	0.008	0.020
Diesel	0.0104		130	535	0.0063	0.0158
Aviation Gas	4.54		66	535	1.397	3.491

VOC Emission Estimates - Total

Product	VOC Loading Emission Factors			VOC Control Efficiency (%)	VOC Emissions (ton/yr)
	Ships (lb/1,000 gal)	Pipeline Loading (lb/gal)	Barges (lb/1,000 gal)		
Base Oils	0.00013	0	0.00034		0.0234
Gasoline	1.8	0	3.4	95%	80.03
Jet A	0.008	0	0.020		3.45
Diesel	0.0063	0	0.0158		4.11
Aviation Gas	1.397	0	3.49	95%	1.52
Total					89.13

Notes:

Emission calculations are based on AP-42, Section 5.2.

Table A-28 Post Project VOC Emissions from Product Loading in Ships and Barges

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Loading Rates - Total Throughput

Product	Throughput (1,000 gal/yr)[1]
Base Oils	447,636
Gasoline	2,576,025
Jet A	1,650,168
Diesel	1,429,980
Aviation Gas	30,660

Throughput Allocations

Product	Ship Loading [1] (%)	Pipeline Loading [1] (%)	Barge Loading [1] (%)
Base Oils	77.5%	0.0%	22.5%
Gasoline	55.5%	29.3%	15.1%
Jet A	58.8%	31.0%	10.2%
Diesel	77.9%	12.7%	9.3%
Aviation Gas	65.4%	0.0%	34.6%

Notes:

(1) Total post project throughputs are based post-project projected refinery operations. Gasoline, Jet A, and diesel are assumed to be shipped by truck at the marketing terminal within proposed permit limits (375,000,000 gal/yr for gasoline with ethanol and aviation gas combined, 30,000,000 gal/yr for Jet A, and 195,000,000 gal/yr for diesel) because marketing terminal emissions are higher than emission from other shipping methods. The full limit for gasoline and aviation gas is conservatively assumed to go to gasoline as gasoline has a higher vapor pressure. The remaining or excess gasoline, Jet A, diesel and aviation gas are allocated to the wharf. For Base Oils, the expected loading rate is 10,658,000 barrels per year (29,200 barrels per day average * 365 days). The full amount is assumed to be shipped by via rail tank cars because rail tank car emissions are higher than emission from other shipping methods.

Throughput Allocations

Product	Ship Loading Throughput (1,000 gal/yr)	Pipeline Loading (1,000 gal/yr)	Barge Loading Throughput (1,000 gal/yr)	Total Loading Throughput (1,000 gal/yr)
Base Oils	347,022	0	100,614	447,636
Gasoline	1,430,954	755,200	389,871	2,576,025
Jet A	970,522	511,073	168,573	1,650,168
Diesel	1,114,566	181,968	133,445	1,429,980
Aviation Gas	20,039	0	10,621	30,660

Calculated Loading Loss Factors

Product	Vapor Pressure (psia)	Saturation Factor, S (unitless)	Mol. Weight, M (lb/lb mole)	Temp., T (°R)	Ship Liquid Loss, L_L (lb/1,000 gal)	Barge Liquid Loss, L_L (lb/1,000 gal)
Base Oils	0.00019	0.2 for ships and 0.5 for barges	150	535	0.00013	0.00034
Gasoline	6.84		66	535	1.8	3.4
Jet A	0.0130		130	535	0.008	0.020
Diesel	0.0104		130	535	0.0063	0.0158
Aviation Gas	4.54		66	535	1.397	3.491

VOC Emission Estimates - Total

Product	VOC Loading Emission Factors			VOC Control Efficiency (%)	VOC Emissions (ton/yr)
	Ships (lb/1,000 gal)	Pipeline Loading (lb/gal)	Barges (lb/1,000 gal)		
Base Oils	0.00013	0	0.00034		0.040
Gasoline	1.8	0	3.4	95%	97.53
Jet A	0.008	0	0.020		5.48
Diesel	0.0063	0	0.0158		4.56
Aviation Gas	1.397	0	3.49	95%	1.63
Total					109.24

Notes:
Emission calculations are based on AP-42, Section 5.2.

Table A-29 Product Loading HAP Emissions

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Product Loaded	VOC Emission Increase	Hazardous Air Pollutants																	
		2,2,4-Trimethylpentane			Acetaldehyde			Acrolein			Benzene			Butadiene (1,3)			Cresols		
	lb/yr	wt. %	lb/hr	tpy	wt. %	lb/hr	tpy	wt. %	lb/hr	tpy	wt. %	lb/hr	tpy	wt. %	lb/hr	tpy	wt. %	lb/hr	tpy
Base Oils 1	206	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gasoline	52,520	**3.1E+00**	**1.9E-01**	**8.2E-01**	-	-	-	-	-	-	**2.7E-01**	**1.6E-02**	**7.0E-02**	-	-	-	-	-	-
Ethanol	1,075	**2.9E-02**	**3.6E-05**	**1.6E-04**	-	-	-	-	-	-	**2.7E-01**	**3.4E-04**	**1.5E-03**	-	-	-	-	-	-
Jet A	4,619	-	-	-	-	-	-	-	-	-	**2.3E-01**	**1.2E-03**	**5.4E-03**	-	-	-	-	-	-
Diesel	4,381	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aviation Gas	223	**6.4E+00**	**1.6E-03**	**7.1E-03**	-	-	-	-	-	-	**5.9E-01**	**1.5E-04**	**6.6E-04**	-	-	-	-	-	-
Total Loading			**1.9E-01**	**8.3E-01**		-	-		-	-		**1.8E-02**	**7.8E-02**		-	-		-	-

Note: Vapor weight percents from TankESP.

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Product Loaded	VOC Emission Increase	Hazardous Air Pollutants																	
		Cumene			Diethanolamine			Dioxins			Ethylbenzene			Ethylene			Ethylene Dibromide		
	lb/yr	wt. %	lb/hr	tpy	wt. %	lb/hr	tpy	wt. %	lb/hr	tpy	wt. %	lb/hr	tpy	wt. %	lb/hr	tpy	wt. %	lb/hr	tpy
Base Oils 1	206	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gasoline	52,520	**6.5E-01**	**3.9E-02**	**1.7E-01**	-	-	-	-	-	-	**3.5E-01**	**2.1E-02**	**9.3E-02**	-	-	-	-	-	-
Ethanol	1,075	**3.8E-02**	**4.7E-05**	**2.0E-04**	-	-	-	-	-	-	**3.7E-02**	**4.5E-05**	**2.0E-04**	-	-	-	-	-	-
Jet A	4,619	**2.0E-01**	**1.1E-03**	**4.6E-03**	-	-	-	-	-	-	**3.5E-01**	**1.9E-03**	**8.2E-03**	-	-	-	-	-	-
Diesel	4,381	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aviation Gas	223	**1.0E-02**	**2.5E-06**	**1.1E-05**	-	-	-	-	-	-	**2.3E-02**	**5.9E-06**	**2.6E-05**	-	-	-	**1.0E-03**	**2.5E-07**	**1.1E-06**
Total Loading			**4.0E-02**	**1.8E-01**		-	-		-	-		**2.3E-02**	**1.0E-01**		-	-		**2.5E-07**	**1.1E-06**

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Product Loaded	VOC Emission Increase	Hazardous Air Pollutants																	
		Ethylene Glycol			Formaldehyde			Hexane (-n)			Hydrogen Sulfide			Methyl-tert-butyl ether (MTBE)			Naphthalene		
	lb/yr	wt. %	lb/hr	tpy	wt. %	lb/hr	tpy	wt. %	lb/hr	tpy	wt. %	lb/hr	tpy	wt. %	lb/hr	tpy	wt. %	lb/hr	tpy
Base Oils 1	206	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gasoline	52,520	-	-	-	-	-	-	1.1E+00	6.3E-02	2.8E-01	-	-	-	-	-	-	-	-	-
Ethanol	1,075	-	-	-	-	-	-	8.5E-02	1.0E-04	4.6E-04	-	-	-	-	-	-	-	-	-
Jet A	4,619	-	-	-	-	-	-	2.9E+00	1.5E-02	6.7E-02	-	-	-	-	-	-	-	-	-
Diesel	4,381	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aviation Gas	223	-	-	-	-	-	-	2.9E+00	7.3E-04	3.2E-03	-	-	-	-	-	-	1.7E-02	4.3E-06	1.9E-05
Total Loading			-	-		-	-		7.9E-02	3.5E-01		-	-		-	-		4.3E-06	1.9E-05

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Product Loaded	VOC Emission Increase	Hazardous Air Pollutants												
		Phenol			POM			Toluene			Xylenes - Mixed			Total HAPS
	lb/yr	wt. %	lb/hr	tpy	wt. %	lb/hr	tpy	wt. %	lb/hr	tpy	wt. %	lb/hr	tpy	tpy
Base Oils 1	206	-	-	-	-	-	-	-	-	-	-	-	-	-
Gasoline	52,520	-	-	-	-	-	-	2.2E+00	1.3E-01	5.8E-01	6.2E-01	3.7E-02	1.6E-01	2.2E+00
Ethanol	1,075	-	-	-	-	-	-	2.5E-01	3.1E-04	1.4E-03	6.4E-02	7.9E-05	3.4E-04	4.2E-03
Jet A	4,619	-	-	-	3.4E+00	1.8E-02	7.9E-02	8.5E-01	4.5E-03	2.0E-02	5.0E-01	2.6E-03	1.1E-02	2.0E-01
Diesel	4,381	-	-	-	1.0E+00	5.0E-03	2.2E-02	-	-	-	-	-	-	2.2E-02
Aviation Gas	223	-	-	-	-	-	-	2.3E+00	5.9E-04	2.6E-03	2.2E-02	5.6E-06	2.5E-05	1.4E-02
Total Loading			-	-		2.3E-02	1.0E-01		1.4E-01	6.1E-01		4.0E-02	1.7E-01	2.4E+00

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Product Loaded	VOC Emission Increase	Other Speciated Emissions																				
		1,2,4-trimethylbenzene			Ammonia			Benzo (g,h,i) Perylene			Cyclohexane			PACs			Sulfuric Acid Mist			Ethanol		
	lb/yr	wt. %	lb/hr	tpy	wt. %	lb/hr	tpy	wt. %	lb/hr	tpy	wt. %	lb/hr	tpy	wt. %	lb/hr	tpy	wt. %	lb/hr	tpy	wt. %	lb/hr	tpy
Base Oils 1	206	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gasoline	52,520	**7.3E-01**	**4.4E-02**	**1.9E-01**	-	-	-	-	-	-	**1.1E-01**	**6.3E-03**	**2.8E-02**	-	-	-	-	-	-	-	-	-
Ethanol	1,075	**6.6E-02**	**8.1E-05**	**3.5E-04**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**9.7E+01**	**1.2E-01**	**5.2E-01**
Jet A	4,619	**6.9E-01**	**3.6E-03**	**1.6E-02**	-	-	-	**3.4E-04**	**1.8E-06**	**7.9E-06**	-	-	-	**1.0E-03**	**5.3E-06**	**2.3E-05**	-	-	-	-	-	-
Diesel	4,381	-	-	-	-	-	-	**2.2E-04**	**1.1E-06**	**4.8E-06**	-	-	-	**1.0E-03**	**5.0E-06**	**2.2E-05**	-	-	-	-	-	-
Aviation Gas	223	**9.0E-03**	**2.3E-06**	**1.0E-05**	-	-	-	**3.0E-05**	**7.6E-09**	**3.3E-08**	**6.8E-01**	**1.7E-04**	**7.6E-04**	**2.0E-04**	**5.1E-08**	**2.2E-07**	-	-	-	-	-	-
Total Loading			**4.7E-02**	**2.1E-01**		-	-		**2.9E-06**	**1.3E-05**		**6.5E-03**	**2.8E-02**		**1.0E-05**	**4.5E-05**		-	-		**1.2E-01**	**5.2E-01**

Table A-30 Affected Storage Tank Emissions Summary

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Tanks in Parallel

Swing tanks used for more than one project-affected service.

Stock	Tank ID	Bulk Liquid Temperature	Baseline Throughput	Post Project Throughput		Total Baseline Emissions	Future Emissions: Breathing or Rim Seal, Deck Fitting, Deck Seam	Future Emissions: Working or Withdrawl	Future Emissions: Total	Emission Increases
		°F	gal/yr	MBBLD	gal/yr	lb/yr	lb/yr	lb/yr	lb/yr	lb/yr
Purchased Feeds										
Purch Naphtha	T-102	100	29,533,287	3	38,938,200	479.0	4,631.9	58.4	4,690.3	7,658
	T-112	Ambient	34,465,574	3	38,938,200	502.4	3,948.7	58.4	4,007.1	
Ethanol	T-175	Ambient	23,807,143	4	56,250,000	401.2	311.3	168.5	479.8	79
	T-80	Ambient	21,600,831	4	56,250,000	123.0	26.2	227.7	253.9	131
Purch LSVGO	T-206	100	105,237,909	10	153,300,000	0.3	0.0	0.4	0.4	0
	T-207	100	114,622,425	10	153,300,000	0.3	0.0	0.4	0.4	
	T-100	140	66,977,931	5	73,100,568	0.3	0.0	0.2	0.2	0
	T-110	140	61,351,647	4	66,959,969	0.3	0.1	0.2	0.3	0
Purch HSVGO	T-820	140	197,036,042	40	609,404,775	0.8	0.0	1.3	1.3	0
	T-220	130	153,117,643	11	167,114,547	252.8	0.0	275.9	275.9	23
	T-204	110	24,888,633	2	27,163,771	629.7	0.0	0.1	0.1	-630
	T-205	110	66,624,994	5	72,715,368	2,891.4	0.0	0.2	0.2	-2,891
	T-502	130	84,358,848	40	609,404,775	0.5	0.0	0.9	0.9	0
	T-503	150	21,239,338	2	23,180,884	3,959.0	0.3	0.1	0.3	-3,959
Crude	T-208	Ambient	255,747,401	394	6,040,020,000	1,273.1	2,155.6	23,628.2	25,783.9	48,484
	T-400	Ambient	108,425,778	394	6,040,020,000	959.9	1,772.1	28,599.5	30,371.6	
	T-401	Ambient	307,312,701	394	6,040,020,000	2,104.3	2,947.9	28,599.5	31,547.4	
	T-402	Ambient	90,553,848	394	6,040,020,000	892.1	1,789.9	28,599.5	30,389.5	
	T-403	Ambient	225,505,517	394	6,040,020,000	1,724.9	1,789.9	28,599.5	30,389.5	
	T-404	Ambient	223,147,632	394	6,040,020,000	1,510.2	1,787.3	28,599.5	30,386.8	
	T-405	Ambient	107,323,923	394	6,040,020,000	713.1	1,789.9	28,599.5	30,389.5	
	T-406	Ambient	442,462,564	394	6,040,020,000	3,506.5	2,322.1	23,628.2	25,950.3	
	T-407	145	218,219,190	394	6,040,020,000	2,887.3	8,855.4	23,628.2	32,483.7	
	T-408	Ambient	302,297,971	394	6,040,020,000	2,174.1	2,234.5	23,628.2	25,862.8	
	T-409	Ambient	240,580,965	394	6,040,020,000	3,535.0	2,234.5	23,628.2	25,862.8	
	T-412	145	257,802,455	394	6,040,020,000	3,736.1	8,521.6	23,628.2	32,149.8	
	T-422	145	131,693,054	394	6,040,020,000	2,155.4	8,855.4	23,628.2	32,483.7	
Gasoline Blend Stock (GBS)	T-164	Ambient	9,482,214	1	10,349,009	2,705.3	2,658.7	27.9	2,686.6	-19
	T-165	Ambient	10,090,206	1	11,012,579	236.5	4,812.4	29.7	4,842.0	4,606
Intermediate Storage										
Gasoline Blend Stock (GBS)	T-153	Ambient	19,722,570	1	21,525,464	2,263.3	2,899.3	41.0	2,940.4	677
	T-154	Ambient	13,189,974	1	14,395,706	7,035.7	6,774.9	27.4	6,802.3	-233
	T-173	Ambient	27,646,752	2	30,174,017	4,794.4	6,057.2	57.5	6,114.6	1,320
Coker Naphtha	T-500	90	12,934,719	1	14,117,117	3,658.3	5,936.2	34.1	5,970.3	2,312
	T-501	90	26,392,114	2	28,804,689	5,406.4	2,206.6	51.4	2,258.0	-3,148
Crude II LSVGO	T-525	170	107,592,135	8	117,427,427	0.5	0.0	0.3	0.3	0
Crude II HSVGO	T-526	170	98,350,560	7	107,341,054	0.4	0.0	0.3	0.3	0
Coker Penhex	T-151	Ambient	10,017,758	1	10,933,509	2,391.8	3,195.1	13.2	3,208.3	817
Hvy Coker Gasoil	T-210	100	43,664,783	3	47,656,301	118.5	45.5	100.6	146.1	28
	T-504	140	26,479,515	2	28,900,080	2,440.7	1,630.9	792.7	2,423.6	-17
	T-505	170	18,378,948	1	20,059,018	2,494.3	3,554.9	924.1	4,479.1	1,985
LCGO	T-104	Ambient	53,334,845	4	58,210,330	100.3	0.0	107.9	107.9	8
	T-120	Ambient	26,037,669	2	28,417,844	52.9	0.0	53.1	53.1	0
	T-124	100	45,353,786	3	49,499,700	84.7	0.0	92.5	92.5	8
Oily Water	T-32110	95	66,845,696	5	72,956,244	973.4	603.6	398.9	1,002.5	29
	T-32120	95	66,845,696	5	72,956,244	973.4	603.6	398.9	1,002.5	29
	T-32130	95	66,845,696	5	72,956,244	973.4	603.6	398.9	1,002.5	29
PBOP Desalter	T-8293	Ambient	224,322,253	16	244,828,165	1,369.1	0.0	1,315.8	1,315.8	-53
Benzene Water	T-306	Ambient	-	12	183,954,464	0.0	8,246.8	394.2	8,641.0	8,641
Coker Drill Water	T-8300	Ambient	3,816,852,156	3	40,359,765	30,850.4	157.6	1,071.9	1,229.5	-29,621
Sour Water	T-197	100	8,355,165	1	9,118,934	2,462.4	6,715.5	30.3	6,745.8	4,283
	T-198	100	6,295,155	0.4	6,870,612	929.3	6,573.5	13.9	6,587.4	5,658
	T-2795	100	-	0.1	802,200	0.0	3,084.8	3.4	3,088.2	3,088
Vac Bottoms	T-213	370	41,621,243	3	45,425,955	0.1	1.0	1.4	2.4	2
	T-506	370	52,779,710	4	57,604,448	0.3	0.0	20.9	20.9	21
Resid	T-507	330	31,992,363	2	34,916,872	0.3	0.0	4.5	4.5	4
	T-508	330	15,234,400	1	16,627,018	0.2	0.0	2.2	2.2	2
Slops	T-423	Ambient	14,827,287	1	16,182,690	276.4	212.1	120.4	332.4	56
Waste Oil	T-11210	Ambient	604,555	0	659,820	14.2	3.2	9.6	12.8	-1
Int 100 Neut	T-515	180	20,782,420	1	22,903,075	1,451.1	0.0	1,404.2	1,404.2	-47
Waxy Neutrals	T-516	180	69,598,410	5	76,700,289	5,871.7	0.0	4,702.5	4,702.5	-1,169
	T-517	180	64,406,098	5	70,978,149	4,209.9	0.0	4,351.6	4,351.6	142

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Tanks in Parallel

Swing tanks used for more than one project-affected service.

Stock	Tank ID	Bulk Liquid Temperature	Baseline Throughput	Post Project Throughput		Total Baseline Emissions	Future Emissions			Emission Increases
							Breathing or Rim Seal, Deck Fitting, Deck Seam	Working or Withdrawl	Total	
		°F	gal/yr	MBBLD	gal/yr	lb/yr	lb/yr	lb/yr	lb/yr	lb/yr
Products										
Finished MOGAS (PMT)	T-50	Ambient	121,960,799	24	375,000,000	8,992.5	9,611.1	1,285.9	10,897.0	-64,574
	T-52	Ambient	4,838,798	24	375,000,000	100.0	3,705.1	1,285.9	4,991.0	
	T-53	Ambient	5,444,634	24	375,000,000	3,575.9	2,875.1	1,861.2	4,736.2	
	T-54	Ambient	24,194,321	24	375,000,000	31,292.6	2,868.5	1,861.2	4,729.7	
	T-57	Ambient	9,729,405	24	375,000,000	30,272.8	2,992.9	1,861.2	4,854.1	
	T-60	Ambient	26,150,289	24	375,000,000	8,164.9	8,759.6	1,861.2	10,620.7	
	T-63	Ambient	4,584,813	24	375,000,000	17,723.5	2,875.1	1,861.2	4,736.2	
Finished MOGAS	T-300	Ambient	60,819,432	117	1,798,393,239	5,119.8	7,403.5	2,649.8	10,053.4	3,433
	T-310	Ambient	1,987,524	117	1,798,393,239	967.7	7,403.5	2,649.8	10,053.4	
	T-323	Ambient	320,026,956	117	1,798,393,239	8,818.6	9,257.3	2,174.2	11,431.5	
	T-331	Ambient	170,458,554	117	1,798,393,239	9,796.1	7,403.5	2,649.8	10,053.4	
	T-332	Ambient	277,898,488	117	1,798,393,239	9,562.7	9,097.0	2,153.5	11,250.5	
	T-333	Ambient	366,984,974	117	1,798,393,239	12,252.5	9,217.7	2,153.5	11,371.2	
	T-320	Ambient	195,263,292	117	1,798,393,239	9,833.3	7,351.4	2,649.8	10,001.2	
Finished Premium MOGAS	T-301	Ambient	60,977,601	75	1,152,816,000	10,214.3	12,404.1	1,958.7	14,362.8	-1,072
	T-302	Ambient	77,278,026	75	1,152,816,000	7,501.0	12,424.3	1,958.7	14,383.0	
	T-304	Ambient	-	75	1,152,816,000	0.0	5,858.4	2,196.2	8,054.6	
	T-311	Ambient	181,518,427	75	1,152,816,000	9,058.5	7,351.4	1,698.6	9,050.0	
	T-312	Ambient	129,489,738	75	1,152,816,000	8,689.3	6,725.7	1,958.7	8,684.4	
	T-314	Ambient	85,314,487	75	1,152,816,000	7,248.1	5,858.4	2,196.2	8,054.6	
	T-315	Ambient	80,323,414	75	1,152,816,000	5,999.0	5,858.4	2,196.2	8,054.6	
	T-321	Ambient	94,396,257	75	1,152,816,000	20,030.0	7,403.5	1,698.6	9,102.1	
	T-322	Ambient	287,577,507	75	1,152,816,000	7,669.9	9,257.3	1,393.7	10,651.1	
Avgas	T-303	Ambient	27,484,506	2	30,660,000	1,047.4	1,099.9	54.9	1,154.8	196
	T-305	Ambient	7,011,354	2	30,660,000	558.2	615.1	87.0	702.1	
Low Sulfur Diesel (500ppm)	T-121	100	113,591,626	29	446,627,985	7,537.4	2,427.2	11,393.1	13,820.3	-111
	T-122	100	39,534,936	29	446,627,985	0.0	0.0	11,393.1	11,393.1	
	T-371	Ambient	206,238,270	29	446,627,985	7,250.8	955.4	5,282.6	6,238.0	
	T-373	Ambient	183,894,501	29	446,627,985	274.6	176.0	501.4	677.4	
ULSD	T-132	100	172,446,232	12	188,290,531	6,175.3	2,325.9	8,969.4	11,295.3	5,120
ULSD	T-324	Ambient	164,862,603	106	1,631,112,000	0.0	0.0	1,903.6	1,903.6	5,532
	T-361	Ambient	91,078,890	106	1,631,112,000	3,648.7	1,571.8	13,822.3	15,394.1	
	T-370	Ambient	221,850,846	106	1,631,112,000	5,510.1	879.4	11,623.3	12,502.7	
	T-372	Ambient	52,856,139	106	1,631,112,000	1,878.5	477.0	10,542.6	11,019.6	
	T-374	Ambient	252,946,407	106	1,631,112,000	371.0	190.0	1,831.1	2,021.1	
Product Diesel (PMT)	T-58	Ambient	36,981,708	13	195,000,000	881.5	146.4	1,498.6	1,645.0	419
	T-61	Ambient	26,917,746	13	195,000,000	435.0	146.4	1,498.6	1,645.0	
	T-62	Ambient	13,546,991	13	195,000,000	102.8	46.9	1,209.8	1,256.7	
MGO	T-122	100	39,534,936	3	43,190,303	3,210.6	2,427.2	2,352.3	4,779.4	1,569
Base Oils	T-11	Ambient	21,030,849	29	447,636,000	59.4	0.3	815.2	815.5	151
	T-800	Ambient	34,307,112	29	447,636,000	161.3	82.9	366.3	449.2	
	T-801	Ambient	31,539,690	29	447,636,000	151.6	82.9	366.3	449.2	
	T-802	Ambient	9,348,024	29	447,636,000	37.6	22.3	181.5	203.8	
	T-803	Ambient	10,345,125	29	447,636,000	38.1	22.3	181.5	203.8	
	T-804	100	78,078,987	29	447,636,000	337.4	169.6	776.8	946.4	
	T-805	100	82,392,408	29	447,636,000	352.2	169.6	776.8	946.4	
	T-806	100	40,783,932	29	447,636,000	209.6	169.6	776.8	946.4	
	T-807	100	42,474,768	29	447,636,000	206.2	169.6	776.8	946.4	
Jet-A	T-123	100	66,875,220	5	72,988,468	192.4	289.5	134.4	423.9	232
	T-133	100	129,569,756	9	141,414,083	396.4	290.0	260.5	550.4	154
	T-324	Ambient	164,862,603	110	1,679,700,727	309.4	317.6	1,960.3	2,277.9	3,581
	T-350	Ambient	285,398,481	110	1,679,700,727	756.0	121.5	3,999.9	4,121.4	
	T-351	Ambient	262,642,256	110	1,679,700,727	698.5	122.6	3,999.9	4,122.4	
	T-352	Ambient	101,002,776	110	1,679,700,727	399.6	175.5	5,657.0	5,832.5	
	T-353	Ambient	106,075,830	110	1,679,700,727	407.1	131.9	5,657.0	5,788.9	
	T-355	Ambient	383,440,554	110	1,679,700,727	589.6	215.1	1,960.3	2,175.5	
	T-55	Ambient	4,001,468	2	30,000,000	27.6	2.7	186.1	188.8	92
	T-56	Ambient	4,461,072	2	30,000,000	29.3	2.1	186.1	188.2	
	T-59	Ambient	6,786,431	2	30,000,000	44.4	2.1	186.1	188.2	
Total VOC Emission Increases										**110,598 lb/year**
										55.30 tons/year

H_2S/TRS Emissions

Purch HSVGO	T-820		197,036,042	40	609,404,775	1.86E-02	0.00E+00	5.75E-02	5.75E-02	3.89E-02
	T-204		24,888,633	2	27,163,771	2.35E-03	0.00E+00	2.56E-03	2.56E-03	2.15E-04
	T-502		84,358,848	40	609,404,775	7.96E-03	0.00E+00	5.75E-02	5.75E-02	4.95E-02
	T-503		21,239,338	2	23,180,884	2.00E-03	1.74E-03	4.49E-04	2.19E-03	1.83E-04
Crude II LSVGO	T-525		107,592,135	8	117,427,427	1.01E-02	0.00E+00	1.11E-02	1.11E-02	9.28E-04
Crude II HSVGO	T-526		98,350,560	7	107,341,054	9.27E-03	0.00E+00	1.01E-02	1.01E-02	8.48E-04
Hvy Coker Gasoil	T-504		26,479,515	2	28,900,080	2.50E-03	1.83E-03	8.91E-04	2.73E-03	2.28E-04
	T-505		18,378,948	1	20,059,018	1.73E-03	1.50E-03	3.90E-04	1.89E-03	1.58E-04
Vac Bottoms	T-213		41,621,243	3	45,425,955	3.93E-03	1.83E-03	2.45E-03	4.28E-03	3.59E-04
Total H_2S/TRS Emissions										**9.13E-02 lb/year**
										4.6E-05 tons/year

Note:
H2S emissions are limited by Sulfatreat to 16 ppmv
H2S emissions (lb) = gal/yr x 1 ft3/7.48 gal x 16.0E-06 x 1 lb-mole/385.6 ft3 x 34 lb H2S/lb-mole

Table A-31 Storage Tank TankESP Outpu

TankSummaries for 2026 Annual

Site: ChevronPermitting,

Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

Tank ID	Tank Diameter (ft)	Tank Type	Product	RVP	Throughput (gal)	Bulk Liquid Temperature (degF)	Avg. Liquid Surface Temp. (degF)
T-100	126	FRT (no floating roof)	PAS FCC Feed (low,high sulfur)		73100567.4	140	140
T-102	128	EFRT	PAS NHT,Naphtha Hydro Trted. Feed	5	38938200	100	86.405657
T-104	129	EFRT	PAS Coker HDN Feed		58210328.4	77.817087	79.750783
T-11	135	domed EFRT	PAS Lubricants		447636000	72.710132	74.811029
T-110	126	FRT (no floating roof)	PAS FCC Feed (low,high sulfur)		66959970	140	118.87119
T-112	128	EFRT	PAS NHT,Naphtha Hydro Trted. Feed	5	38938200	77.169998	79.556656
T-11210	8	FRT (no floating roof)	PAS Recovered Oil		659819.496	74.83683	76.712952
T-120	128	EFRT	PAS Coker HDN Feed		28417843.86	77.804197	79.746916
T-121	126	FRT (no floating roof)	PAS Diesel-Ultra Low Sulfur		446628000	100	93.760692
T-122	126	FRT (no floating roof)	PAS Diesel-Ultra Low Sulfur		446628000	100	93.760692
T-123	128	EFRT	PAS Jet-A		72988469.4	100	86.405657
T-124	128	EFRT	PAS Coker HDN Feed		49499700.6	100	86.405657
T-132	126	FRT (no floating roof)	PAS Diesel-Ultra Low Sulfur		188290531.8	100	93.437459
T-133	128	EFRT	PAS Jet-A		141414084	100	86.405657
T-151	156	EFRT	PAS Penhex Coker		10933508.88	78.132868	79.845517
T-153	99	domed EFRT	PAS Unfinished MOGAS	10	21525464.1	74.83683	77.242046
T-154	99	domed EFRT	PAS Unfinished MOGAS	10	14395705.8	74.83683	77.242046
T-164	70	EFRT	PAS Unfinished MOGAS	10	10349009.16	76.852486	79.461403
T-165	70	domed EFRT	PAS Unfinished MOGAS	10	11012579.34	74.83683	77.085671
T-173	99	EFRT	PAS Unfinished MOGAS	10	30174017.58	76.793614	79.443741
T-175	75	cone-roof tank with IFR	PAS Ethyl alcohol		56249999.4	73.794331	76.030104
T-197	70	EFRT	PAS Oxidizer Feed		9118933.74	100	86.405657
T-198	115	EFRT	PAS Oxidizer Feed		6870612	100	86.405657
T-204	125	FRT (no floating roof)	PAS FCC Feed (low,high sulfur)		27163771.32	110	110
T-205	154	FRT (no floating roof)	PAS FCC Feed (low,high sulfur)		72715368.6	110	110
T-206	175	FRT (no floating roof)	PAS FCC Feed (low,high sulfur)		153300000	100	100
T-207	175	FRT (no floating roof)	PAS FCC Feed (low,high sulfur)		153300000	100	100
T-208	244.5	EFRT	Crude Oil RVP_X	5	6040020000	78.861895	80.064225
T-210	126	EFRT	PAS No. 6 Fuel Oil		47656299.6	100	100
T-213	126	FRT (no floating roof)	PAS Resid/Vac Bottoms		45425956.8	370	267.04806
T-220	153	EFRT	PAS FCC Feed (low,high sulfur)		167114547.6	130	130
T-2795	55	EFRT	PAS Oxidizer Feed		802200	100	82.291261
T-300	128	EFRT	PAS Chevron Unleaded	9.747945	1798393262	77.80419666	79.74691596
T-301	111	EFRT	PAS Supreme Unleaded (93 Octane)	9.747945	1152815983	77.56972447	79.67657431
T-302	111	EFRT	PAS Supreme Unleaded (93 Octane)	9.747945	1152815983	77.56972447	79.67657431
T-303	111	domed EFRT	PAS AV Gas 100/130	8	30660000	74.83683	77.291229
T-304	99	EFRT	PAS Supreme Unleaded (93 Octane)	9.747945	1152815983	77.38463496	79.62104739
T-305	70	domed EFRT	PAS AV Gas 100/130	8	30660000	74.83683	77.085671
T-306	88	EFRT	PAS Chevron Unleaded	12	183954464.4	77.740992	79.727954
T-310	128	EFRT	PAS Chevron Unleaded	9.747945	1798393262	77.80419666	79.74691596
T-311	128	EFRT	PAS Supreme Unleaded (93 Octane)	9.747945	1152815983	77.80419666	79.74691596
T-312	111	EFRT	PAS Supreme Unleaded (93 Octane)	9.747945	1152815983	77.56972447	79.67657431
T-314	99	EFRT	PAS Supreme Unleaded (93 Octane)	9.747945	1152815983	77.38463496	79.62104739
T-315	99	EFRT	PAS Supreme Unleaded (93 Octane)	9.747945	1152815983	77.38463496	79.62104739
T-320	128	EFRT	PAS Chevron Unleaded	9.747945	1798393262	77.80419666	79.74691596
T-321	128	EFRT	PAS Supreme Unleaded (93 Octane)	9.747945	1152815983	77.80419666	79.74691596
T-32110	170	EFRT	PAS Floating Oil Layer		72956242.8	95	84.905657
T-32120	170	EFRT	PAS Floating Oil Layer		72956242.8	95	84.905657
T-32130	170	EFRT	PAS Floating Oil Layer		72956242.8	95	84.905657
T-322	156	EFRT	PAS Supreme Unleaded (93 Octane)	9.747945	1152815983	78.1328682	79.84551762
T-323	156	EFRT	PAS Chevron Unleaded	9.747945	1798393262	78.1328682	79.84551762
T-324	202	EFRT	PAS Diesel-Ultra Low Sulfur		1631112000	78.558056	79.973074
T-331	128	EFRT	PAS Chevron Unleaded	9.747945	1798393262	77.80419666	79.74691596

Table A-31 Storage Tank TankESP Outpu

TankSummaries for 2026 Annual

Site: ChevronPermitting,

Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

Tank ID	Tank Diameter (ft)	Tank Type	Product	RVP	Throughput (gal)	Bulk Liquid Temperature (degF)	Avg. Liquid Surface Temp. (degF)
T-332	157.5	EFRT	PAS Chevron Unleaded	9.747945	1798393262	78.14876522	79.85028642
T-333	157.5	EFRT	PAS Chevron Unleaded	9.747945	1798393262	78.14876522	79.85028642
T-350	99	EFRT	PAS Jet-A		1679700708	76.793614	79.443741
T-351	99	EFRT	PAS Jet-A		1679700708	77.384635	79.621047
T-352	70	EFRT	PAS Jet-A		1679700708	76.852486	79.461403
T-353	70	EFRT	PAS Jet-A		1679700708	76.852486	79.461403
T-355	202	EFRT	PAS Jet-A		1679700708	78.558056	79.973074
T-361	126	FRT (no floating roof)	PAS Diesel-Ultra Low Sulfur		1631112000	74.83683	77.549388
T-370	98	FRT (no floating roof)	PAS Diesel-Ultra Low Sulfur		1631112000	73.794331	76.398485
T-371	98	FRT (no floating roof)	PAS Diesel-Ultra Low Sulfur		446628000	74.83683	77.43899
T-372	69	FRT (no floating roof)	PAS Diesel-Ultra Low Sulfur		1631112000	74.83683	77.273288
T-373	210	EFRT	PAS Diesel-Ultra Low Sulfur		446628000	78.62079	79.991894
T-374	210	EFRT	PAS Diesel-Ultra Low Sulfur		1631112000	78.62079	79.991894
T-400	202	EFRT	Crude Oil RVP_X	5	6040020000	78.558056	79.973074
T-401	202	EFRT	Crude Oil RVP_X	5	6040020000	78.558056	79.973074
T-402	202	EFRT	Crude Oil RVP_X	5	6040020000	78.558056	79.973074
T-403	202	EFRT	Crude Oil RVP_X	5	6040020000	78.558056	79.973074
T-404	202	EFRT	Crude Oil RVP_X	5	6040020000	78.558056	79.973074
T-405	202	EFRT	Crude Oil RVP_X	5	6040020000	78.558056	79.973074
T-406	244.5	EFRT	Crude Oil RVP_X	5	6040020000	78.861895	80.064225
T-407	244.5	EFRT	Crude Oil RVP_X	4.5	6040020000	145	145
T-408	244.5	EFRT	Crude Oil RVP_X	5	6040020000	78.861895	80.064225
T-409	244.5	EFRT	Crude Oil RVP_X	5	6040020000	78.861895	80.064225
T-412	244.5	EFRT	Crude Oil RVP_X	4.5	6040020000	145	145
T-422	244.5	EFRT	Crude Oil RVP_X	4.5	6040020000	145	145
T-423	134	EFRT	PAS Crude		16182689.46	77.880157	79.769704
T-50	55	EFRT	PAS Chevron Unleaded	9.747945	375000000.5	76.7618645	79.43421619
T-500	99	EFRT	PAS Coke Naptha	4	14117117.28	90	83.405657
T-501	134	EFRT	PAS Coke Naptha	4	28804689.06	90	83.405657
T-502	164	FRT (no floating roof)	PAS FCC Feed (low,high sulfur)		609404796	130	130
T-503	164	FRT (no floating roof)	PAS FCC Feed (low,high sulfur)		23180884.44	150	126.01155
T-504	134	FRT (no floating roof)	PAS No. 6 Fuel Oil		28900080.3	140	118.74104
T-505	164	FRT (no floating roof)	PAS No. 6 Fuel Oil		20059018.14	170	139.68464
T-506	164	FRT (no floating roof)	PAS Resid/Vac Bottoms		57604449	370	370
T-507	164	FRT (no floating roof)	PAS Resid/Vac Bottoms		34916872.2	330	330
T-508	220	FRT (no floating roof)	PAS Resid/Vac Bottoms		16627018.38	330	330
T-515	122	FRT (no floating roof)	PAS Lubricants		22903075.02	180	180
T-516	122	FRT (no floating roof)	PAS Lubricants		76700286.6	180	180
T-517	122	FRT (no floating roof)	PAS Lubricants		70978147.8	180	180
T-52	55	EFRT	PAS Chevron Unleaded	9.747945	375000000.5	76.7618645	79.43421619
T-525	193	FRT (no floating roof)	PAS FCC Feed (low,high sulfur)		117427426.2	170	170
T-526	193	FRT (no floating roof)	PAS FCC Feed (low,high sulfur)		107341054.8	170	170
T-53	38	EFRT	PAS Chevron Unleaded	9.747945	375000000.5	76.27514377	79.28820004
T-54	38	EFRT	PAS Chevron Unleaded	9.747945	375000000.5	76.27514377	79.28820004
T-55	38	domed EFRT	PAS Jet-A		29999999.82	74.83683	76.885641
T-56	38	domed EFRT	PAS Jet-A		29999999.82	73.794331	75.705484
T-57	38	EFRT	PAS Chevron Unleaded	9.747945	375000000.5	76.27514377	79.28820004
T-58	38	FRT (no floating roof)	PAS Diesel-Ultra Low Sulfur		194999998.2	74.83683	76.985331
T-59	38	domed EFRT	PAS Jet-A		29999999.82	74.83683	76.885641
T-60	38	EFRT	PAS Chevron Unleaded	9.747945	375000000.5	76.27514377	79.28820004
T-61	38	FRT (no floating roof)	PAS Diesel-Ultra Low Sulfur		194999998.2	74.83683	76.985331
T-62	38	EFRT	PAS Diesel-Ultra Low Sulfur		194999998.2	76.275144	79.2882
T-63	38	EFRT	PAS Supreme Unleaded (93 Octane)	9.747945	375000000.5	76.27514377	79.28820004

Table A-31 Storage Tank TankESP Outpu

TankSummaries for 2026 Annual

Site: ChevronPermitting,

Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

Tank ID	Tank Diameter (ft)	Tank Type	Product	RVP	Throughput (gal)	Bulk Liquid Temperature (degF)	Avg. Liquid Surface Temp. (degF)
T-80	55	domed IFRT	PAS Ethyl alcohol		56249999.4	74.83683	77.056561
T-800	145	FRT (no floating roof)	PAS Lubricants		447636000	72.710132	75.65568
T-801	145	FRT (no floating roof)	PAS Lubricants		447636000	72.710132	75.65568
T-802	78	FRT (no floating roof)	PAS Lubricants		447636000	72.710132	75.155462
T-803	78	FRT (no floating roof)	PAS Lubricants		447636000	72.710132	75.155462
T-804	145	FRT (no floating roof)	PAS Lubricants		447636000	100	93.453887
T-805	145	FRT (no floating roof)	PAS Lubricants		447636000	100	93.453887
T-806	145	FRT (no floating roof)	PAS Lubricants		447636000	100	93.453887
T-807	145	FRT (no floating roof)	PAS Lubricants		447636000	100	93.453887
T-820	212	FRT (no floating roof)	PAS FCC Feed (low,high sulfur)		609404796	140	140
T-8293	47	EFRT	PAS FCC Feed (low,high sulfur)		244828164	76.342199	79.308317
T-8300	35	EFRT	PAS Floating Oil Layer		40359765.18	75.664214	80.10572
T-122	126	FRT (no floating roof)	PAS Diesel-Ultra Low Sulfur		43190301	100	93.760692
T-324	202	EFRT	PAS Jet-A		1679700708	78.558056	79.973074

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TankSum

Site: Che

Equation

TankSummaries for 2026 Annual

Site: ChevronPermitting,

Equations for this site: After 2019 AP-42 revisions H/D ratio: cal

Tank ID	Avg. TVP (psia)	Number of Days	Estimated standing losses (lbs)	Estimated heating cycle Losses (lbs)	Estimated working losses (lbs)	Total estimated emissions (lbs)
T-100	6.82161E-07	365	0	0	0.19680308	0.19680308
T-102	4.1193566	365	4631.9271	0	58.397522	4690.3246
T-104	6.80798E-07	365	0.00148355	0	107.90023	107.90171
T-11	0.000327326	365	0.28892477	0	815.20674	815.49566
T-110	6.82161E-07	365	0.12328515	0	0.19393764	0.31722279
T-112	3.6125313	365	3948.6867	0	58.397522	4007.0842
T-11210	0.6762426	365	3.2458749	0	9.5526749	12.79855
T-120	6.80798E-07	365	0.008681127	0	53.087609	53.09629
T-121	0.018441417	365	2427.1603	0	11393.143	13820.303
T-122	0.018441417	365	2427.1603	0	11393.143	13820.303
T-123	0.018901025	365	289.51907	0	134.42993	423.949
T-124	6.80798E-07	365	0.015255125	0	92.470799	92.486054
T-132	0.018268783	365	2325.9402	0	8969.3545	11295.295
T-133	0.018901025	365	289.9685	0	260.45602	550.42452
T-151	2.9332099	365	3195.0676	0	13.218332	3208.2859
T-153	7.1674591	365	2899.347	0	41.007096	2940.3541
T-154	7.1674591	365	6774.8571	0	27.424546	6802.2817
T-164	7.4611215	365	2658.7451	0	27.883188	2686.6283
T-165	7.1471196	365	4812.3515	0	29.671035	4842.0226
T-173	7.4587474	365	6057.155	0	57.483027	6114.638
T-175	1.1135105	365	311.3036	0	168.51983	479.82343
T-197	0.8688445	365	6715.4822	0	30.272533	6745.7547
T-198	0.8688445	365	6573.5042	0	13.883544	6587.3878
T-204	6.82161E-07	365	0	0	0.076982176	0.076982176
T-205	6.82161E-07	365	0	0	0.20607548	0.20607548
T-206	6.82161E-07	365	0	0	0.44131782	0.44131782
T-207	6.82161E-07	365	0	0	0.44131782	0.44131782
T-208	4.2056739	365	2155.6351	0	23628.248	25783.883
T-210	0.005626929	365	45.490354	0	100.63071	146.12106
T-213	7.89942E-06	365	1.0157391	0	1.3614884	2.3772275
T-220	6.82161E-07	365	0.014181854	0	275.89114	275.90532
T-2795	0.78201841	365	3084.827	0	3.3893992	3088.2164
T-300	7.414749463	365	7403.54292	0	2649.82008	10053.36299
T-301	7.405050571	365	12404.08681	0	1958.7486	14362.83518
T-302	7.405050571	365	12424.254	0	1958.7486	14383.00261
T-303	5.5205062	365	1099.8996	0	54.885149	1154.7847
T-304	7.397401862	365	5858.38108	0	2196.17268	8054.55378
T-305	5.4984443	365	615.06903	0	87.032164	702.10119
T-306	9.0997057	365	8246.7961	0	394.24786	8641.044
T-310	7.414749463	365	7403.54292	0	2649.82008	10053.36299
T-311	7.414749463	365	7351.41651	0	1698.60228	9050.01883
T-312	7.405050571	365	6725.67186	0	1958.7486	8684.42047
T-314	7.397401862	365	5858.38108	0	2196.17268	8054.55378
T-315	7.397401862	365	5858.38108	0	2196.17268	8054.55378
T-320	7.414749463	365	7351.41651	0	2649.82008	10001.23653
T-321	7.414749463	365	7403.54292	0	1698.60228	9102.14524
T-32110	0.83628042	365	603.57963	0	398.91125	1002.4909
T-32120	0.83628042	365	603.57963	0	398.91125	1002.4909
T-32130	0.83628042	365	603.57963	0	398.91125	1002.4909
T-322	7.428362584	365	9257.33156	0	1393.725	10651.05652
T-323	7.428362584	365	9257.33156	0	2174.21136	11431.54285
T-324	0.012224	365	249.57915	0	1903.6369	2153.2161
T-331	7.414749463	365	7403.54292	0	2649.82008	10053.36299

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TankSum

Site: Che

Equation

TankSummaries for 2026 Annual

Site: ChevronPermitting,

Equations for this site: After 2019 AP-42 revisions H/D ratio: cal

Tank ID	Avg. TVP (psia)	Number of Days	Estimated standing losses (lbs)	Estimated heating cycle Losses (lbs)	Estimated working losses (lbs)	Total estimated emissions (lbs)
T-332	7.429021506	365	9097.03884	0	2153.50452	11250.54335
T-333	7.429021506	365	9217.69581	0	2153.50452	11371.20043
T-350	0.015301763	365	121.52589	0	3999.8934	4121.4193
T-351	0.01538535	365	122.55588	0	3999.8934	4122.4493
T-352	0.015310071	365	175.50255	0	5656.9921	5832.4946
T-353	0.015310071	365	131.90922	0	5656.9921	5788.9013
T-355	0.015552497	365	215.13442	0	1960.3438	2175.4782
T-361	0.01134681	365	1571.7854	0	13822.317	15394.102
T-370	0.010950016	365	879.41744	0	11623.306	12502.723
T-371	0.011308208	365	955.41378	0	5282.5559	6237.9697
T-372	0.011250485	365	477.00963	0	10542.56	11019.57
T-373	0.012231038	365	176.03984	0	501.39308	677.43292
T-374	0.012231038	365	189.96141	0	1831.1174	2021.0788
T-400	4.1986988	365	1772.0916	0	28599.537	30371.629
T-401	4.1986988	365	2947.8598	0	28599.537	31547.397
T-402	4.1986988	365	1789.9436	0	28599.537	30389.481
T-403	4.1986988	365	1789.9436	0	28599.537	30389.481
T-404	4.1986988	365	1787.2709	0	28599.537	30386.808
T-405	4.1986988	365	1789.9436	0	28599.537	30389.481
T-406	4.2056739	365	2322.0741	0	23628.248	25950.322
T-407	10.824095	365	8855.4222	0	23628.248	32483.67
T-408	4.2056739	365	2234.532	0	23628.248	25862.78
T-409	4.2056739	365	2234.532	0	23628.248	25862.78
T-412	10.824095	365	8521.5732	0	23628.248	32149.821
T-422	10.824095	365	8855.4222	0	23628.248	32483.67
T-423	1.513293	365	212.05255	0	120.39024	332.44279
T-50	7.371714297	365	9611.11373	0	1285.90908	10897.02274
T-500	3.0217059	365	5936.2487	0	34.097523	5970.3462
T-501	3.0217059	365	2206.565	0	51.400862	2257.9659
T-502	6.82161E-07	365	0	0	0.8751808	0.8751808
T-503	6.82161E-07	365	0.2574343	0	0.066627634	0.32406194
T-504	0.009437782	365	1630.8938	0	792.72305	2423.6169
T-505	0.016189954	365	3554.9158	0	924.14327	4479.059
T-506	0.000127342	365	0	0	20.924649	20.924649
T-507	4.31832E-05	365	0	0	4.5189877	4.5189877
T-508	4.31832E-05	365	0	0	2.1518907	2.1518907
T-515	0.016604716	365	0	0	1404.1796	1404.1796
T-516	0.016604716	365	0	0	4702.4682	4702.4682
T-517	0.016604716	365	0	0	4351.6458	4351.6458
T-52	7.371714297	365	3705.08255	0	1285.90908	4990.99163
T-525	6.82161E-07	365	0	0	0.30046776	0.30046776
T-526	6.82161E-07	365	0	0	0.27465922	0.27465922
T-53	7.351689999	365	2875.05844	0	1861.18416	4736.24266
T-54	7.351689999	365	2868.47504	0	1861.18416	4729.65924
T-55	0.014139458	365	2.7267944	0	186.11842	188.84522
T-56	0.01362995	365	2.087834	0	186.11842	188.20626
T-57	7.351689999	365	2992.90097	0	1861.18416	4854.08518
T-58	0.01115079	365	146.41601	0	1498.5892	1645.0052
T-59	0.014139458	365	2.0936272	0	186.11842	188.21205
T-60	7.351689999	365	8759.55111	0	1861.18416	10620.73538
T-61	0.01115079	365	146.41601	0	1498.5892	1645.0052
T-62	0.011970284	365	46.881168	0	1209.7697	1256.6509
T-63	7.351689999	365	2875.05844	0	1861.18416	4736.24266

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TankSum

Site: Che

Equation

TankSummaries for 2026 Annual

Site: ChevronPermitting,

Equations for this site: After 2019 AP-42 revisions H/D ratio: cal

Tank ID	Avg. TVP (psia)	Number of Days	Estimated standing losses (lbs)	Estimated heating cycle Losses (lbs)	Estimated working losses (lbs)	Total estimated emissions (lbs)
T-80	1.1507792	365	26.183811	0	227.6748	253.85861
T-800	0.000339893	365	82.890133	0	366.27037	449.1605
T-801	0.000339893	365	82.890133	0	366.27037	449.1605
T-802	0.000332398	365	22.316698	0	181.47165	203.78835
T-803	0.000332398	365	22.316698	0	181.47165	203.78835
T-804	0.000731971	365	169.6256	0	776.78856	946.41416
T-805	0.000731971	365	169.6256	0	776.78856	946.41416
T-806	0.000731971	365	169.6256	0	776.78856	946.41416
T-807	0.000731971	365	169.6256	0	776.78856	946.41416
T-820	6.82161E-07	365	0	0	1.2545772	1.2545772
T-8293	6.82161E-07	365	0.000669473	0	1315.7653	1315.766
T-8300	0.73900031	365	157.63097	0	1071.873	1229.504
T-122	0.018441417	365	2427.1603	0	2352.2547	4779.415
T-324	0.015552497	365	317.57341	0	1960.3438	2277.9172

TankSum

Site: Che

Equationculated

Tank ID	Acetaldehyde	Ammonia	Anthracene	Benzene	Benzo(g,h,i)perylene	Biphenyl	Butadiene (1,3)	Butane	Butene (2-methyl-2) {isopentene}	Butyl acetate (n-)
T-100	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-102	no data	no data	no data	62.76119456	0.000175193	no data	no data	no data	no data	no data
T-104	no data	no data	no data	no data	0.000755302	no data	no data	no data	no data	no data
T-11	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-110	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-112	no data	no data	no data	51.66829928	0.000175193	no data	no data	no data	no data	no data
T-11210	no data	no data	no data	0.251312708	1.11996E-16	no data	no data	no data	no data	no data
T-120	no data	no data	no data	no data	0.000371613	no data	no data	no data	no data	no data
T-121	no data	no data	no data	no data	4.94897E-11	no data	no data	no data	no data	no data
T-122	no data	no data	no data	no data	4.94897E-11	no data	no data	no data	no data	no data
T-123	no data	no data	no data	4.467401072	0.00053772	no data	no data	no data	no data	no data
T-124	no data	no data	no data	no data	0.000647296	no data	no data	no data	no data	no data
T-132	no data	no data	no data	no data	3.9671E-11	no data	no data	no data	no data	no data
T-133	no data	no data	no data	4.486917734	0.001041824	no data	no data	no data	no data	no data
T-151	no data	no data	no data	7.385626068	no data	no data	no data	no data	no data	no data
T-153	no data	no data	no data	3.47657004	no data	no data	no data	no data	no data	no data
T-154	no data	no data	no data	7.904777442	no data	no data	no data	no data	no data	no data
T-164	no data	no data	no data	3.207715042	no data	no data	no data	no data	no data	no data
T-165	no data	no data	no data	5.641107159	no data	no data	no data	no data	no data	no data
T-173	no data	no data	no data	7.287568123	no data	no data	no data	no data	no data	no data
T-175	no data	no data	no data	1.49120595	no data	no data	no data	no data	no data	no data
T-197	no data	no data	no data	131.0526566	9.08176E-05	no data	no data	no data	no data	no data
T-198	no data	no data	no data	128.2205353	4.16506E-05	no data	no data	no data	no data	no data
T-204	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-205	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-206	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-207	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-208	no data	no data	no data	167.1324013	0.094512991	no data	no data	no data	no data	no data
T-210	no data	no data	no data	no data	0.00704415	no data	no data	no data	no data	no data
T-213	no data	no data	no data	341.455607	2.76051E-05	42.01190137	no data	no data	no data	no data
T-220	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-2795	no data	no data	no data	60.3521706	1.01682E-05	no data	no data	no data	no data	no data
T-300	no data	no data	no data	31.27552132	no data	no data	no data	no data	no data	no data
T-301	no data	no data	no data	30.47614996	no data	no data	no data	no data	no data	no data
T-302	no data	no data	no data	30.51489005	no data	no data	no data	no data	no data	no data
T-303	no data	no data	no data	6.371128674	0.000164655	no data	no data	no data	no data	no data
T-304	no data	no data	no data	20.41007405	no data	no data	no data	no data	no data	no data
T-305	no data	no data	no data	4.40395395	0.000261096	no data	no data	no data	no data	no data
T-306	no data	no data	no data	16.47011747	no data	no data	no data	no data	no data	no data
T-310	no data	no data	no data	31.27552132	no data	no data	no data	no data	no data	no data
T-311	no data	no data	no data	20.77049279	no data	no data	no data	no data	no data	no data
T-312	no data	no data	no data	20.85680645	no data	no data	no data	no data	no data	no data
T-314	no data	no data	no data	20.41007405	no data	no data	no data	no data	no data	no data
T-315	no data	no data	no data	20.41007405	no data	no data	no data	no data	no data	no data
T-320	no data	no data	no data	31.15929072	no data	no data	no data	no data	no data	no data
T-321	no data	no data	no data	20.86429292	no data	no data	no data	no data	no data	no data
T-32110	no data	no data	no data	0.188101592	0.001196734	no data	no data	no data	no data	no data
T-32120	no data	no data	no data	0.188101592	0.001196734	no data	no data	no data	no data	no data
T-32130	no data	no data	no data	0.188101592	0.001196734	no data	no data	no data	no data	no data
T-322	no data	no data	no data	22.76434541	no data	no data	no data	no data	no data	no data
T-323	no data	no data	no data	32.6567653	no data	no data	no data	no data	no data	no data
T-324	no data	no data	no data	no data	0.017132732	no data	no data	no data	no data	no data
T-331	no data	no data	no data	31.27552132	no data	no data	no data	no data	no data	no data

TankSum

Site: Che

Equationculated

Tank ID	Acetaldehyde	Ammonia	Anthracene	Benzene	Benzo(g,h,i)perylene	Biphenyl	Butadiene (1,3)	Butane	Butene (2-methyl-2) {isopentene}	Butyl acetate (n-)
T-332	no data	no data	no data	32.17877869	no data	no data	no data	no data	no data	no data
T-333	no data	no data	no data	32.44797519	no data	no data	no data	no data	no data	no data
T-350	no data	no data	no data	2.3407958	0.015999574	no data	no data	no data	no data	no data
T-351	no data	no data	no data	2.355381043	0.015999574	no data	no data	no data	no data	no data
T-352	no data	no data	no data	3.368263833	0.022627968	no data	no data	no data	no data	no data
T-353	no data	no data	no data	2.672130709	0.022627968	no data	no data	no data	no data	no data
T-355	no data	no data	no data	3.62203926	0.007841375	no data	no data	no data	no data	no data
T-361	no data	no data	no data	no data	2.0252E-11	no data	no data	no data	no data	no data
T-370	no data	no data	no data	no data	1.52842E-11	no data	no data	no data	no data	no data
T-371	no data	no data	no data	no data	8.14901E-12	no data	no data	no data	no data	no data
T-372	no data	no data	no data	no data	1.42444E-11	no data	no data	no data	no data	no data
T-373	no data	no data	no data	no data	0.004512538	no data	no data	no data	no data	no data
T-374	no data	no data	no data	no data	0.016480057	no data	no data	no data	no data	no data
T-400	no data	no data	no data	192.4339548	0.11439815	no data	no data	no data	no data	no data
T-401	no data	no data	no data	206.2589553	0.11439815	no data	no data	no data	no data	no data
T-402	no data	no data	no data	192.643864	0.11439815	no data	no data	no data	no data	no data
T-403	no data	no data	no data	192.643864	0.11439815	no data	no data	no data	no data	no data
T-404	no data	no data	no data	192.6124377	0.11439815	no data	no data	no data	no data	no data
T-405	no data	no data	no data	192.643864	0.11439815	no data	no data	no data	no data	no data
T-406	no data	no data	no data	169.090701	0.094512991	no data	no data	no data	no data	no data
T-407	no data	no data	no data	311.5054408	0.094512991	no data	no data	no data	no data	no data
T-408	no data	no data	no data	168.0606924	0.094512991	no data	no data	no data	no data	no data
T-409	no data	no data	no data	168.0606924	0.094512991	no data	no data	no data	no data	no data
T-412	no data	no data	no data	305.1064024	0.094512991	no data	no data	no data	no data	no data
T-422	no data	no data	no data	311.5054408	0.094512991	no data	no data	no data	no data	no data
T-423	no data	no data	no data	1.212974208	no data	no data	no data	no data	no data	no data
T-50	no data	no data	no data	27.780061	no data	no data	no data	no data	no data	no data
T-500	no data	no data	no data	10.57140552	no data	no data	no data	no data	no data	no data
T-501	no data	no data	no data	no data	3.983717797	no data	no data	no data	no data	no data
T-502	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-503	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-504	no data	no data	no data	no data	2.28066E-09	no data	no data	no data	no data	no data
T-505	no data	no data	no data	no data	1.27626E-08	no data	no data	no data	no data	no data
T-506	no data	no data	no data	566.266059	0.001586996	173.3225655	no data	no data	no data	no data
T-507	no data	no data	no data	243.5412122	0.000191205	54.20798763	no data	no data	no data	no data
T-508	no data	no data	no data	115.9715613	9.10498E-05	25.81322851	no data	no data	no data	no data
T-515	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-516	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-517	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-52	no data	no data	no data	15.38312957	no data	no data	no data	no data	no data	no data
T-525	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-526	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-53	no data	no data	no data	16.84328507	no data	no data	no data	no data	no data	no data
T-54	no data	no data	no data	16.82870519	no data	no data	no data	no data	no data	no data
T-55	no data	no data	no data	0.062762353	0.000744474	no data	no data	no data	no data	no data
T-56	no data	no data	no data	0.052631756	0.000744474	no data	no data	no data	no data	no data
T-57	no data	no data	no data	17.09872682	no data	no data	no data	no data	no data	no data
T-58	no data	no data	no data	no data	2.08774E-12	no data	no data	no data	no data	no data
T-59	no data	no data	no data	0.052510515	0.000744474	no data	no data	no data	no data	no data
T-60	no data	no data	no data	29.1806375	no data	no data	no data	no data	no data	no data
T-61	no data	no data	no data	no data	2.08774E-12	no data	no data	no data	no data	no data
T-62	no data	no data	no data	no data	0.010887928	no data	no data	no data	no data	no data
T-63	no data	no data	no data	13.59282654	no data	no data	no data	no data	no data	no data

TankSum
Site: Che
Equation culated

Tank ID	Acetaldehyde	Ammonia	Anthracene	Benzene	Benzo(g,h,i)perylene	Biphenyl	Butadiene (1,3)	Butane	Butene (2-methyl-2) {isopentene}	Butyl acetate (n-)
T-80	no data	no data	no data	0.599317789	no data	no data	no data	no data	no data	no data
T-800	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-801	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-802	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-803	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-804	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-805	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-806	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-807	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-820	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-8293	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-8300	no data	no data	no data	0.102503728	0.003215619	no data	no data	no data	no data	no data
T-122	no data	no data	no data	no data	1.71148E-11	no data	no data	no data	no data	no data
T-324	no data	no data	no data	5.253374917	0.007841375	no data	no data	no data	no data	no data

TankSum
Site: Che
Equation

TankSummaries for 2026 Annual

Site: ChevronPermitting,

Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

Tank ID	Butyl alcohol (t-)	Carbon disulfide	Carbonyl sulfide	Caustic (NaOH)	Cresol	Cresol (m-)	Cresol (o-)	Cresol (p-)	Cumene {isopropylbenzene}	Cyclohexane
T-100	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-102	no data	no data	no data	no data	no data	no data	no data	no data	no data	71.29098219
T-104	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-11	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-110	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-112	no data	no data	no data	no data	no data	no data	no data	no data	no data	58.90579097
T-11210	no data	no data	no data	no data	no data	no data	no data	no data	0.00338694	0.198038831
T-120	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-121	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-122	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-123	no data	no data	no data	no data	no data	no data	no data	no data	2.449376161	no data
T-124	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-132	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-133	no data	no data	no data	no data	no data	no data	no data	no data	2.578995827	no data
T-151	no data	no data	no data	no data	no data	no data	no data	no data	no data	15.10283797
T-153	no data	no data	no data	no data	no data	no data	no data	no data	2.188685129	2.223260267
T-154	no data	no data	no data	no data	no data	no data	no data	no data	3.47275936	5.058264093
T-164	no data	no data	no data	no data	no data	no data	no data	no data	1.814253426	2.049249521
T-165	no data	no data	no data	no data	no data	no data	no data	no data	2.706263064	3.609578522
T-173	no data	no data	no data	no data	no data	no data	no data	no data	3.987519626	4.655978025
T-175	no data	no data	no data	no data	no data	no data	no data	no data	0.115428884	no data
T-197	no data	no data	no data	no data	no data	no data	no data	no data	1.952751829	102.7042985
T-198	no data	no data	no data	no data	no data	no data	no data	no data	1.894143105	100.485689
T-204	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-205	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-206	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-207	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-208	no data	no data	no data	no data	no data	no data	no data	no data	23.83629571	195.6518399
T-210	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-213	no data	no data	no data	no data	no data	no data	no data	no data	98.62214124	0
T-220	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-2795	no data	no data	no data	no data	no data	no data	no data	no data	0.857714814	47.40635664
T-300	no data	no data	no data	no data	no data	no data	no data	no data	67.03018497	11.09432539
T-301	no data	no data	no data	no data	no data	no data	no data	no data	67.90690304	13.45840711
T-302	no data	no data	no data	no data	no data	no data	no data	no data	67.92092949	13.475533
T-303	no data	no data	no data	no data	no data	no data	no data	no data	0.072648831	7.372002786
T-304	no data	no data	no data	no data	no data	no data	no data	no data	71.57845019	8.969659727
T-305	no data	no data	no data	no data	no data	no data	no data	no data	0.09693506	5.076129446
T-306	no data	no data	no data	no data	no data	no data	no data	no data	12.40069177	5.891963842
T-310	no data	no data	no data	no data	no data	no data	no data	no data	67.03018497	11.09432539
T-311	no data	no data	no data	no data	no data	no data	no data	no data	57.06050416	9.150286863
T-312	no data	no data	no data	no data	no data	no data	no data	no data	64.74465747	9.177814873
T-314	no data	no data	no data	no data	no data	no data	no data	no data	71.57845019	8.969659727
T-315	no data	no data	no data	no data	no data	no data	no data	no data	71.57845019	8.969659727
T-320	no data	no data	no data	no data	no data	no data	no data	no data	67.00509928	11.05272229
T-321	no data	no data	no data	no data	no data	no data	no data	no data	57.0929065	9.191889966
T-32110	no data	no data	no data	no data	no data	no data	no data	no data	0.001107896	0.156573482
T-32120	no data	no data	no data	no data	no data	no data	no data	no data	0.001107896	0.156573482
T-32130	no data	no data	no data	no data	no data	no data	no data	no data	0.001107896	0.156573482
T-322	no data	no data	no data	no data	no data	no data	no data	no data	48.7755719	10.04751292
T-323	no data	no data	no data	no data	no data	no data	no data	no data	56.49340496	11.60848558
T-324	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-331	no data	no data	no data	no data	no data	no data	no data	no data	67.03018497	11.09432539

TankSum
Site: Che
Equation

TankSummaries for 2026 Annual

Site: ChevronPermitting,

Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

Tank ID	Butyl alcohol (t-)	Carbon disulfide	Carbonyl sulfide	Caustic (NaOH)	Cresol	Cresol (m-)	Cresol (o-)	Cresol (p-)	Cumene {isopropylbenzene}	Cyclohexane
T-332	no data	no data	no data	no data	no data	no data	no data	no data	55.9183737	11.43827352
T-333	no data	no data	no data	no data	no data	no data	no data	no data	55.97652169	11.53462352
T-350	no data	no data	no data	no data	no data	no data	no data	no data	4.949921653	no data
T-351	no data	no data	no data	no data	no data	no data	no data	no data	4.958551316	no data
T-352	no data	no data	no data	no data	no data	no data	no data	no data	7.029065207	no data
T-353	no data	no data	no data	no data	no data	no data	no data	no data	6.68825396	no data
T-355	no data	no data	no data	no data	no data	no data	no data	no data	3.645178386	no data
T-361	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-370	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-371	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-372	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-373	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-374	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-400	no data	no data	no data	no data	no data	no data	no data	no data	28.77032159	225.0531128
T-401	no data	no data	no data	no data	no data	no data	no data	no data	28.88363549	241.5450988
T-402	no data	no data	no data	no data	no data	no data	no data	no data	28.77204207	225.3035157
T-403	no data	no data	no data	no data	no data	no data	no data	no data	28.77204207	225.3035157
T-404	no data	no data	no data	no data	no data	no data	no data	no data	28.77178449	225.2660269
T-405	no data	no data	no data	no data	no data	no data	no data	no data	28.77204207	225.3035157
T-406	no data	no data	no data	no data	no data	no data	no data	no data	23.85235934	197.9877941
T-407	no data	no data	no data	no data	no data	no data	no data	no data	25.88202437	361.7004623
T-408	no data	no data	no data	no data	no data	no data	no data	no data	23.84391034	196.7591502
T-409	no data	no data	no data	no data	no data	no data	no data	no data	23.84391034	196.7591502
T-412	no data	no data	no data	no data	no data	no data	no data	no data	25.79705709	354.2998577
T-422	no data	no data	no data	no data	no data	no data	no data	no data	25.88202437	361.7004623
T-423	no data	no data	no data	no data	no data	no data	no data	no data	no data	3.072984699
T-50	no data	no data	no data	no data	no data	no data	no data	no data	35.10813074	9.910720259
T-500	no data	no data	no data	no data	no data	no data	no data	no data	1.618227019	no data
T-501	no data	no data	no data	no data	no data	no data	no data	no data	no data	0.752544913
T-502	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-503	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-504	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-505	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-506	no data	no data	no data	no data	no data	no data	no data	no data	226.6136409	0
T-507	no data	no data	no data	no data	no data	no data	no data	no data	87.01488721	0
T-508	no data	no data	no data	no data	no data	no data	no data	no data	41.43550176	0
T-515	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-516	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-517	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-52	no data	no data	no data	no data	no data	no data	no data	no data	32.56371146	5.458518896
T-525	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-526	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-53	no data	no data	no data	no data	no data	no data	no data	no data	45.98278941	5.95744273
T-54	no data	no data	no data	no data	no data	no data	no data	no data	45.97966437	5.952221696
T-55	no data	no data	no data	no data	no data	no data	no data	no data	0.207246923	no data
T-56	no data	no data	no data	no data	no data	no data	no data	no data	0.202228143	no data
T-57	no data	no data	no data	no data	no data	no data	no data	no data	46.03662732	6.049019858
T-58	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-59	no data	no data	no data	no data	no data	no data	no data	no data	0.202340842	no data
T-60	no data	no data	no data	no data	no data	no data	no data	no data	48.51140466	10.38864987
T-61	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-62	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-63	no data	no data	no data	no data	no data	no data	no data	no data	59.39443633	5.95744273

TankSum

Site: Che

Equation

TankSummaries for 2026 Annual

Site: ChevronPermitting,

Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

Tank ID	Butyl alcohol (t-)	Carbon disulfide	Carbonyl sulfide	Caustic (NaOH)	Cresol	Cresol (m-)	Cresol (o-)	Cresol (p-)	Cumene {isopropylbenzene}	Cyclohexane
T-80	no data	no data	no data	no data	no data	no data	no data	no data	0.13781223	no data
T-800	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-801	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-802	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-803	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-804	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-805	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-806	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-807	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-820	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-8293	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-8300	no data	no data	no data	no data	no data	no data	no data	no data	0.002221717	0.084665458
T-122	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-324	no data	no data	no data	no data	no data	no data	no data	no data	4.447433737	no data

Tank ID	Cyclohexene	Cyclopentane	Cyclopentene	Dibromoethane (1,2) {ethylene dibromide}	Diethanolamine {DEA}	Diethoxyethane (1,1)	Diethylamine	Dimethyl butane (2,2)
T-100	no data	no data	no data	no data	no data	no data	no data	no data
T-102	no data	no data	no data	no data	no data	no data	no data	no data
T-104	no data	no data	no data	no data	no data	no data	no data	no data
T-11	no data	no data	no data	no data	no data	no data	no data	no data
T-110	no data	no data	no data	no data	no data	no data	no data	no data
T-112	no data	no data	no data	no data	no data	no data	no data	no data
T-11210	no data	no data	no data	no data	no data	no data	no data	no data
T-120	no data	no data	no data	no data	no data	no data	no data	no data
T-121	no data	no data	no data	no data	no data	no data	no data	no data
T-122	no data	no data	no data	no data	no data	no data	no data	no data
T-123	no data	no data	no data	no data	no data	no data	no data	no data
T-124	no data	no data	no data	no data	no data	no data	no data	no data
T-132	no data	no data	no data	no data	no data	no data	no data	no data
T-133	no data	no data	no data	no data	no data	no data	no data	no data
T-151	no data	no data	no data	no data	no data	no data	no data	no data
T-153	no data	no data	no data	no data	no data	no data	no data	no data
T-154	no data	no data	no data	no data	no data	no data	no data	no data
T-164	no data	no data	no data	no data	no data	no data	no data	no data
T-165	no data	no data	no data	no data	no data	no data	no data	no data
T-173	no data	no data	no data	no data	no data	no data	no data	no data
T-175	0.010767489	no data	no data	no data	no data	no data	no data	no data
T-197	no data	no data	no data	no data	no data	no data	no data	no data
T-198	no data	no data	no data	no data	no data	no data	no data	no data
T-204	no data	no data	no data	no data	no data	no data	no data	no data
T-205	no data	no data	no data	no data	no data	no data	no data	no data
T-206	no data	no data	no data	no data	no data	no data	no data	no data
T-207	no data	no data	no data	no data	no data	no data	no data	no data
T-208	no data	no data	no data	no data	no data	no data	no data	no data
T-210	no data	no data	no data	no data	no data	no data	no data	no data
T-213	no data	no data	no data	no data	no data	no data	no data	no data
T-220	no data	no data	no data	no data	no data	no data	no data	no data
T-2795	no data	no data	no data	no data	no data	no data	no data	no data
T-300	no data	no data	no data	no data	no data	no data	no data	no data
T-301	no data	no data	no data	no data	no data	no data	no data	no data
T-302	no data	no data	no data	no data	no data	no data	no data	no data
T-303	no data	no data	no data	0.01102585	no data	no data	no data	no data
T-304	no data	no data	no data	no data	no data	no data	no data	no data
T-305	no data	no data	no data	0.011795726	no data	no data	no data	no data
T-306	no data	no data	no data	no data	no data	no data	no data	no data
T-310	no data	no data	no data	no data	no data	no data	no data	no data
T-311	no data	no data	no data	no data	no data	no data	no data	no data
T-312	no data	no data	no data	no data	no data	no data	no data	no data
T-314	no data	no data	no data	no data	no data	no data	no data	no data
T-315	no data	no data	no data	no data	no data	no data	no data	no data
T-320	no data	no data	no data	no data	no data	no data	no data	no data
T-321	no data	no data	no data	no data	no data	no data	no data	no data
T-32110	no data	no data	no data	no data	no data	no data	no data	no data
T-32120	no data	no data	no data	no data	no data	no data	no data	no data
T-32130	no data	no data	no data	no data	no data	no data	no data	no data
T-322	no data	no data	no data	no data	no data	no data	no data	no data
T-323	no data	no data	no data	no data	no data	no data	no data	no data
T-324	no data	no data	no data	no data	no data	no data	no data	no data
T-331	no data	no data	no data	no data	no data	no data	no data	no data

TankSummaries for 202
Site: ChevronPermitting
Equations for this site: A

Tank ID	Cyclohexene	Cyclopentane	Cyclopentene	Dibromoethane (1,2) {ethylene dibromide}	Diethanolamine {DEA}	Diethoxyethane (1,1)	Diethylamine	Dimethyl butane (2,2)
T-332	no data	no data	no data	no data	no data	no data	no data	no data
T-333	no data	no data	no data	no data	no data	no data	no data	no data
T-350	no data	no data	no data	no data	no data	no data	no data	no data
T-351	no data	no data	no data	no data	no data	no data	no data	no data
T-352	no data	no data	no data	no data	no data	no data	no data	no data
T-353	no data	no data	no data	no data	no data	no data	no data	no data
T-355	no data	no data	no data	no data	no data	no data	no data	no data
T-361	no data	no data	no data	no data	no data	no data	no data	no data
T-370	no data	no data	no data	no data	no data	no data	no data	no data
T-371	no data	no data	no data	no data	no data	no data	no data	no data
T-372	no data	no data	no data	no data	no data	no data	no data	no data
T-373	no data	no data	no data	no data	no data	no data	no data	no data
T-374	no data	no data	no data	no data	no data	no data	no data	no data
T-400	no data	no data	no data	no data	no data	no data	no data	no data
T-401	no data	no data	no data	no data	no data	no data	no data	no data
T-402	no data	no data	no data	no data	no data	no data	no data	no data
T-403	no data	no data	no data	no data	no data	no data	no data	no data
T-404	no data	no data	no data	no data	no data	no data	no data	no data
T-405	no data	no data	no data	no data	no data	no data	no data	no data
T-406	no data	no data	no data	no data	no data	no data	no data	no data
T-407	no data	no data	no data	no data	no data	no data	no data	no data
T-408	no data	no data	no data	no data	no data	no data	no data	no data
T-409	no data	no data	no data	no data	no data	no data	no data	no data
T-412	no data	no data	no data	no data	no data	no data	no data	no data
T-422	no data	no data	no data	no data	no data	no data	no data	no data
T-423	no data	no data	no data	no data	no data	no data	no data	no data
T-50	no data	no data	no data	no data	no data	no data	no data	no data
T-500	no data	no data	no data	no data	no data	no data	no data	no data
T-501	no data	no data	no data	no data	no data	no data	no data	no data
T-502	no data	no data	no data	no data	no data	no data	no data	no data
T-503	no data	no data	no data	no data	no data	no data	no data	no data
T-504	no data	no data	no data	no data	no data	no data	no data	no data
T-505	no data	no data	no data	no data	no data	no data	no data	no data
T-506	no data	no data	no data	no data	no data	no data	no data	no data
T-507	no data	no data	no data	no data	no data	no data	no data	no data
T-508	no data	no data	no data	no data	no data	no data	no data	no data
T-515	no data	no data	no data	no data	no data	no data	no data	no data
T-516	no data	no data	no data	no data	no data	no data	no data	no data
T-517	no data	no data	no data	no data	no data	no data	no data	no data
T-52	no data	no data	no data	no data	no data	no data	no data	no data
T-525	no data	no data	no data	no data	no data	no data	no data	no data
T-526	no data	no data	no data	no data	no data	no data	no data	no data
T-53	no data	no data	no data	no data	no data	no data	no data	no data
T-54	no data	no data	no data	no data	no data	no data	no data	no data
T-55	no data	no data	no data	no data	no data	no data	no data	no data
T-56	no data	no data	no data	no data	no data	no data	no data	no data
T-57	no data	no data	no data	no data	no data	no data	no data	no data
T-58	no data	no data	no data	no data	no data	no data	no data	no data
T-59	no data	no data	no data	no data	no data	no data	no data	no data
T-60	no data	no data	no data	no data	no data	no data	no data	no data
T-61	no data	no data	no data	no data	no data	no data	no data	no data
T-62	no data	no data	no data	no data	no data	no data	no data	no data
T-63	no data	no data	no data	no data	no data	no data	no data	no data

TankSum
Site: Che
Equation

TankSummaries for 202
Site: ChevronPermitting
Equations for this site: A

Tank ID	Cyclohexene	Cyclopentane	Cyclopentene	Dibromoethane (1,2) {ethylene dibromide}	Diethanolamine {DEA}	Diethoxyethane (1,1)	Diethylamine	Dimethyl butane (2,2)
T-80	0.011579346	no data	no data	no data	no data	no data	no data	no data
T-800	no data	no data	no data	no data	no data	no data	no data	no data
T-801	no data	no data	no data	no data	no data	no data	no data	no data
T-802	no data	no data	no data	no data	no data	no data	no data	no data
T-803	no data	no data	no data	no data	no data	no data	no data	no data
T-804	no data	no data	no data	no data	no data	no data	no data	no data
T-805	no data	no data	no data	no data	no data	no data	no data	no data
T-806	no data	no data	no data	no data	no data	no data	no data	no data
T-807	no data	no data	no data	no data	no data	no data	no data	no data
T-820	no data	no data	no data	no data	no data	no data	no data	no data
T-8293	no data	no data	no data	no data	no data	no data	no data	no data
T-8300	no data	no data	no data	no data	no data	no data	no data	no data
T-122	no data	no data	no data	no data	no data	no data	no data	no data
T-324	no data	no data	no data	no data	no data	no data	no data	no data

TankSum6 Annual

Site: Che,

Equation.fter 2019 AP-42 revisions H/D ratio: calculated

Tank ID	Dimethyl butane (2,3)	Dimethyl cyclopentane (1,1)	Dimethylhexane (2,4)	Dimethylpentane (2,3)	Dioxane (1,4)	Ethane	Ethanol {ethyl alcohol}	Ethylbenzene
T-100	no data	no data	no data	no data	no data	no data	no data	no data
T-102	no data	no data	no data	no data	no data	no data	no data	no data
T-104	no data	no data	no data	no data	no data	no data	no data	no data
T-11	no data	no data	no data	no data	no data	no data	no data	no data
T-110	no data	no data	no data	no data	no data	no data	no data	no data
T-112	no data	no data	no data	no data	no data	no data	no data	no data
T-11210	no data	no data	no data	no data	no data	no data	no data	0.029432797
T-120	no data	no data	no data	no data	no data	no data	no data	no data
T-121	no data	no data	no data	no data	no data	no data	no data	no data
T-122	no data	no data	no data	no data	no data	no data	no data	no data
T-123	no data	no data	no data	no data	no data	no data	no data	5.322083426
T-124	no data	no data	no data	no data	no data	no data	no data	no data
T-132	no data	no data	no data	no data	no data	no data	no data	no data
T-133	no data	no data	no data	no data	no data	no data	no data	5.468744248
T-151	no data	no data	no data	no data	no data	no data	no data	no data
T-153	no data	no data	no data	no data	no data	no data	no data	3.1937366
T-154	no data	no data	no data	no data	no data	no data	no data	5.958038986
T-164	no data	no data	no data	no data	no data	no data	no data	2.780502845
T-165	no data	no data	no data	no data	no data	no data	no data	4.44804589
T-173	no data	no data	no data	no data	no data	no data	no data	6.200452432
T-175	no data	no data	no data	no data	no data	no data	465.2803537	0.120002792
T-197	no data	no data	no data	no data	no data	no data	no data	16.44921427
T-198	no data	no data	no data	no data	no data	no data	no data	16.02900159
T-204	no data	no data	no data	no data	no data	no data	no data	no data
T-205	no data	no data	no data	no data	no data	no data	no data	no data
T-206	no data	no data	no data	no data	no data	no data	no data	no data
T-207	no data	no data	no data	no data	no data	no data	no data	no data
T-208	no data	no data	no data	no data	no data	no data	no data	96.22870758
T-210	no data	no data	no data	no data	0.026352154	no data	no data	no data
T-213	no data	no data	no data	no data	no data	no data	no data	463.8632062
T-220	no data	no data	no data	no data	no data	no data	no data	no data
T-2795	no data	no data	no data	no data	no data	no data	no data	7.340352518
T-300	no data	no data	no data	no data	no data	no data	no data	64.7382784
T-301	no data	no data	no data	no data	no data	no data	no data	12.17490582
T-302	no data	no data	no data	no data	no data	no data	no data	12.17946097
T-303	no data	no data	no data	no data	no data	no data	no data	0.183496816
T-304	no data	no data	no data	no data	no data	no data	no data	12.13564253
T-305	no data	no data	no data	no data	no data	no data	no data	0.215185486
T-306	no data	no data	no data	no data	no data	no data	no data	14.23168552
T-310	no data	no data	no data	no data	no data	no data	no data	64.7382784
T-311	no data	no data	no data	no data	no data	no data	no data	9.946507162
T-312	no data	no data	no data	no data	no data	no data	no data	11.12195687
T-314	no data	no data	no data	no data	no data	no data	no data	12.13564253
T-315	no data	no data	no data	no data	no data	no data	no data	12.13564253
T-320	no data	no data	no data	no data	no data	no data	no data	64.69142118
T-321	no data	no data	no data	no data	no data	no data	no data	9.95715653
T-32110	no data	no data	no data	no data	no data	no data	no data	0.012512593
T-32120	no data	no data	no data	no data	no data	no data	no data	0.012512593
T-32130	no data	no data	no data	no data	no data	no data	no data	0.012512593
T-322	no data	no data	no data	no data	no data	no data	no data	8.806006035
T-323	no data	no data	no data	no data	no data	no data	no data	55.91712577
T-324	no data	no data	no data	no data	no data	no data	no data	no data
T-331	no data	no data	no data	no data	no data	no data	no data	64.7382784

TankSum6 Annual

Site: Chę,

Equation.fter 2019 AP-42 revisions H/D ratio: calculated

Tank ID	Dimethyl butane (2,3)	Dimethyl cyclopentane (1,1)	Dimethylhexane (2,4)	Dimethylpentane (2,3)	Dioxane (1,4)	Ethane	Ethanol {ethyl alcohol}	Ethylbenzene
T-332	no data	no data	no data	no data	no data	no data	no data	55.31593617
T-333	no data	no data	no data	no data	no data	no data	no data	55.42452578
T-350	no data	no data	no data	no data	no data	no data	no data	6.557538554
T-351	no data	no data	no data	no data	no data	no data	no data	6.576232878
T-352	no data	no data	no data	no data	no data	no data	no data	9.338744822
T-353	no data	no data	no data	no data	no data	no data	no data	8.564743732
T-355	no data	no data	no data	no data	no data	no data	no data	5.978147866
T-361	no data	no data	no data	no data	no data	no data	no data	no data
T-370	no data	no data	no data	no data	no data	no data	no data	no data
T-371	no data	no data	no data	no data	no data	no data	no data	no data
T-372	no data	no data	no data	no data	no data	no data	no data	no data
T-373	no data	no data	no data	no data	no data	no data	no data	no data
T-374	no data	no data	no data	no data	no data	no data	no data	no data
T-400	no data	no data	no data	no data	no data	no data	no data	115.8068615
T-401	no data	no data	no data	no data	no data	no data	no data	116.7415303
T-402	no data	no data	no data	no data	no data	no data	no data	115.8210529
T-403	no data	no data	no data	no data	no data	no data	no data	115.8210529
T-404	no data	no data	no data	no data	no data	no data	no data	115.8189282
T-405	no data	no data	no data	no data	no data	no data	no data	115.8210529
T-406	no data	no data	no data	no data	no data	no data	no data	96.36118004
T-407	no data	no data	no data	no data	no data	no data	no data	110.8978622
T-408	no data	no data	no data	no data	no data	no data	no data	96.29150338
T-409	no data	no data	no data	no data	no data	no data	no data	96.29150338
T-412	no data	no data	no data	no data	no data	no data	no data	110.2801532
T-422	no data	no data	no data	no data	no data	no data	no data	110.8978622
T-423	no data	no data	no data	no data	no data	no data	no data	0.22802433
T-50	no data	no data	no data	no data	no data	no data	no data	36.30255878
T-500	no data	no data	no data	no data	no data	no data	no data	3.740761654
T-501	no data	no data	no data	no data	no data	no data	no data	no data
T-502	no data	no data	no data	no data	no data	no data	no data	no data
T-503	no data	no data	no data	no data	no data	no data	no data	no data
T-504	no data	no data	no data	no data	1.327313142	no data	no data	no data
T-505	no data	no data	no data	no data	2.31265412	no data	no data	no data
T-506	no data	no data	no data	no data	no data	no data	no data	987.1218852
T-507	no data	no data	no data	no data	no data	no data	no data	389.1394122
T-508	no data	no data	no data	no data	no data	no data	no data	185.3037718
T-515	no data	no data	no data	no data	no data	no data	no data	no data
T-516	no data	no data	no data	no data	no data	no data	no data	no data
T-517	no data	no data	no data	no data	no data	no data	no data	no data
T-52	no data	no data	no data	no data	no data	no data	no data	31.48653855
T-525	no data	no data	no data	no data	no data	no data	no data	no data
T-526	no data	no data	no data	no data	no data	no data	no data	no data
T-53	no data	no data	no data	no data	no data	no data	no data	43.41630132
T-54	no data	no data	no data	no data	no data	no data	no data	43.4104534
T-55	no data	no data	no data	no data	no data	no data	no data	0.253007394
T-56	no data	no data	no data	no data	no data	no data	no data	0.241643915
T-57	no data	no data	no data	no data	no data	no data	no data	43.51749275
T-58	no data	no data	no data	no data	no data	no data	no data	no data
T-59	no data	no data	no data	no data	no data	no data	no data	0.241797346
T-60	no data	no data	no data	no data	no data	no data	no data	48.20423293
T-61	no data	no data	no data	no data	no data	no data	no data	no data
T-62	no data	no data	no data	no data	no data	no data	no data	no data
T-63	no data	no data	no data	no data	no data	no data	no data	9.86734121

TankSum6 Annual

Site: Che,

Equation fter 2019 AP-42 revisions H/D ratio: calculated

Tank ID	Dimethyl butane (2,3)	Dimethyl cyclopentane (1,1)	Dimethylhexane (2,4)	Dimethylpentane (2,3)	Dioxane (1,4)	Ethane	Ethanol {ethyl alcohol}	Ethylbenzene
T-80	no data	no data	no data	no data	no data	no data	246.8735144	0.12751913
T-800	no data	no data	no data	no data	no data	no data	no data	no data
T-801	no data	no data	no data	no data	no data	no data	no data	no data
T-802	no data	no data	no data	no data	no data	no data	no data	no data
T-803	no data	no data	no data	no data	no data	no data	no data	no data
T-804	no data	no data	no data	no data	no data	no data	no data	no data
T-805	no data	no data	no data	no data	no data	no data	no data	no data
T-806	no data	no data	no data	no data	no data	no data	no data	no data
T-807	no data	no data	no data	no data	no data	no data	no data	no data
T-820	no data	no data	no data	no data	no data	no data	no data	no data
T-8293	no data	no data	no data	no data	no data	no data	no data	no data
T-8300	no data	no data	no data	no data	no data	no data	no data	0.020164226
T-122	no data	no data	no data	no data	no data	no data	no data	no data
T-324	no data	no data	no data	no data	no data	no data	no data	7.797931955

TankSum
Site: Che
Equation

Tank ID	Ethylene	Heptane (n-)	Hexane (n-)	Hexanol (1)	Hydrogen fluoride
T-100	no data	no data	no data	no data	no data
T-102	no data	no data	1117.282268	no data	no data
T-104	no data	no data	no data	no data	no data
T-11	no data	no data	no data	no data	no data
T-110	no data	no data	no data	no data	no data
T-112	no data	no data	927.5191503	no data	no data
T-11210	no data	no data	1.147339813	no data	no data
T-120	no data	no data	no data	no data	no data
T-121	no data	no data	no data	no data	no data
T-122	no data	no data	no data	no data	no data
T-123	no data	no data	55.93177937	no data	no data
T-124	no data	no data	no data	no data	no data
T-132	no data	no data	no data	no data	no data
T-133	no data	no data	56.11925838	no data	no data
T-151	no data	no data	443.1504137	no data	no data
T-153	no data	no data	51.0477176	no data	no data
T-154	no data	no data	117.2304923	no data	no data
T-164	no data	no data	47.11808603	no data	no data
T-165	no data	no data	83.50112883	no data	no data
T-173	no data	no data	107.1524089	no data	no data
T-175	no data	no data	0.515518002	no data	no data
T-197	no data	no data	589.4464712	no data	no data
T-198	no data	no data	576.8080728	no data	no data
T-204	no data	no data	no data	no data	no data
T-205	no data	no data	no data	no data	no data
T-206	no data	no data	no data	no data	no data
T-207	no data	no data	no data	no data	no data
T-208	no data	no data	121.2555352	no data	no data
T-210	no data	no data	no data	no data	no data
T-213	no data	no data	0	no data	no data
T-220	no data	no data	no data	no data	no data
T-2795	no data	no data	273.1790569	no data	no data
T-300	no data	no data	151.7207894	no data	no data
T-301	no data	no data	87.76223131	no data	no data
T-302	no data	no data	87.88559707	no data	no data
T-303	no data	no data	32.11670433	no data	no data
T-304	no data	no data	53.86554464	no data	no data
T-305	no data	no data	20.76130129	no data	no data
T-306	no data	no data	92.50013485	no data	no data
T-310	no data	no data	151.7207894	no data	no data
T-311	no data	no data	57.71380526	no data	no data
T-312	no data	no data	56.58649933	no data	no data
T-314	no data	no data	53.86554464	no data	no data
T-315	no data	no data	53.86554464	no data	no data
T-320	no data	no data	151.0379641	no data	no data
T-321	no data	no data	58.01514602	no data	no data
T-32110	no data	no data	1.141650182	no data	no data
T-32120	no data	no data	1.141650182	no data	no data
T-32130	no data	no data	1.141650182	no data	no data
T-322	no data	no data	65.77094012	no data	no data
T-323	no data	no data	165.6585103	no data	no data
T-324	no data	no data	no data	no data	no data
T-331	no data	no data	151.7207894	no data	no data

TankSum

Site: Che

Equation

Tank ID	Ethylene	Heptane (n-)	Hexane (n-)	Hexanol (1)	Hydrogen fluoride
T-332	no data	no data	163.1046913	no data	no data
T-333	no data	no data	164.6859307	no data	no data
T-350	no data	no data	27.77962162	no data	no data
T-351	no data	no data	27.95765666	no data	no data
T-352	no data	no data	40.01824366	no data	no data
T-353	no data	no data	31.20217244	no data	no data
T-355	no data	no data	44.92264452	no data	no data
T-361	no data	no data	no data	no data	no data
T-370	no data	no data	no data	no data	no data
T-371	no data	no data	no data	no data	no data
T-372	no data	no data	no data	no data	no data
T-373	no data	no data	no data	no data	no data
T-374	no data	no data	no data	no data	no data
T-400	no data	no data	136.3713453	no data	no data
T-401	no data	no data	150.9503812	no data	no data
T-402	no data	no data	136.5927032	no data	no data
T-403	no data	no data	136.5927032	no data	no data
T-404	no data	no data	136.5595628	no data	no data
T-405	no data	no data	136.5927032	no data	no data
T-406	no data	no data	123.3203577	no data	no data
T-407	no data	no data	259.1341682	no data	no data
T-408	no data	no data	122.2343211	no data	no data
T-409	no data	no data	122.2343211	no data	no data
T-412	no data	no data	252.9279567	no data	no data
T-422	no data	no data	259.1341682	no data	no data
T-423	no data	no data	12.62411841	no data	no data
T-50	no data	no data	148.3606624	no data	no data
T-500	no data	no data	325.0515393	no data	no data
T-501	1.568621509	no data	no data	121.8861236	no data
T-502	no data	no data	no data	no data	no data
T-503	no data	no data	no data	no data	no data
T-504	no data	no data	no data	no data	no data
T-505	no data	no data	no data	no data	no data
T-506	no data	no data	0	no data	no data
T-507	no data	no data	0	no data	no data
T-508	no data	no data	0	no data	no data
T-515	no data	no data	no data	no data	no data
T-516	no data	no data	no data	no data	no data
T-517	no data	no data	no data	no data	no data
T-52	no data	no data	74.88035376	no data	no data
T-525	no data	no data	no data	no data	no data
T-526	no data	no data	no data	no data	no data
T-53	no data	no data	76.4230332	no data	no data
T-54	no data	no data	76.33727639	no data	no data
T-55	no data	no data	0.710245131	no data	no data
T-56	no data	no data	0.582231675	no data	no data
T-57	no data	no data	77.93004432	no data	no data
T-58	no data	no data	no data	no data	no data
T-59	no data	no data	0.579898427	no data	no data
T-60	no data	no data	149.5678154	no data	no data
T-61	no data	no data	no data	no data	no data
T-62	no data	no data	no data	no data	no data
T-63	no data	no data	33.72659681	no data	no data

TankSum

Site: Che

Equation

Tank ID	Ethylene	Heptane (n-)	Hexane (n-)	Hexanol (1)	Hydrogen fluoride
T-80	no data	no data	0.156759231	no data	no data
T-800	no data	no data	no data	no data	no data
T-801	no data	no data	no data	no data	no data
T-802	no data	no data	no data	no data	no data
T-803	no data	no data	no data	no data	no data
T-804	no data	no data	no data	no data	no data
T-805	no data	no data	no data	no data	no data
T-806	no data	no data	no data	no data	no data
T-807	no data	no data	no data	no data	no data
T-820	no data	no data	no data	no data	no data
T-8293	no data	no data	no data	no data	no data
T-8300	no data	no data	0.515961071	no data	no data
T-122	no data	no data	no data	no data	no data
T-324	no data	no data	65.56637717	no data	no data

TankSum TankSummaries for 2026 Annual

Site: Che Site: ChevronPermitting,

Equation Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

Total loss components in the "ChevPTE" set (lbs)

Tank ID	Hydrogen sulfide	Iso-butane	Iso-octane {2,2,4 trimethylpentane}	Iso-octene (2,2,4 trimethylpentene	Isopentane {2-methylbutane}
T-100	no data	no data	no data	no data	no data
T-102	no data	no data	no data	no data	no data
T-104	no data	no data	no data	no data	no data
T-11	no data	no data	no data	no data	no data
T-110	no data	no data	no data	no data	no data
T-112	no data	no data	no data	no data	no data
T-11210	no data	no data	0.664401015	no data	no data
T-120	no data	no data	no data	no data	no data
T-121	no data	no data	no data	no data	no data
T-122	no data	no data	no data	no data	no data
T-123	no data	no data	no data	no data	no data
T-124	no data	no data	no data	no data	no data
T-132	no data	no data	no data	no data	no data
T-133	no data	no data	no data	no data	no data
T-151	no data	no data	23.14570326	no data	no data
T-153	no data	no data	no data	no data	no data
T-154	no data	no data	no data	no data	no data
T-164	no data	no data	no data	no data	no data
T-165	no data	no data	no data	no data	no data
T-173	no data	no data	no data	no data	no data
T-175	no data	no data	0.132885588	no data	no data
T-197	no data	no data	350.0658969	no data	no data
T-198	no data	no data	342.3514392	no data	no data
T-204	no data	no data	no data	no data	no data
T-205	no data	no data	no data	no data	no data
T-206	no data	no data	no data	no data	no data
T-207	no data	no data	no data	no data	no data
T-208	no data	no data	25.82572409	no data	no data
T-210	no data	no data	no data	no data	no data
T-213	no data	no data	no data	no data	no data
T-220	no data	no data	no data	no data	no data
T-2795	no data	no data	160.4707643	no data	no data
T-300	no data	no data	51.18800608	no data	no data
T-301	no data	no data	687.2691328	no data	no data
T-302	no data	no data	687.9619122	no data	no data
T-303	no data	no data	64.36914111	no data	no data
T-304	no data	no data	527.0544021	no data	no data
T-305	no data	no data	50.6592523	no data	no data
T-306	no data	no data	20.96796959	no data	no data
T-310	no data	no data	51.18800608	no data	no data
T-311	no data	no data	496.1439677	no data	no data
T-312	no data	no data	517.1834959	no data	no data
T-314	no data	no data	527.0544021	no data	no data
T-315	no data	no data	527.0544021	no data	no data
T-320	no data	no data	51.05601348	no data	no data
T-321	no data	no data	497.811971	no data	no data
T-32110	no data	no data	no data	no data	no data
T-32120	no data	no data	no data	no data	no data
T-32130	no data	no data	no data	no data	no data
T-322	no data	no data	508.7215187	no data	no data
T-323	no data	no data	49.93423233	no data	no data
T-324	no data	no data	no data	no data	no data
T-331	no data	no data	51.18800608	no data	no data

TankSum TankSummaries for 2026 Annual

Site: Che Site: ChevronPermitting,

Equation Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

Tank ID	Hydrogen sulfide	Iso-butane	Iso-octane {2,2,4 trimethylpentane}	Iso-octene (2,2,4 trimethylpentene	Isopentane {2-methylbutane}
		Total loss components in the "ChevPTE" set (lbs)			
T-332	no data	no data	49.26846108	no data	no data
T-333	no data	no data	49.57419154	no data	no data
T-350	no data	no data	no data	no data	no data
T-351	no data	no data	no data	no data	no data
T-352	no data	no data	no data	no data	no data
T-353	no data	no data	no data	no data	no data
T-355	no data	no data	no data	no data	no data
T-361	no data	no data	no data	no data	no data
T-370	no data	no data	no data	no data	no data
T-371	no data	no data	no data	no data	no data
T-372	no data	no data	no data	no data	no data
T-373	no data	no data	no data	no data	no data
T-374	no data	no data	no data	no data	no data
T-400	no data	no data	30.40469659	no data	no data
T-401	no data	no data	31.60240497	no data	no data
T-402	no data	no data	30.42288176	no data	no data
T-403	no data	no data	30.42288176	no data	no data
T-404	no data	no data	30.42015919	no data	no data
T-405	no data	no data	30.42288176	no data	no data
T-406	no data	no data	25.99539376	no data	no data
T-407	no data	no data	39.18075595	no data	no data
T-408	no data	no data	25.90615245	no data	no data
T-409	no data	no data	25.90615245	no data	no data
T-412	no data	no data	38.59442704	no data	no data
T-422	no data	no data	39.18075595	no data	no data
T-423	no data	no data	0.00817316	no data	no data
T-50	no data	no data	39.0657087	no data	no data
T-500	no data	no data	248.7424867	no data	no data
T-501	no data	no data	no data	94.89604897	no data
T-502	no data	no data	no data	no data	no data
T-503	no data	no data	no data	no data	no data
T-504	no data	no data	no data	no data	no data
T-505	no data	no data	no data	no data	no data
T-506	no data	no data	no data	no data	no data
T-507	no data	no data	no data	no data	no data
T-508	no data	no data	no data	no data	no data
T-515	no data	no data	no data	no data	no data
T-516	no data	no data	no data	no data	no data
T-517	no data	no data	no data	no data	no data
T-52	no data	no data	25.06859546	no data	no data
T-525	no data	no data	no data	no data	no data
T-526	no data	no data	no data	no data	no data
T-53	no data	no data	30.13954398	no data	no data
T-54	no data	no data	30.12299998	no data	no data
T-55	no data	no data	no data	no data	no data
T-56	no data	no data	no data	no data	no data
T-57	no data	no data	30.42883346	no data	no data
T-58	no data	no data	no data	no data	no data
T-59	no data	no data	no data	no data	no data
T-60	no data	no data	44.0671934	no data	no data
T-61	no data	no data	no data	no data	no data
T-62	no data	no data	no data	no data	no data
T-63	no data	no data	380.8763339	no data	no data

TankSum TankSummaries for 2026 Annual

Site: Che Site: ChevronPermitting,

Equation Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

Total loss components in the "ChevPTE" set (lbs)

Tank ID	Hydrogen sulfide	Iso-butane	Iso-octane {2,2,4 trimethylpentane}	Iso-octene (2,2,4 trimethylpentene	Isopentane {2-methylbutane}
T-80	no data	no data	0.077324896	no data	no data
T-800	no data	no data	no data	no data	no data
T-801	no data	no data	no data	no data	no data
T-802	no data	no data	no data	no data	no data
T-803	no data	no data	no data	no data	no data
T-804	no data	no data	no data	no data	no data
T-805	no data	no data	no data	no data	no data
T-806	no data	no data	no data	no data	no data
T-807	no data	no data	no data	no data	no data
T-820	no data	no data	no data	no data	no data
T-8293	no data	no data	no data	no data	no data
T-8300	no data	no data	no data	no data	no data
T-122	no data	no data	no data	no data	no data
T-324	no data	no data	no data	no data	no data

TankSum
Site: Che
Equation

Tank ID	MDI {methylene diphenyl diisocyanate}	Mercury	Methane	Methanol {methyl alcohol}	Methyl acetate	Methyl ethyl ketone {2-butanone}	Methyl isobutyl ketone {hexone}
T-100	no data	no data	no data	no data	no data	no data	no data
T-102	no data	no data	no data	no data	no data	no data	no data
T-104	no data	no data	no data	no data	no data	no data	no data
T-11	no data	no data	no data	no data	no data	no data	no data
T-110	no data	no data	no data	no data	no data	no data	no data
T-112	no data	no data	no data	no data	no data	no data	no data
T-11210	no data	no data	no data	no data	no data	no data	no data
T-120	no data	no data	no data	no data	no data	no data	no data
T-121	no data	no data	no data	no data	no data	no data	no data
T-122	no data	no data	no data	no data	no data	no data	no data
T-123	no data	no data	no data	no data	no data	no data	no data
T-124	no data	no data	no data	no data	no data	no data	no data
T-132	no data	no data	no data	no data	no data	no data	no data
T-133	no data	no data	no data	no data	no data	no data	no data
T-151	no data	no data	no data	no data	no data	no data	no data
T-153	no data	no data	no data	no data	no data	no data	no data
T-154	no data	no data	no data	no data	no data	no data	no data
T-164	no data	no data	no data	no data	no data	no data	no data
T-165	no data	no data	no data	no data	no data	no data	no data
T-173	no data	no data	no data	no data	no data	no data	no data
T-175	no data	no data	no data	no data	no data	no data	no data
T-197	no data	no data	no data	no data	no data	no data	no data
T-198	no data	no data	no data	no data	no data	no data	no data
T-204	no data	no data	no data	no data	no data	no data	no data
T-205	no data	no data	no data	no data	no data	no data	no data
T-206	no data	no data	no data	no data	no data	no data	no data
T-207	no data	no data	no data	no data	no data	no data	no data
T-208	no data	no data	no data	no data	no data	no data	no data
T-210	no data	no data	no data	no data	no data	no data	no data
T-213	no data	no data	no data	no data	no data	no data	no data
T-220	no data	no data	no data	no data	no data	no data	no data
T-2795	no data	no data	no data	no data	no data	no data	no data
T-300	no data	no data	no data	no data	no data	no data	no data
T-301	no data	no data	no data	no data	no data	no data	no data
T-302	no data	no data	no data	no data	no data	no data	no data
T-303	no data	no data	no data	no data	no data	no data	no data
T-304	no data	no data	no data	no data	no data	no data	no data
T-305	no data	no data	no data	no data	no data	no data	no data
T-306	no data	no data	no data	no data	no data	no data	no data
T-310	no data	no data	no data	no data	no data	no data	no data
T-311	no data	no data	no data	no data	no data	no data	no data
T-312	no data	no data	no data	no data	no data	no data	no data
T-314	no data	no data	no data	no data	no data	no data	no data
T-315	no data	no data	no data	no data	no data	no data	no data
T-320	no data	no data	no data	no data	no data	no data	no data
T-321	no data	no data	no data	no data	no data	no data	no data
T-32110	no data	no data	no data	no data	no data	no data	no data
T-32120	no data	no data	no data	no data	no data	no data	no data
T-32130	no data	no data	no data	no data	no data	no data	no data
T-322	no data	no data	no data	no data	no data	no data	no data
T-323	no data	no data	no data	no data	no data	no data	no data
T-324	no data	no data	no data	no data	no data	no data	no data
T-331	no data	no data	no data	no data	no data	no data	no data

Tank ID	MDI {methylene diphenyl diisocyanate}	Mercury	Methane	Methanol {methyl alcohol}	Methyl acetate	Methyl ethyl ketone {2-butanone}	Methyl isobutyl ketone {hexone}
T-332	no data	no data	no data	no data	no data	no data	no data
T-333	no data	no data	no data	no data	no data	no data	no data
T-350	no data	no data	no data	no data	no data	no data	no data
T-351	no data	no data	no data	no data	no data	no data	no data
T-352	no data	no data	no data	no data	no data	no data	no data
T-353	no data	no data	no data	no data	no data	no data	no data
T-355	no data	no data	no data	no data	no data	no data	no data
T-361	no data	no data	no data	no data	no data	no data	no data
T-370	no data	no data	no data	no data	no data	no data	no data
T-371	no data	no data	no data	no data	no data	no data	no data
T-372	no data	no data	no data	no data	no data	no data	no data
T-373	no data	no data	no data	no data	no data	no data	no data
T-374	no data	no data	no data	no data	no data	no data	no data
T-400	no data	no data	no data	no data	no data	no data	no data
T-401	no data	no data	no data	no data	no data	no data	no data
T-402	no data	no data	no data	no data	no data	no data	no data
T-403	no data	no data	no data	no data	no data	no data	no data
T-404	no data	no data	no data	no data	no data	no data	no data
T-405	no data	no data	no data	no data	no data	no data	no data
T-406	no data	no data	no data	no data	no data	no data	no data
T-407	no data	no data	no data	no data	no data	no data	no data
T-408	no data	no data	no data	no data	no data	no data	no data
T-409	no data	no data	no data	no data	no data	no data	no data
T-412	no data	no data	no data	no data	no data	no data	no data
T-422	no data	no data	no data	no data	no data	no data	no data
T-423	no data	no data	no data	no data	no data	no data	no data
T-50	no data	no data	no data	no data	no data	no data	no data
T-500	no data	no data	no data	no data	no data	no data	no data
T-501	no data	no data	no data	no data	no data	no data	no data
T-502	no data	no data	no data	no data	no data	no data	no data
T-503	no data	no data	no data	no data	no data	no data	no data
T-504	no data	no data	no data	no data	no data	no data	no data
T-505	no data	no data	no data	no data	no data	no data	no data
T-506	no data	no data	no data	no data	no data	no data	no data
T-507	no data	no data	no data	no data	no data	no data	no data
T-508	no data	no data	no data	no data	no data	no data	no data
T-515	no data	no data	no data	no data	no data	no data	no data
T-516	no data	no data	no data	no data	no data	no data	no data
T-517	no data	no data	no data	no data	no data	no data	no data
T-52	no data	no data	no data	no data	no data	no data	no data
T-525	no data	no data	no data	no data	no data	no data	no data
T-526	no data	no data	no data	no data	no data	no data	no data
T-53	no data	no data	no data	no data	no data	no data	no data
T-54	no data	no data	no data	no data	no data	no data	no data
T-55	no data	no data	no data	no data	no data	no data	no data
T-56	no data	no data	no data	no data	no data	no data	no data
T-57	no data	no data	no data	no data	no data	no data	no data
T-58	no data	no data	no data	no data	no data	no data	no data
T-59	no data	no data	no data	no data	no data	no data	no data
T-60	no data	no data	no data	no data	no data	no data	no data
T-61	no data	no data	no data	no data	no data	no data	no data
T-62	no data	no data	no data	no data	no data	no data	no data
T-63	no data	no data	no data	no data	no data	no data	no data

TankSummaries for 2026 Annual
Site: ChevronPermitting,
Equations for this site: After 2019 AP-42 revisions H/D ratio: calculate

Tank ID	MDI {methylene diphenyl diisocyanate}	Mercury	Methane	Methanol {methyl alcohol}	Methyl acetate	Methyl ethyl ketone {2-butanone}	Methyl isobutyl ketone {hexone}
T-80	no data	no data	no data	no data	no data	no data	no data
T-800	no data	no data	no data	no data	no data	no data	no data
T-801	no data	no data	no data	no data	no data	no data	no data
T-802	no data	no data	no data	no data	no data	no data	no data
T-803	no data	no data	no data	no data	no data	no data	no data
T-804	no data	no data	no data	no data	no data	no data	no data
T-805	no data	no data	no data	no data	no data	no data	no data
T-806	no data	no data	no data	no data	no data	no data	no data
T-807	no data	no data	no data	no data	no data	no data	no data
T-820	no data	no data	no data	no data	no data	no data	no data
T-8293	no data	no data	no data	no data	no data	no data	no data
T-8300	no data	no data	no data	no data	no data	no data	no data
T-122	no data	no data	no data	no data	no data	no data	no data
T-324	no data	no data	no data	no data	no data	no data	no data

TankSum
Site: Che
Equationd

Tank ID	Methylcyclohexane	Methylcyclopentane	Methylhexane (2) {isoheptane}	Methylhexane (3)	Methylpentane (2) {isohexane}	Methylpentane (3)	Molybdenum trioxide
T-100	no data	no data	no data	no data	no data	no data	no data
T-102	no data	no data	no data	no data	no data	no data	no data
T-104	no data	no data	no data	no data	no data	no data	no data
T-11	no data	no data	no data	no data	no data	no data	no data
T-110	no data	no data	no data	no data	no data	no data	no data
T-112	no data	no data	no data	no data	no data	no data	no data
T-11210	no data	no data	no data	no data	no data	no data	no data
T-120	no data	no data	no data	no data	no data	no data	no data
T-121	no data	no data	no data	no data	no data	no data	no data
T-122	no data	no data	no data	no data	no data	no data	no data
T-123	no data	no data	no data	no data	no data	no data	no data
T-124	no data	no data	no data	no data	no data	no data	no data
T-132	no data	no data	no data	no data	no data	no data	no data
T-133	no data	no data	no data	no data	no data	no data	no data
T-151	no data	no data	no data	no data	no data	no data	no data
T-153	no data	no data	no data	no data	no data	no data	no data
T-154	no data	no data	no data	no data	no data	no data	no data
T-164	no data	no data	no data	no data	no data	no data	no data
T-165	no data	no data	no data	no data	no data	no data	no data
T-173	no data	no data	no data	no data	no data	no data	no data
T-175	no data	no data	no data	no data	no data	no data	no data
T-197	no data	no data	no data	no data	no data	no data	no data
T-198	no data	no data	no data	no data	no data	no data	no data
T-204	no data	no data	no data	no data	no data	no data	no data
T-205	no data	no data	no data	no data	no data	no data	no data
T-206	no data	no data	no data	no data	no data	no data	no data
T-207	no data	no data	no data	no data	no data	no data	no data
T-208	no data	no data	no data	no data	no data	no data	no data
T-210	no data	no data	no data	no data	no data	no data	no data
T-213	no data	no data	no data	no data	no data	no data	no data
T-220	no data	no data	no data	no data	no data	no data	no data
T-2795	no data	no data	no data	no data	no data	no data	no data
T-300	no data	no data	no data	no data	no data	no data	no data
T-301	no data	no data	no data	no data	no data	no data	no data
T-302	no data	no data	no data	no data	no data	no data	no data
T-303	no data	no data	no data	no data	no data	no data	no data
T-304	no data	no data	no data	no data	no data	no data	no data
T-305	no data	no data	no data	no data	no data	no data	no data
T-306	no data	no data	no data	no data	no data	no data	no data
T-310	no data	no data	no data	no data	no data	no data	no data
T-311	no data	no data	no data	no data	no data	no data	no data
T-312	no data	no data	no data	no data	no data	no data	no data
T-314	no data	no data	no data	no data	no data	no data	no data
T-315	no data	no data	no data	no data	no data	no data	no data
T-320	no data	no data	no data	no data	no data	no data	no data
T-321	no data	no data	no data	no data	no data	no data	no data
T-32110	no data	no data	no data	no data	no data	no data	no data
T-32120	no data	no data	no data	no data	no data	no data	no data
T-32130	no data	no data	no data	no data	no data	no data	no data
T-322	no data	no data	no data	no data	no data	no data	no data
T-323	no data	no data	no data	no data	no data	no data	no data
T-324	no data	no data	no data	no data	no data	no data	no data
T-331	no data	no data	no data	no data	no data	no data	no data

TankSum
Site: Che
Equationd

Tank ID	Methylcyclohexane	Methylcyclopentane	Methylhexane (2) {isoheptane}	Methylhexane (3)	Methylpentane (2) {isohexane}	Methylpentane (3)	Molybdenum trioxide
T-332	no data	no data	no data	no data	no data	no data	no data
T-333	no data	no data	no data	no data	no data	no data	no data
T-350	no data	no data	no data	no data	no data	no data	no data
T-351	no data	no data	no data	no data	no data	no data	no data
T-352	no data	no data	no data	no data	no data	no data	no data
T-353	no data	no data	no data	no data	no data	no data	no data
T-355	no data	no data	no data	no data	no data	no data	no data
T-361	no data	no data	no data	no data	no data	no data	no data
T-370	no data	no data	no data	no data	no data	no data	no data
T-371	no data	no data	no data	no data	no data	no data	no data
T-372	no data	no data	no data	no data	no data	no data	no data
T-373	no data	no data	no data	no data	no data	no data	no data
T-374	no data	no data	no data	no data	no data	no data	no data
T-400	no data	no data	no data	no data	no data	no data	no data
T-401	no data	no data	no data	no data	no data	no data	no data
T-402	no data	no data	no data	no data	no data	no data	no data
T-403	no data	no data	no data	no data	no data	no data	no data
T-404	no data	no data	no data	no data	no data	no data	no data
T-405	no data	no data	no data	no data	no data	no data	no data
T-406	no data	no data	no data	no data	no data	no data	no data
T-407	no data	no data	no data	no data	no data	no data	no data
T-408	no data	no data	no data	no data	no data	no data	no data
T-409	no data	no data	no data	no data	no data	no data	no data
T-412	no data	no data	no data	no data	no data	no data	no data
T-422	no data	no data	no data	no data	no data	no data	no data
T-423	no data	no data	no data	no data	no data	no data	no data
T-50	no data	no data	no data	no data	no data	no data	no data
T-500	no data	no data	no data	no data	no data	no data	no data
T-501	no data	no data	no data	no data	no data	no data	no data
T-502	no data	no data	no data	no data	no data	no data	no data
T-503	no data	no data	no data	no data	no data	no data	no data
T-504	no data	no data	no data	no data	no data	no data	no data
T-505	no data	no data	no data	no data	no data	no data	no data
T-506	no data	no data	no data	no data	no data	no data	no data
T-507	no data	no data	no data	no data	no data	no data	no data
T-508	no data	no data	no data	no data	no data	no data	no data
T-515	no data	no data	no data	no data	no data	no data	no data
T-516	no data	no data	no data	no data	no data	no data	no data
T-517	no data	no data	no data	no data	no data	no data	no data
T-52	no data	no data	no data	no data	no data	no data	no data
T-525	no data	no data	no data	no data	no data	no data	no data
T-526	no data	no data	no data	no data	no data	no data	no data
T-53	no data	no data	no data	no data	no data	no data	no data
T-54	no data	no data	no data	no data	no data	no data	no data
T-55	no data	no data	no data	no data	no data	no data	no data
T-56	no data	no data	no data	no data	no data	no data	no data
T-57	no data	no data	no data	no data	no data	no data	no data
T-58	no data	no data	no data	no data	no data	no data	no data
T-59	no data	no data	no data	no data	no data	no data	no data
T-60	no data	no data	no data	no data	no data	no data	no data
T-61	no data	no data	no data	no data	no data	no data	no data
T-62	no data	no data	no data	no data	no data	no data	no data
T-63	no data	no data	no data	no data	no data	no data	no data

TankSum

Site: Che

Equationd

Tank ID	Methylcyclohexane	Methylcyclopentane	Methylhexane (2) {isoheptane}	Methylhexane (3)	Methylpentane (2) {isohexane}	Methylpentane (3)	Molybdenum trioxide
T-80	no data	no data	no data	no data	no data	no data	no data
T-800	no data	no data	no data	no data	no data	no data	no data
T-801	no data	no data	no data	no data	no data	no data	no data
T-802	no data	no data	no data	no data	no data	no data	no data
T-803	no data	no data	no data	no data	no data	no data	no data
T-804	no data	no data	no data	no data	no data	no data	no data
T-805	no data	no data	no data	no data	no data	no data	no data
T-806	no data	no data	no data	no data	no data	no data	no data
T-807	no data	no data	no data	no data	no data	no data	no data
T-820	no data	no data	no data	no data	no data	no data	no data
T-8293	no data	no data	no data	no data	no data	no data	no data
T-8300	no data	no data	no data	no data	no data	no data	no data
T-122	no data	no data	no data	no data	no data	no data	no data
T-324	no data	no data	no data	no data	no data	no data	no data

TankSum
Site: Che
Equation

TankSummaries for 2026 Annual

Site: ChevronPermitting,

Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

Tank ID	MTBE {Methyl tert-butyl ether}	Naphthalene	Nickel	Nonane (n-)	Octane (n-)	PACs {Chrysene}	Pentane (n-)	Pentene (1)	Phenanthrene	Phenol
T-100	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-102	no data	no data	no data	no data	no data	0.001459938	no data	no data	no data	no data
T-104	no data	no data	no data	no data	no data	0.010790023	no data	no data	no data	no data
T-11	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-110	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-112	no data	no data	no data	no data	no data	0.001459938	no data	no data	no data	no data
T-11210	no data	no data	no data	no data	no data	7.57636E-14	no data	no data	no data	no data
T-120	no data	no data	no data	no data	no data	0.005308761	no data	no data	no data	no data
T-121	no data	no data	no data	no data	no data	8.88628E-09	no data	no data	no data	no data
T-122	no data	no data	no data	no data	no data	8.88628E-09	no data	no data	no data	no data
T-123	no data	no data	no data	no data	no data	0.00094101	no data	no data	no data	no data
T-124	no data	no data	no data	no data	no data	0.00924708	no data	no data	no data	no data
T-132	no data	no data	no data	no data	no data	7.13635E-09	no data	no data	no data	no data
T-133	no data	no data	no data	no data	no data	0.001823192	no data	no data	no data	no data
T-151	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-153	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-154	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-164	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-165	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-173	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-175	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-197	no data	no data	no data	no data	no data	0.000756813	no data	no data	no data	no data
T-198	no data	no data	no data	no data	no data	0.000347089	no data	no data	no data	no data
T-204	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-205	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-206	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-207	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-208	no data	8.7469019	no data	no data	no data	1.205040632	no data	no data	no data	no data
T-210	no data	no data	no data	no data	no data	0.066416278	no data	no data	no data	no data
T-213	no data	593.8102281	no data	no data	no data	0.009578182	no data	no data	13.31312971	no data
T-220	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-2795	no data	no data	no data	no data	no data	8.4735E-05	no data	no data	no data	no data
T-300	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-301	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-302	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-303	no data	0.111783692	no data	no data	no data	0.001372129	no data	no data	no data	no data
T-304	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-305	no data	0.175185088	no data	no data	no data	0.002175804	no data	no data	no data	no data
T-306	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-310	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-311	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-312	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-314	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-315	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-320	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-321	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-32110	no data	0.001632746	no data	no data	no data	0.009972781	no data	no data	no data	no data
T-32120	no data	0.001632746	no data	no data	no data	0.009972781	no data	no data	no data	no data
T-32130	no data	0.001632746	no data	no data	no data	0.009972781	no data	no data	no data	no data
T-322	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-323	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-324	no data	no data	no data	no data	no data	0.041880012	no data	no data	no data	no data
T-331	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data

TankSum
Site: Che
Equation

TankSummaries for 2026 Annual

Site: ChevronPermitting,

Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

Tank ID	MTBE {Methyl tert-butyl ether}	Naphthalene	Nickel	Nonane (n-)	Octane (n-)	PACs {Chrysene}	Pentane (n-)	Pentene (1)	Phenanthrene	Phenol
T-332	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-333	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-350	no data	no data	no data	no data	no data	0.027999254	no data	no data	no data	no data
T-351	no data	no data	no data	no data	no data	0.027999254	no data	no data	no data	no data
T-352	no data	no data	no data	no data	no data	0.039598945	no data	no data	no data	no data
T-353	no data	no data	no data	no data	no data	0.039598945	no data	no data	no data	no data
T-355	no data	no data	no data	no data	no data	0.013722407	no data	no data	no data	no data
T-361	no data	no data	no data	no data	no data	3.99847E-09	no data	no data	no data	no data
T-370	no data	no data	no data	no data	no data	3.03872E-09	no data	no data	no data	no data
T-371	no data	no data	no data	no data	no data	1.60998E-09	no data	no data	no data	no data
T-372	no data	no data	no data	no data	no data	2.81704E-09	no data	no data	no data	no data
T-373	no data	no data	no data	no data	no data	0.011030648	no data	no data	no data	no data
T-374	no data	no data	no data	no data	no data	0.040284583	no data	no data	no data	no data
T-400	no data	10.58547963	no data	no data	no data	1.458576408	no data	no data	no data	no data
T-401	no data	10.5879019	no data	no data	no data	1.458576408	no data	no data	no data	no data
T-402	no data	10.58551641	no data	no data	no data	1.458576408	no data	no data	no data	no data
T-403	no data	10.58551641	no data	no data	no data	1.458576408	no data	no data	no data	no data
T-404	no data	10.5855109	no data	no data	no data	1.458576408	no data	no data	no data	no data
T-405	no data	10.58551641	no data	no data	no data	1.458576408	no data	no data	no data	no data
T-406	no data	8.747245509	no data	no data	no data	1.205040632	no data	no data	no data	no data
T-407	no data	8.814943418	no data	no data	no data	1.205040635	no data	no data	no data	no data
T-408	no data	8.747064781	no data	no data	no data	1.205040632	no data	no data	no data	no data
T-409	no data	8.747064781	no data	no data	no data	1.205040632	no data	no data	no data	no data
T-412	no data	8.812210481	no data	no data	no data	1.205040635	no data	no data	no data	no data
T-422	no data	8.814943418	no data	no data	no data	1.205040635	no data	no data	no data	no data
T-423	no data	0.001241882	no data	no data	no data	no data	no data	no data	no data	no data
T-50	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-500	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-501	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-502	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-503	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-504	no data	no data	no data	no data	no data	1.37891E-06	no data	no data	no data	no data
T-505	no data	no data	no data	no data	no data	6.94613E-06	no data	no data	no data	no data
T-506	no data	1890.22692	no data	no data	no data	0.409054702	no data	no data	85.47477089	no data
T-507	no data	646.6087317	no data	no data	no data	0.054810244	no data	no data	22.88567987	no data
T-508	no data	307.9077397	no data	no data	no data	0.026100016	no data	no data	10.89790103	no data
T-515	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-516	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-517	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-52	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-525	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-526	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-53	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-54	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-55	no data	no data	no data	no data	no data	0.001302829	no data	no data	no data	no data
T-56	no data	no data	no data	no data	no data	0.001302829	no data	no data	no data	no data
T-57	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-58	no data	no data	no data	no data	no data	4.13601E-10	no data	no data	no data	no data
T-59	no data	no data	no data	no data	no data	0.001302829	no data	no data	no data	no data
T-60	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-61	no data	no data	no data	no data	no data	4.13601E-10	no data	no data	no data	no data
T-62	no data	no data	no data	no data	no data	0.026614934	no data	no data	no data	no data
T-63	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data

TankSum
Site: Che
Equation

TankSummaries for 2026 Annual

Site: ChevronPermitting,

Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

Tank ID	MTBE {Methyl tert-butyl ether}	Naphthalene	Nickel	Nonane (n-)	Octane (n-)	PACs {Chrysene}	Pentane (n-)	Pentene (1)	Phenanthrene	Phenol
T-80	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-800	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-801	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-802	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-803	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-804	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-805	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-806	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-807	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-820	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-8293	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-8300	no data	0.00429651	no data	no data	no data	0.026796825	no data	no data	no data	no data
T-122	no data	no data	no data	no data	no data	3.0731E-09	no data	no data	no data	no data
T-324	no data	no data	no data	no data	no data	0.013722407	no data	no data	no data	no data

Tank ID	POMs (as Pyrene)	Propylene	Sulfuric Acid	Tetra ethyl lead	Tetrachloroethylene	Toluene	Toluene diisocyanate	Trimethylbenzene (1,2,4)	Trimethylbenzene (1,3,5)
T-100	2.82575E-08	no data	no data	no data	no data	no data	no data	no data	no data
T-102	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-104	4.3160091	no data	no data	no data	no data	no data	no data	no data	no data
T-11	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-110	3.62864E-11	no data	no data	no data	no data	no data	no data	no data	no data
T-112	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-11210	1.17524E-27	no data	no data	no data	no data	0.697793409	no data	0.008216691	no data
T-120	2.123504343	no data	no data	no data	no data	no data	no data	no data	no data
T-121	1.33031E-16	no data	no data	no data	no data	no data	no data	no data	no data
T-122	1.33031E-16	no data	no data	no data	no data	no data	no data	no data	no data
T-123	5.377197255	no data	no data	no data	no data	15.19959659	no data	5.936681324	no data
T-124	3.698831956	no data	no data	no data	no data	no data	no data	no data	no data
T-132	8.74902E-17	no data	no data	no data	no data	no data	no data	no data	no data
T-133	10.41824063	no data	no data	no data	no data	15.36159066	no data	6.574984084	no data
T-151	no data	no data	no data	no data	no data	3.753781515	no data	no data	no data
T-153	no data	no data	no data	no data	no data	20.84938488	no data	2.724344815	no data
T-154	no data	no data	no data	no data	no data	44.68305155	no data	3.424901312	no data
T-164	no data	no data	no data	no data	no data	18.94296555	no data	2.117335464	no data
T-165	no data	no data	no data	no data	no data	32.29036118	no data	2.866337425	no data
T-173	no data	no data	no data	no data	no data	42.79225012	no data	4.563293352	no data
T-175	no data	no data	no data	no data	no data	1.017875762	no data	0.192549232	no data
T-197	1.210901325	no data	no data	no data	no data	375.5057975	no data	4.943583336	no data
T-198	0.555341761	no data	no data	no data	no data	366.9952092	no data	4.744572838	no data
T-204	1.73554E-13	no data	no data	no data	no data	no data	no data	no data	no data
T-205	4.6459E-13	no data	no data	no data	no data	no data	no data	no data	no data
T-206	4.53184E-15	no data	no data	no data	no data	no data	no data	no data	no data
T-207	4.53184E-15	no data	no data	no data	no data	no data	no data	no data	no data
T-208	no data	no data	no data	no data	no data	249.0232139	no data	78.28097898	no data
T-210	4.025228393	no data	no data	no data	no data	no data	no data	no data	no data
T-213	no data	no data	no data	no data	no data	310.2826551	no data	0	no data
T-220	11.03564547	no data	no data	no data	no data	no data	no data	no data	no data
T-2795	0.135575967	no data	no data	no data	no data	170.5453702	no data	2.119193003	no data
T-300	no data	no data	no data	no data	no data	287.9405844	no data	116.7243213	no data
T-301	no data	no data	no data	no data	no data	198.3945437	no data	39.19952325	no data
T-302	no data	no data	no data	no data	no data	198.5486774	no data	39.20347099	no data
T-303	no data	no data	no data	0.028131176	no data	21.83482266	no data	0.062796582	no data
T-304	no data	no data	no data	no data	no data	169.4117661	no data	42.69583454	no data
T-305	no data	no data	no data	0.043899144	no data	19.63156611	no data	0.091440497	no data
T-306	no data	no data	no data	no data	no data	93.93497736	no data	19.31105139	no data
T-310	no data	no data	no data	no data	no data	287.9405844	no data	116.7243213	no data
T-311	no data	no data	no data	no data	no data	150.4320243	no data	33.49371082	no data
T-312	no data	no data	no data	no data	no data	161.4249477	no data	38.3308667	no data
T-314	no data	no data	no data	no data	no data	169.4117661	no data	42.69583454	no data
T-315	no data	no data	no data	no data	no data	169.4117661	no data	42.69583454	no data
T-320	no data	no data	no data	no data	no data	287.4298353	no data	116.7039177	no data
T-321	no data	no data	no data	no data	no data	150.7988916	no data	33.50272637	no data
T-32110	0.039891125	no data	no data	no data	no data	0.301623429	no data	0.007037807	no data
T-32120	0.039891125	no data	no data	no data	no data	0.301623429	no data	0.007037807	no data
T-32130	0.039891125	no data	no data	no data	no data	0.301623429	no data	0.007037807	no data
T-322	no data	no data	no data	no data	no data	145.729582	no data	28.02507404	no data
T-323	no data	no data	no data	no data	no data	266.883168	no data	96.98607966	no data
T-324	76.14547604	no data	no data	no data	no data	no data	no data	no data	no data
T-331	no data	no data	no data	no data	no data	287.9405844	no data	116.7243213	no data

TankSummaries for 2026 A
Site: ChevronPermitting,
Equations for this site: Afte

Tank ID	POMs (as Pyrene)	Propylene	Sulfuric Acid	Tetra ethyl lead	Tetrachloroethylene	Toluene	Toluene diisocyanate	Trimethylbenzene (1,2,4)	Trimethylbenzene (1,3,5)
T-332	no data	no data	no data	no data	no data	263.600674	no data	96.03211378	no data
T-333	no data	no data	no data	no data	no data	264.783938	no data	96.0794196	no data
T-350	159.9957359	no data	no data	no data	no data	10.82228518	no data	22.12572797	no data
T-351	159.9957359	no data	no data	no data	no data	10.87406237	no data	22.14592808	no data
T-352	226.2796837	no data	no data	no data	no data	15.49727463	no data	31.3559276	no data
T-353	226.2796837	no data	no data	no data	no data	13.19354732	no data	30.59312558	no data
T-355	78.41375176	no data	no data	no data	no data	13.51188124	no data	13.57719942	no data
T-361	1.65777E-22	no data	no data	no data	no data	no data	no data	no data	no data
T-370	3.85901E-23	no data	no data	no data	no data	no data	no data	no data	no data
T-371	5.97069E-23	no data	no data	no data	no data	no data	no data	no data	no data
T-372	8.83024E-23	no data	no data	no data	no data	no data	no data	no data	no data
T-373	20.05572334	no data	no data	no data	no data	no data	no data	no data	no data
T-374	73.244696	no data	no data	no data	no data	no data	no data	no data	no data
T-400	no data	no data	no data	no data	no data	296.4595261	no data	94.63105786	no data
T-401	no data	no data	no data	no data	no data	303.4024055	no data	94.79864554	no data
T-402	no data	no data	no data	no data	no data	296.564942	no data	94.6336024	no data
T-403	no data	no data	no data	no data	no data	296.564942	no data	94.6336024	no data
T-404	no data	no data	no data	no data	no data	296.5491597	no data	94.63322144	no data
T-405	no data	no data	no data	no data	no data	296.564942	no data	94.6336024	no data
T-406	no data	no data	no data	no data	no data	250.0069409	no data	78.30474161	no data
T-407	no data	no data	no data	no data	no data	337.8132276	no data	81.77872424	no data
T-408	no data	no data	no data	no data	no data	249.4895291	no data	78.29224316	no data
T-409	no data	no data	no data	no data	no data	249.4895291	no data	78.29224316	no data
T-412	no data	no data	no data	no data	no data	333.9855226	no data	81.63525679	no data
T-422	no data	no data	no data	no data	no data	337.8132276	no data	81.77872424	no data
T-423	no data	no data	no data	no data	no data	1.268599223	no data	no data	no data
T-50	no data	no data	no data	no data	no data	194.0863461	no data	58.7136307	no data
T-500	no data	no data	no data	no data	no data	36.46775621	no data	no data	no data
T-501	no data	no data	no data	no data	no data	no data	14.16344753	no data	no data
T-502	5.92466E-09	no data	no data	no data	no data	no data	no data	no data	no data
T-503	5.57639E-10	no data	no data	no data	no data	no data	no data	no data	no data
T-504	5.65832E-11	no data	no data	no data	no data	no data	no data	no data	no data
T-505	7.38031E-08	no data	no data	no data	no data	no data	no data	no data	no data
T-506	no data	no data	no data	no data	no data	592.2202876	no data	0	no data
T-507	no data	no data	no data	no data	no data	242.3121626	no data	0	no data
T-508	no data	no data	no data	no data	no data	115.3863018	no data	0	no data
T-515	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-516	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-517	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-52	no data	no data	no data	no data	no data	140.5695735	no data	56.67086187	no data
T-525	3.95929E-05	no data	no data	no data	no data	no data	no data	no data	no data
T-526	3.61921E-05	no data	no data	no data	no data	no data	no data	no data	no data
T-53	no data	no data	no data	no data	no data	179.7861947	no data	81.09352556	no data
T-54	no data	no data	no data	no data	no data	179.7222827	no data	81.09098842	no data
T-55	7.444736842	no data	no data	no data	no data	0.349684534	no data	0.977597353	no data
T-56	7.444736842	no data	no data	no data	no data	0.31601568	no data	0.966332167	no data
T-57	no data	no data	no data	no data	no data	180.8992659	no data	81.13704766	no data
T-58	9.65784E-24	no data	no data	no data	no data	no data	no data	no data	no data
T-59	7.444736842	no data	no data	no data	no data	0.316025857	no data	0.966682639	no data
T-60	no data	no data	no data	no data	no data	233.0197332	no data	83.12282964	no data
T-61	9.65784E-24	no data	no data	no data	no data	no data	no data	no data	no data
T-62	48.39078947	no data	no data	no data	no data	no data	no data	no data	no data
T-63	no data	no data	no data	no data	no data	129.1391082	no data	35.83202292	no data

TankSum
Site: Che
Equation

TankSummaries for 2026 A
Site: ChevronPermitting,
Equations for this site: Afte

Tank ID	POMs (as Pyrene)	Propylene	Sulfuric Acid	Tetra ethyl lead	Tetrachloroethylene	Toluene	Toluene diisocyanate	Trimethylbenzene (1,2,4)	Trimethylbenzene (1,3,5)
T-80	no data	no data	no data	no data	no data	0.768680302	no data	0.24571329	no data
T-800	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-801	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-802	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-803	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-804	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-805	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-806	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-807	no data	no data	no data	no data	no data	no data	no data	no data	no data
T-820	1.80136E-07	no data	no data	no data	no data	no data	no data	no data	no data
T-8293	52.63061389	no data	no data	no data	no data	no data	no data	no data	no data
T-8300	0.107187299	no data	no data	no data	no data	0.298808365	no data	0.016340261	no data
T-122	4.60055E-17	no data	no data	no data	no data	no data	no data	no data	no data
T-324	78.41375176	no data	no data	no data	no data	18.91894798	no data	15.3749423	no data

TankSum\nnual

Site: Che

Equationr 2019 AP-42 revisions H/D ratio: calculated

Tank ID	Water	Xylene	Xylene (m-)	Xylene (o-)	Xylene (p-)	Zinc compounds
T-100	no data	no data	no data	no data	no data	no data
T-102	no data	no data	no data	no data	no data	no data
T-104	no data	no data	no data	no data	no data	no data
T-11	no data	no data	no data	no data	no data	no data
T-110	no data	no data	no data	no data	no data	no data
T-112	no data	no data	no data	no data	no data	no data
T-11210	no data	0.05991419	no data	0.050908052	0.034714962	no data
T-120	no data	no data	no data	no data	no data	no data
T-121	no data	no data	no data	no data	no data	no data
T-122	no data	no data	no data	no data	no data	no data
T-123	no data	7.246126164	no data	4.826198688	3.170039316	no data
T-124	no data	no data	no data	no data	no data	no data
T-132	no data	no data	no data	no data	no data	no data
T-133	no data	7.471264195	no data	5.00983495	3.263032475	no data
T-151	no data	0.230548824	no data	0.18690042	0.245206102	no data
T-153	no data	5.154897255	no data	0.227482866	2.630299413	no data
T-154	no data	9.377918093	no data	0.394763383	4.846652656	no data
T-164	no data	4.45202994	no data	0.193621226	2.27977855	no data
T-165	no data	7.04567348	no data	0.300229327	3.629696967	no data
T-173	no data	9.905136063	no data	0.428945452	5.078064855	no data
T-175	no data	0.20667698	no data	0.010158051	0.102118033	no data
T-197	no data	33.61798293	no data	28.8127119	19.38663745	no data
T-198	no data	32.73872139	no data	28.02401858	18.88542335	no data
T-204	no data	no data	no data	no data	no data	no data
T-205	no data	no data	no data	no data	no data	no data
T-206	no data	no data	no data	no data	no data	no data
T-207	no data	no data	no data	no data	no data	no data
T-208	no data	336.0557053	no data	no data	no data	no data
T-210	no data	no data	no data	no data	no data	no data
T-213	no data	0	no data	no data	no data	no data
T-220	no data	no data	no data	no data	no data	no data
T-2795	no data	14.97075849	no data	12.77472415	8.651879432	no data
T-300	no data	113.3572699	no data	5.710957617	55.54732587	no data
T-301	no data	21.38525994	no data	4.585339762	12.02011041	no data
T-302	no data	21.3924643	no data	4.586627866	12.02436404	no data
T-303	no data	0.174301274	no data	0.08062708	0.178730639	no data
T-304	no data	21.58812711	no data	4.716686534	12.06033157	no data
T-305	no data	0.210054518	no data	0.101386982	0.212528371	no data
T-306	no data	24.00601269	no data	1.142162731	11.97902936	no data
T-310	no data	113.3572699	no data	5.710957617	55.54732587	no data
T-311	no data	17.58159292	no data	3.805525403	9.851676823	no data
T-312	no data	19.72511416	no data	4.290593251	11.03531436	no data
T-314	no data	21.58812711	no data	4.716686534	12.06033157	no data
T-315	no data	21.58812711	no data	4.716686534	12.06033157	no data
T-320	no data	113.2843934	no data	5.707960828	55.50950846	no data
T-321	no data	17.59841056	no data	3.808522193	9.861628773	no data
T-32110	no data	0.027047579	no data	0.024849011	0.013885071	no data
T-32120	no data	0.027047579	no data	0.024849011	0.013885071	no data
T-32130	no data	0.027047579	no data	0.024849011	0.013885071	no data
T-322	no data	15.44382205	no data	3.303732069	8.686071876	no data
T-323	no data	97.36219569	no data	4.864704725	47.83631336	no data
T-324	no data	no data	no data	no data	no data	no data
T-331	no data	113.3572699	no data	5.710957617	55.54732587	no data

TankSum\nnual

Site: Che

Equationr 2019 AP-42 revisions H/D ratio: calculated

Tank ID	Water	Xylene	Xylene (m-)	Xylene (o-)	Xylene (p-)	Zinc compounds
T-332	no data	96.32808323	no data	4.813971877	47.32535085	no data
T-333	no data	96.49697613	no data	4.820917442	47.41299005	no data
T-350	no data	9.720286198	no data	7.521400046	4.08379758	no data
T-351	no data	9.74574034	no data	7.538373169	4.094887575	no data
T-352	no data	13.83460242	no data	10.6949073	5.814038239	no data
T-353	no data	12.78695781	no data	10.00559159	5.353484756	no data
T-355	no data	8.506281988	no data	6.149745079	3.646136373	no data
T-361	no data	no data	no data	no data	no data	no data
T-370	no data	no data	no data	no data	no data	no data
T-371	no data	no data	no data	no data	no data	no data
T-372	no data	no data	no data	no data	no data	no data
T-373	no data	no data	no data	no data	no data	no data
T-374	no data	no data	no data	no data	no data	no data
T-400	no data	404.7123974	no data	no data	no data	no data
T-401	no data	407.5779348	no data	no data	no data	no data
T-402	no data	404.7559057	no data	no data	no data	no data
T-403	no data	404.7559057	no data	no data	no data	no data
T-404	no data	404.7493919	no data	no data	no data	no data
T-405	no data	404.7559057	no data	no data	no data	no data
T-406	no data	336.4618543	no data	no data	no data	no data
T-407	no data	381.9799611	no data	no data	no data	no data
T-408	no data	336.2482317	no data	no data	no data	no data
T-409	no data	336.2482317	no data	no data	no data	no data
T-412	no data	380.0503078	no data	no data	no data	no data
T-422	no data	381.9799611	no data	no data	no data	no data
T-423	no data	0.459556443	no data	0.282246563	0.306750675	no data
T-50	no data	62.59657012	no data	3.082165429	30.90312271	no data
T-500	no data	8.176523163	no data	5.522326812	3.429907087	no data
T-501	no data	no data	3.480779864	no data	2.420607358	1.449201006
T-502	no data	no data	no data	no data	no data	no data
T-503	no data	no data	no data	no data	no data	no data
T-504	no data	no data	no data	no data	no data	no data
T-505	no data	no data	no data	no data	no data	no data
T-506	no data	0	no data	no data	no data	no data
T-507	no data	0	no data	no data	no data	no data
T-508	no data	0	no data	no data	no data	no data
T-515	no data	no data	no data	no data	no data	no data
T-516	no data	no data	no data	no data	no data	no data
T-517	no data	no data	no data	no data	no data	no data
T-52	no data	55.11856206	no data	2.77579795	27.01300352	no data
T-525	no data	no data	no data	no data	no data	no data
T-526	no data	no data	no data	no data	no data	no data
T-53	no data	76.42517532	no data	3.879961061	37.35693489	no data
T-54	no data	76.41608223	no data	3.879587331	37.35221467	no data
T-55	no data	0.381698053	no data	0.303455814	0.159020462	no data
T-56	no data	0.366311544	no data	0.293323366	0.152260341	no data
T-57	no data	76.58243452	no data	3.886416502	37.43863537	no data
T-58	no data	no data	no data	no data	no data	no data
T-59	no data	0.366536018	no data	0.293496663	0.152347541	no data
T-60	no data	83.85921795	no data	4.184494883	41.224455	no data
T-61	no data	no data	no data	no data	no data	no data
T-62	no data	no data	no data	no data	no data	no data
T-63	no data	17.63657892	no data	3.879961061	9.830772341	no data

TankSum\nnual

Site: Che

Equationr 2019 AP-42 revisions H/D ratio: calculated

Tank ID	Water	Xylene	Xylene (m-)	Xylene (o-)	Xylene (p-)	Zinc compounds
T-80	no data	0.225548305	no data	0.01152959	0.110001926	no data
T-800	no data	no data	no data	no data	no data	no data
T-801	no data	no data	no data	no data	no data	no data
T-802	no data	no data	no data	no data	no data	no data
T-803	no data	no data	no data	no data	no data	no data
T-804	no data	no data	no data	no data	no data	no data
T-805	no data	no data	no data	no data	no data	no data
T-806	no data	no data	no data	no data	no data	no data
T-807	no data	no data	no data	no data	no data	no data
T-820	no data	no data	no data	no data	no data	no data
T-8293	no data	no data	no data	no data	no data	no data
T-8300	no data	0.045690985	no data	0.045125793	0.022940284	no data
T-122	no data	no data	no data	no data	no data	no data
T-324	no data	10.96980366	no data	7.771204591	4.728880645	no data

Table A-32 Equipment Leak VOC Emissions Summarized by Process Stream

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Plant ID	Stream ID/Description	Stream Type (Gas, HL or LL)	Stream % VOC	LDAR Control Efficiency (%) Valves	LDAR Control Efficiency (%) Pumps	LDAR Control Efficiency (%) Connectors	Bellows-seal Valves?	NSR CD Applicable?	Subject to MACT, NSPS or Permit Require-ments?	Source Count Safety Factor	Valves ≤2 in	Valve Emission Factor (lb/hr/source)	Incremental VOC Emissions Increase From Valves (lb/hr)	Valves >2 in	>2 in Valve Emission Factor (lb/hr/source)	Incremental VOC Emissions Increase From >2 in Valves (lb/hr)	Flanges	Flange Emission Factor (lb/hr/source)	Are Flanges Monitored?	Incremental VOC Emissions Increase From Flanges (lb/hr)	Pumps	Double Mechanical Seals or Leakless Technology?	Pump Emission Factor (lb/hr/source)	Incremental VOC Emissions Increase From Pumps (lb/hr)	Com-pressors	Are Compressors Leakless Technology?	Compressor VOC Emission Factor (lb/hr/source)	Incremental VOC Emissions Increase From Compressors (lb/hr)	TOTAL Incremental VOC Emissions Increase From All Sources (lb/hr)
11	Crude	LL	100%	97%	93%	0%	No	Yes	Yes	10	20	0.0240	0.144	10	0.0240	0.072	108	0.00055	No	0.595	0		0.2513	0.000	0			0.000	0.811
22	Jet	HL	100%	0%	0%	0%	No	No	Yes	10	10	0.0005	0.050	5	0.0005	0.025	54	0.00055	No	0.298	0		0.0463	0.000	0			0.000	0.373
22	Refinery fuel Gas	G	39%	97%	0%	0%	No	Yes	Yes	4	50	0.0591	0.138	10	0.0591	0.028	216	0.00055	No	0.186	0		0.0000	0.000	0			0.000	0.352
61	Crude	LL	100%	97%	93%	0%	No	Yes	Yes	10	20	0.0240	0.144	10	0.0240	0.072	108	0.00055	No	0.595	0		0.2513	0.000	0			0.000	0.811
61	Light Straight Run	LL	100%	97%	93%	0%	No	Yes	Yes	10	10	0.0240	0.072	5	0.0240	0.036	54	0.00055	No	0.298	0		0.2513	0.000	0			0.000	0.406
61	Jet	HL	100%	0%	0%	0%	No	No	Yes	10	10	0.0005	0.050	6	0.0005	0.030	58	0.00055	No	0.317	0		0.0463	0.000	0			0.000	0.397
Total lb/hr Increases From Pascagoula Aggregate PSD Project																													**3.150**

Based on Table 2-1 from EPA's "Protocol For Equipment Leak Emission Estimates" (November 1995)

Total Incremental VOC Emissions Increase From Fugitive Sources (lb/hr) =	**3.150**
Total Incremental VOC Emissions Increase From Fugitive Sources (ton/yr) =	**13.80**

Table A-33 Equipment Leak HAP Emissions Summarized by Process Stream

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Plant Number	Stream Description	Wt. % VOC	VOC Emissions Increase	VOC Emissions Increase	Hazardous Air Pollutants																	
					2,2,4-Trimethylpentane			Acetaldehyde			Acrolein			Benzene			Butadiene (1,3)			Cresols		
		(%)	ton/yr	lb/yr	wt. %	lb/hr	ton/yr	wt. %	lb/hr	ton/yr	wt. %	lb/hr	ton/yr	wt. %	lb/hr	ton/yr	wt. %	lb/hr	ton/yr	wt. %	lb/hr	ton/yr
11	Crude	100%	3.553	7,107	**0.10**	**8.11E-04**	**3.55E-03**	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	**0.60**	**4.87E-03**	**2.13E-02**	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00
22	Jet	100%	1.632	3,264	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	**0.23**	**8.72E-04**	**3.82E-03**	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00
22	Refinery fuel Gas	39%	1.540	3,081	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00
61	Crude	100%	3.553	7,107	**0.10**	**8.11E-04**	**3.55E-03**	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	**0.60**	**4.87E-03**	**2.13E-02**	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00
61	Light Straight Run	100%	1.777	3,553	**5.47**	**2.22E-02**	**9.72E-02**	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	**1.17**	**4.75E-03**	**2.08E-02**	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00
61	Jet	100%	1.741	3,482	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	**0.23**	**9.30E-04**	**4.07E-03**	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00
Total			**13.80**	**27,593**		**2.38E-02**	**1.04E-01**		**0.00E+00**	**0.00E+00**		**0.00E+00**	**0.00E+00**		**1.63E-02**	**7.13E-02**		**0.00E+00**	**0.00E+00**		**0.00E+00**	**0.00E+00**

Plant Number	Stream Description	Hazardous Air Pollutants														
		Cumene			Diethanolamine			Dioxins			Ethylbenzene			Ethylene		
		wt. %	lb/hr	ton/yr	wt. %	lb/hr	ton/yr	wt. %	lb/hr	ton/yr	wt. %	lb/hr	ton/yr	wt. %	lb/hr	ton/yr
11	Crude	**0.10**	**8.11E-04**	**3.55E-03**	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	**0.40**	**3.24E-03**	**1.42E-02**	0.00	0.00E+00	0.00E+00
22	Jet	**0.20**	**7.49E-04**	**3.28E-03**	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	**0.35**	**1.32E-03**	**5.78E-03**	0.00	0.00E+00	0.00E+00
22	Refinery fuel Gas	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00
61	Crude	**0.10**	**8.11E-04**	**3.55E-03**	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	**0.40**	**3.24E-03**	**1.42E-02**	0.00	0.00E+00	0.00E+00
61	Light Straight Run	**0.01**	**3.65E-05**	**1.60E-04**	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	**0.13**	**5.27E-04**	**2.31E-03**	0.00	0.00E+00	0.00E+00
61	Jet	**0.20**	**7.99E-04**	**3.50E-03**	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	**0.35**	**1.41E-03**	**6.16E-03**	0.00	0.00E+00	0.00E+00
Total			**3.21E-03**	**1.40E-02**		**0.00E+00**	**0.00E+00**		**0.00E+00**	**0.00E+00**		**9.74E-03**	**4.27E-02**		**0.00E+00**	**0.00E+00**

Hazardous Air Pollutants

Ethylene Dibromide			Ethylene Glycol			Formaldehyde			Hexane (-n)			Hydrogen Sulfide			Methyl-tert-butyl ether (MTBE)		
wt. %	lb/hr	ton/yr	wt. %	lb/hr	ton/yr	wt. %	lb/hr	ton/yr	wt. %	lb/hr	ton/yr	wt. %	lb/hr	ton/yr	wt. %	lb/hr	ton/yr
0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	**0.40**	**3.24E-03**	**1.42E-02**	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00
0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	**2.90**	**1.08E-02**	**4.74E-02**	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00
0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	**7.44**	**2.61E-02**	**1.15E-01**	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00
0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	**0.40**	**3.24E-03**	**1.42E-02**	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00
0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	**12.94**	**5.25E-02**	**2.30E-01**	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00
0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	**2.90**	**1.15E-02**	**5.06E-02**	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00
	0.00E+00	**0.00E+00**		**0.00E+00**	**0.00E+00**		**0.00E+00**	**0.00E+00**		1.07E-01	4.71E-01		**0.00E+00**	**0.00E+00**		**0.00E+00**	**0.00E+00**

Hazardous Air Pollutants

Naphthalene			Phenol			POMS			Toluene			Xylenes - Mixed			Total HAPS
wt. %	lb/hr	ton/yr	wt. %	lb/hr	ton/yr	wt. %	lb/hr	ton/yr	wt. %	lb/hr	ton/yr	wt. %	lb/hr	ton/yr	tpy
0.04	**3.00E-04**	**1.31E-03**	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	**1.00**	**8.11E-03**	**3.55E-02**	**1.40**	**1.14E-02**	**4.97E-02**	**1.43E-01**
0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	**3.42**	**1.27E-02**	**5.58E-02**	**0.85**	**3.18E-03**	**1.39E-02**	**0.50**	**1.85E-03**	**8.11E-03**	**1.38E-01**
0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	**1.15E-01**
0.04	**3.00E-04**	**1.31E-03**	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	**1.00**	**8.11E-03**	**3.55E-02**	**1.40**	**1.14E-02**	**4.97E-02**	**1.43E-01**
0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	**3.18**	**1.29E-02**	**5.65E-02**	**0.21**	**8.52E-04**	**3.73E-03**	**4.11E-01**
0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	**3.42**	**1.36E-02**	**5.95E-02**	**0.85**	**3.39E-03**	**1.48E-02**	**0.50**	**1.98E-03**	**8.65E-03**	**1.47E-01**
	6.00E-04	2.63E-03		**0.00E+00**	**0.00E+00**		2.63E-02	1.15E-01		3.57E-02	1.56E-01		2.74E-02	1.20E-01	1.10E+00

Other Speciated Emissions

1,2,4-trimethylbenzene			Ammonia			Benzo (g,h,i) Perylene			Cyclohexane			PACS			Sulfuric Acid Mist		
wt. %	lb/hr	ton/yr	wt. %	lb/hr	ton/yr	wt. %	lb/hr	ton/yr	wt. %	lb/hr	ton/yr	wt. %	lb/hr	ton/yr	wt. %	lb/hr	ton/yr
0.33	2.68E-03	1.17E-02	0.00	0.00E+00	0.00E+00	0.0004	3.24E-06	1.42E-05	0.70	5.68E-03	2.49E-02	0.01	4.14E-05	1.81E-04	0.00	0.00E+00	0.00E+00
0.69	2.57E-03	1.12E-02	0.00	0.00E+00	0.00E+00	0.0003	1.27E-06	5.55E-06	0.00	0.00E+00	0.00E+00	0.001	3.73E-06	1.63E-05	0.00	0.00E+00	0.00E+00
0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00
0.33	2.68E-03	1.17E-02	0.00	0.00E+00	0.00E+00	0.0004	3.24E-06	1.42E-05	0.70	5.68E-03	2.49E-02	0.01	4.14E-05	1.81E-04	0.00	0.00E+00	0.00E+00
0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00	2.52	1.02E-02	4.48E-02	0.00	0.00E+00	0.00E+00	0.00	0.00E+00	0.00E+00
0.69	2.74E-03	1.20E-02	0.00	0.00E+00	0.00E+00	0.00	1.35E-06	5.92E-06	0.00	0.00E+00	0.00E+00	0.00	3.97E-06	1.74E-05	0.00	0.00E+00	0.00E+00
	1.07E-02	4.67E-02		0.00E+00	0.00E+00		9.11E-06	3.99E-05		2.16E-02	9.45E-02		9.04E-05	3.96E-04		0.00E+00	0.00E+00

Table A-34 Emission Summary for SRUs IV, V and VI

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Aggregate Project - Projected Actuals Basis

Safety Factor	Crude Ratio
1.25	1.09

			2020			2021			Baseline Emissions		Projected Actual Emissions	
Plant	DEQ ID	Source	Pounds SO2 Equivalent (lb)	TRS (tpy)	H2S (tpy)	Pounds SO2 Equivalent (lb)	TRS (tpy)	H2S (tpy)	TRS (tpy)	H2S (tpy)	TRS (tpy)	H2S (tpy)
90	547	Tail gas vent controlled by scrubber C-9080	7,697	1.92	0.29	9,840	2.46	0.34	2.19	0.31	3.36	0.47
91	548	Tail gas vent controlled by scrubber C-9180	5,572	1.39	0.20	5,298	1.32	0.25	1.36	0.22	1.90	0.34
92	549	Tail gas vent controlled by scrubber C-9280	739	0.18	0.10	4,923	1.23	0.21	0.71	0.16	1.68	0.29
								Total:	**4.26**	**0.70**	**6.94**	**1.10**

Note: Assumes the TRS emissions for SRU 4,5,6 are increased by the crude processing ratio pre to post Project, multiplied by a 1.25 safety factor using the higher baseline calendar year data.

Table A-35 Baseline Emission Summary for SRUs II and III

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Parameter		Baseline Emissions		Total Annual Average
		F-2745	F-2765	
GHG Annual Average Firing Rate (MMBtu/hr)		13.37	12.47	
GHG Annual Operating Hours (hrs/year)		8,760	8,760	
Pollutant	Baseline Period	(tons/year)	(tons/year)	(ton/year)
SO_2	2020-2021	18.44	16.22	34.66
H_2S/TRS	2020-2021	0.59	0.52	1.12
H_2SO_4	2020-2021	0.28	0.25	0.53
NO_X	2021-2022	3.31	3.34	6.65
CO	2016-2017	2.23	2.79	5.01
VOCs	2017-2018	0.32	0.32	0.64
$PM/PM_{10}/PM_{2.5}$	2017-2018	0.45	0.44	0.88
CO_2	2016-2017	6,850	6,389	13,240
CH_4	2016-2017	0.129	0.120	0.250
N_2O	2016-2017	0.013	0.012	0.025
GHG CO_2e	2016-2017	6,857	6,396	13,253
Acenaphthene	2017-2018	1.06E-07	1.03E-07	2.09E-07
Acenaphthylene	2017-2018	1.06E-07	1.03E-07	2.09E-07
Anthracene	2017-2018	1.41E-07	1.38E-07	2.79E-07
Benzene	2017-2018	1.23E-04	1.20E-04	2.44E-04
Benz(a)anthracene	2017-2018	1.06E-07	1.03E-07	2.09E-07
Benzo(a)pyrene	2017-2018	7.04E-08	6.88E-08	1.39E-07
Benzo(b)fluoranthene	2017-2018	1.06E-07	1.03E-07	2.09E-07
Benzo(g,h,i)perylene	2017-2018	7.04E-08	6.88E-08	1.39E-07
Benzo(k)fluoranthene	2017-2018	1.06E-07	1.03E-07	2.09E-07
Chrysene (Benz(a)phenanthrene)	2017-2018	1.06E-07	1.03E-07	2.09E-07
Dibenz(a,h)anthracene	2017-2018	7.04E-08	6.88E-08	1.39E-07
Dichlorobenzene	2017-2018	7.04E-05	6.88E-05	1.39E-04
7,12-Dimethylbenz(a)anthracene	2017-2018	9.39E-07	9.18E-07	1.86E-06
Fluoranthene (Benzo(jk)fluorene)	2017-2018	5.10E-08	4.98E-08	1.01E-07
Fluorene	2017-2018	1.64E-07	1.61E-07	3.25E-07
Formaldehyde	2017-2018	4.40E-03	4.30E-03	8.71E-03
n-Hexane	2017-2018	1.47E-04	1.43E-04	2.90E-04
Indeno(1,2,3-cd)pyrene	2017-2018	1.06E-07	1.03E-07	2.09E-07
3-Methylchloranthrene	2017-2018	1.06E-07	1.03E-07	2.09E-07
2-Methylnaphthalene	2017-2018	1.41E-06	1.38E-06	2.79E-06
Naphthalene	2017-2018	3.58E-05	3.50E-05	7.08E-05
Phenanthrene	2017-2018	9.98E-07	9.75E-07	1.97E-06
Pyrene	2017-2018	2.94E-07	2.87E-07	5.80E-07
Toluene	2017-2018	2.00E-04	1.95E-04	3.95E-04
Xylene	2017-2018	1.50E-03	1.46E-03	2.96E-03
Arsenic	2017-2018	1.17E-05	1.15E-05	2.32E-05
Beryllium	2017-2018	7.04E-07	6.88E-07	1.39E-06
Cadmium	2017-2018	6.46E-05	6.31E-05	1.28E-04
Chromium (Hexavalent)	2017-2018	8.22E-05	8.03E-05	1.62E-04
Cobalt	2017-2018	4.93E-06	4.82E-06	9.75E-06
Lead	2017-2018	2.94E-05	2.87E-05	5.80E-05
Manganese	2017-2018	2.23E-05	2.18E-05	4.41E-05
Mercury	2017-2018	1.53E-05	1.49E-05	3.02E-05
Nickel	2017-2018	1.23E-04	1.20E-04	2.44E-04
Selenium	2017-2018	1.41E-06	1.38E-06	2.79E-06

Notes:

H2S/TRS emissions estimated based on scaling of SO2 emissions using the expected relative concentration compared to SO2, see 'SRU II-III Future' tab for additional details. Emissions of CH4, N2O, and CO2 are estimated using emission factors from the EPA rule "Mandatory Reporting of Greenhouse Gases", Tables C-1 and C-2 and Global Warming Potentials, 89 FR 31894, Apr. 25, 2024. Remaining pollutants are as reported as part of TRI reporting for the 2017-2018 calendar years.

Table A-36 Post Project Emission Summary for SRUs II and III

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Burner Capacities

SRU II & III Burner Capacity:	27.70	MMBtu/hr each (LHV)
SRU II & III Burner Capacity:	30.75	MMBtu/hr each (HHV)
Total Capacity:	61.50	MMBtu/hr
Future Potential Production Rate:	290	LTPD
Heat Capacity of Natural Gas:	1,020	Btu/scf
Maximum Operating Hours:	8,760	hr/yr
Emission Rate for CO:	100	ppmvd @ 0% O2
Emission Rate for SO2:	75	ppmvd @ 0% O2
Emission Rate for H2S and TRS	4.5	ppmvd @ 0% O2
Flue Gas Flow Rate	2,014	dry lb mole/hr corrected to 0% O2

Source ID	Source Description	Capacity	
		S LTPD	(MMBtu/hr)
F-2745 and F-2765	SRU II & III Thermal Oxidizer	290	61.50

Pollutant	(lb/MMBtu)	(lb/hr)	(ton/yr)
SO_2		9.67	42.35
H_2S/TRS		0.31	1.36
H_2SO_4		0.44	1.94
NO_X	0.14	12.92	37.71
CO		8.46	24.70
VOCs	0.0054	0.50	1.45
PM/PM_{10}/$PM_{2.5}$	0.0075	0.69	2.01
CO_2	116.98	10,791	31,510
CH_4	0.0022	0.203	0.594
N_2O	0.00022	0.020	0.059
GHG CO_2e	117.10	10,802	31,543
Acenaphthene	1.80E-06	1.11E-04	4.85E-04
Acenaphthylene	1.80E-06	1.11E-04	4.85E-04
Anthracene	2.40E-06	1.48E-04	6.46E-04
Benzene	2.10E-03	1.29E-01	5.66E-01
Benz(a)anthracene	1.80E-06	1.11E-04	4.85E-04
Benzo(a)pyrene	1.20E-06	7.38E-05	3.23E-04
Benzo(b)fluoranthene	1.80E-06	1.11E-04	4.85E-04
Benzo(g,h,i)perylene	1.20E-06	7.38E-05	3.23E-04
Benzo(k)fluoranthene	1.80E-06	1.11E-04	4.85E-04
Chrysene (Benz(a)phenanthrene)	1.80E-06	1.11E-04	4.85E-04
Dibenz(a,h)anthracene	1.20E-06	7.38E-05	3.23E-04
Dichlorobenzene	1.20E-03	7.38E-02	3.23E-01
7,12-Dimethylbenz(a)anthracene	1.60E-05	9.84E-04	4.31E-03
Fluoranthene (Benzo(jk)fluorene)	8.69E-07	5.34E-05	2.34E-04
Fluorene	2.80E-06	1.72E-04	7.54E-04
Formaldehyde	7.50E-02	4.61E+00	2.02E+01
n-Hexane	2.50E-03	1.54E-01	6.73E-01
Indeno(1,2,3-cd)pyrene	1.80E-06	1.11E-04	4.85E-04
3-Methylchloranthrene	1.80E-06	1.11E-04	4.85E-04
2-Methylnaphthalene	2.40E-05	1.48E-03	6.46E-03
Naphthalene	6.10E-04	3.75E-02	1.64E-01
Phenanthrene	1.70E-05	1.05E-03	4.58E-03
Pyrene	5.00E-06	3.08E-04	1.35E-03
Toluene	3.40E-03	2.09E-01	9.16E-01
Xylene	2.55E-02	1.57E+00	6.87E+00
Arsenic	2.00E-04	1.23E-02	5.39E-02
Beryllium	1.20E-05	7.38E-04	3.23E-03
Cadmium	1.10E-03	6.77E-02	2.96E-01
Chromium	1.40E-03	8.61E-02	3.77E-01
Cobalt	8.40E-05	5.17E-03	2.26E-02
Lead	5.00E-04	3.08E-02	1.35E-01
Manganese	3.80E-04	2.34E-02	1.02E-01
Mercury	2.60E-04	1.60E-02	7.00E-02
Nickel	2.10E-03	1.29E-01	5.66E-01
Selenium	2.40E-05	1.48E-03	6.46E-03

Notes:

Short-term and annual SO_2 and H_2S/TRS emissions are based on the historical data for SRU II & III with emissions scaled to a maximum SO_2 emission rate of 75 ppmvd @ 0% O_2.

H_2SO_4 emissions (ton/yr) = SO_2 (ton/yr) x 0.03 x MW-H_2SO_4 (lb/lb mole) / MW-SO_2 (lb/lb mol)

Emission estimates for VOC, PM, and PM_{10}/$PM_{2.5}$ are based on AP-42 emission factors. Short term (lb/hr) estimates include a 1.5 safety factor to account for short term variability in firing rates.

For NOx, the AP-42 emission factor of 0.14 lb/MMBtu, which applies to large combustion sources, is used because this factor is consistent with the results of the limited stack testing available for this unit. Short term (lb/hr) estimates include a 1.5 safety factor to account for short term variability in firing rates.

Emission estimates for CO are based on an expected future emission rate of 100 ppmvd @ 0% O_2. Short term (lb/hr) estimates include a 1.5 safety factor to account for short term variability in firing rates.

lb/MMBtu factors for CH_4, N_2O, and CO_2 are based on the EPA rule "Mandatory Reporting of Greenhouse Gases", Tables C-1 and C-2. Short term (lb/hr) estimates include a 1.5 safety factor to account for short term variability in firing rates.

Global Warming Potentials, 89 FR 31894, Apr. 25, 2024.

Speciated VOC and metals emission factors are from AP-42 Section 1.4.

Table A-37 Sulfur Storage and Shipping Emission Summary

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Baseline	Emissions							
	NO_X	$PM/PM_{10}/PM_{2.5}$	VOC	CO	TRS	H_2S	SO_2	H_2SO_4
	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr
Tanks 18 and 19 (BW-018/BW-019) Caustic Scrubber					3.26E-02	3.26E-02	0.00E+00	0.00E+00
Railcar loading					1.40E-02	1.40E-02	0.00E+00	0.00E+00
Pipeline to MS Phosphate					0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tanks 14 and 15 (AZ-014/AZ-015) Thermal Oxidizer	0.21	0.02	0.01	0.45	3.00E-01	3.00E-01	4.89E+01	7.49E-01
Barge Loading					3.57E-01	3.57E-01	0.00E+00	0.00E+00
Total	**2.10E-01**	**2.00E-02**	**1.00E-02**	**4.50E-01**	**7.04E-01**	**7.04E-01**	**4.89E+01**	**7.49E-01**

Future	Emissions							
	NO_X	$PM/PM_{10}/PM_{2.5}$	VOC	CO	TRS	H_2S	SO_2	H_2SO_4
	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr
Tanks 18 and 19 (BW-018/BW-019) Caustic Scrubber					4.93E-02	4.93E-02	0.00E+00	0.00E+00
Railcar loading					0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pipeline to MS Phosphate					0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tanks 14 and 15 (AZ-014/AZ-015) Thermal Oxidizer	1.42	0.11	0.08	1.19	4.45E-01	4.45E-01	3.16E+01	4.84E-01
Barge Loading					5.34E-01	5.34E-01	0.00E+00	0.00E+00
Total	**1.42E+00**	**1.08E-01**	**7.81E-02**	**1.19E+00**	**1.03E+00**	**1.03E+00**	**3.16E+01**	**4.84E-01**

Total Emission Increase	Emissions							
	NO_X	$PM/PM_{10}/PM_{2.5}$	VOC	CO	TRS	H_2S	SO_2	H_2SO_4
	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr
Tanks 18 and 19 (BW-018/BW-019) Caustic Scrubber					1.67E-02	1.67E-02	0.00E+00	0.00E+00
Railcar loading					-1.40E-02	-1.40E-02	0.00E+00	0.00E+00
Pipeline to MS Phosphate					0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tanks 14 and 15 (AZ-014/AZ-015) Thermal Oxidizer	1.21E+00	8.84E-02	6.81E-02	7.41E-01	1.45E-01	1.45E-01	-1.73E+01	-2.65E-01
Barge Loading					1.77E-01	1.77E-01	0.00E+00	0.00E+00
Total	**1.21E+00**	**8.84E-02**	**6.81E-02**	**7.41E-01**	**3.24E-01**	**3.24E-01**	**-1.73E+01**	**-2.65E-01**

Figure A-1 Sulfur Storage and Shipping Flow Diagram

Pascagoula Aggregate PSD Project

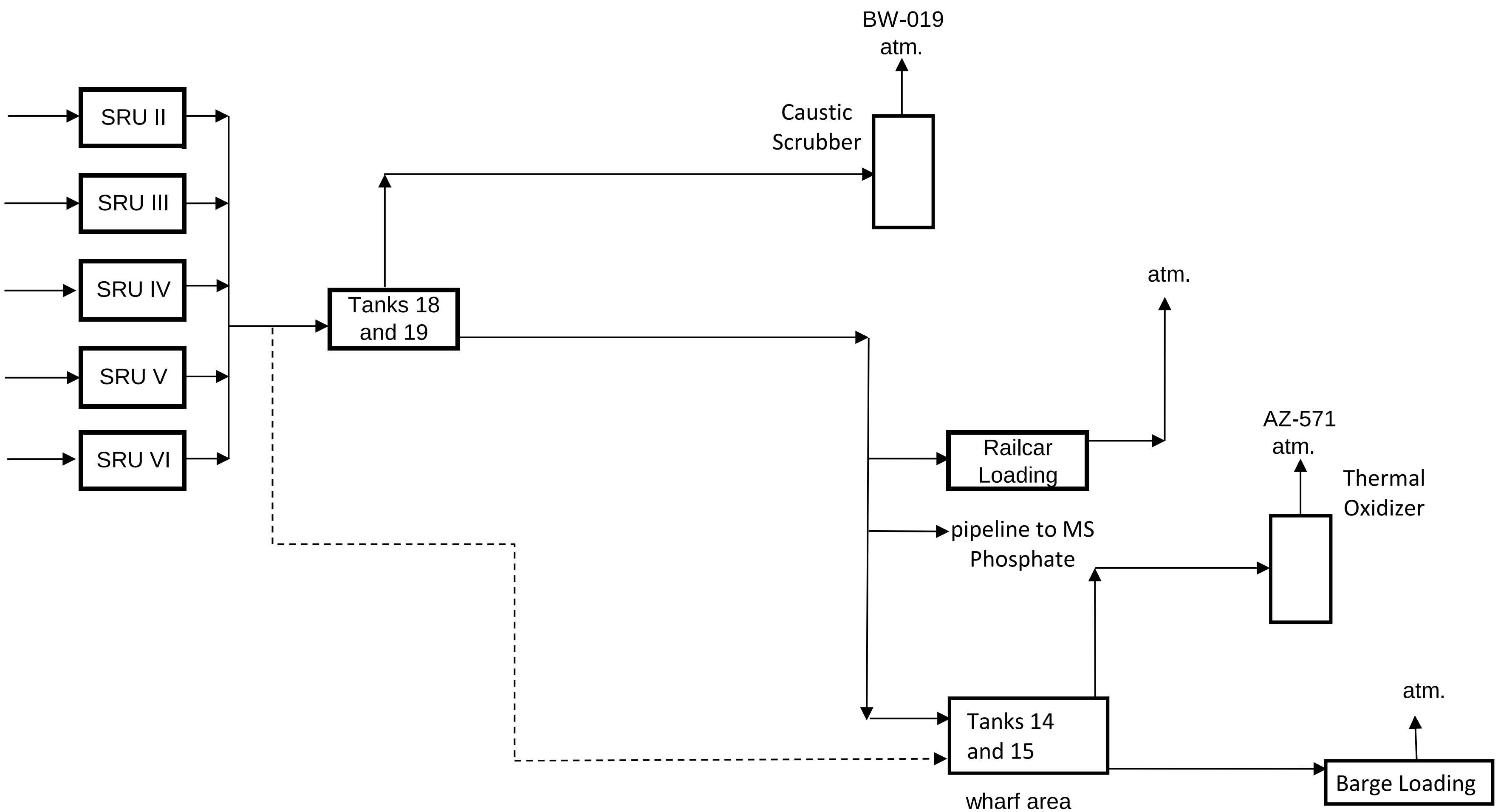

Table A-38 Sulfur Tanks 18 and 19 Emissions

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Post Project Emissions

Sulfur Throughput	1,205	LTPD		
Storage Temperature	140	°C		
Operating Schedule	8,760	hr/year		
H_2S in sulfur fed to tanks [(a)]	70	ppmw	7.87	lb/hr
H_2S in sulfur leaving tanks [(a)]	50	ppmw	5.62	lb/hr
H_2S emissions before control			2.25	lb/hr
Flow rate	400.0	scfm		
H_2S in emissions after control	5.315	ppmv		
H_2S/TRS emissions	0.0112	lb/hr	0.05	ton/yr
H_2S control efficiency [(b)]	99.50%			

(a) Chevron data
(b) PRCP permit application

2020-2021 Actual Emissions

Sulfur Throughput	798	LTPD		
Storage Temperature	140	°C		
Operating Schedule	8,760	hr/year		
H_2S in sulfur fed to tanks [(a)]	150	ppmw	11.17	lb/hr
H_2S in sulfur leaving tanks [(a)]	130	ppmw	9.68	lb/hr
H_2S emissions before control			1.49	lb/hr
Flow rate	400	scfm		
H_2S in emissions after control	3.517	ppmv		
H_2S/TRS emissions	0.0074	lb/hr	0.03	ton/yr
H_2S control efficiency [(b)]	99.50%			

(a) Chevron data
(b) PRCP permit application

Table A-39 Sulfur Railcar Loading Emissions

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Inputs		
Conversion factor	2240	lb/LT
Density of water	62.43	lb/ft^3
Specific gravity of S	1.801	
Density of sulfur	112.45	lb/ft^3

Post Project Emissions

Sulfur Throughput	-	LTPD
Storage Temperature	140	°C
H_2S concentration [(a)]	**15**	**ppmw**
H_2S vapor pressure [(b)]	**2,024**	**psi**

Fraction of Liquid H_2S in Sulfur Stream (X_A) = ppm * Molecular weight of sulfur / Molecular weight of H_2S

Fraction of H_2S Vapor in Sulfur Stream (Y_A) = X_A * Vapor Pressure at Storage Temperature (psia) / Atomospheric Pressure (psia)

X_A= **1.41E-05**

Y_A^1= **1.94E-03** (ft^3 H_2S/ft^3 S)

Total Volume of Vapor Displaced (ft^3/day) = Sulfur to Storage (LTPD) *2240 (lb/LT)/ density of sulfur (lb/ft^3)

Volume of Vapor Displaced (ft^3 S /day) = **0** ft^3/day

Volume of Vapor Displaced (ft^3 sulfur/yr) = Sulfur Production (LT S/yr) * (2240 lb/LT) / (Density of Water (lb/ft^3) * Specific Gravity of Sulfur)

Volume of Vapor Displaced (ft^3 H_2S/yr) = Volume of Vapor Displaced (ft^3 Sulfur/yr) * Y_A^1 (ft^3 H_2S/ft^3 S)

Emission Rate (TPY H_2S) = Volume of Vapor Displaced (ft^3 H_2S/yr) / Molar Volume (ft^3/lbmol) * Molecular Weight of H_2S (lb/lbmol) / (2000lb/ton)

Emission Rate (Avg. lb/hr Hg) = Sulfur Production (LT/yr) * (2,240 lbs/LT) / (Operation hrs/yr) * (5.06E-09 g Hg/g S) * 10%

Molar Volume = **542.83** ft^3/lbmole (V/n = RT/P, P = 14.7 psia, R = 10.73 psia*ft^3/lbmole)

H_2S/TRS emissions	**-**	**ton/yr**

(a) 15 ppmw H2S concentration based on BACT as established for ACF; sulfur degassing will effectively reduce H2S to 15 ppmw as BACT.

(a) Calculated using Antoine's Coefficients from Lange's Handbook of Chemistry, Thirteenth Edition, Table 10-7 (A=6.99392, B=768.13, C=249.09) at the storage temperature. Does not represent a partial pressure.

Note: Total sulfur assumed to go to Tanks 14/15 then to barge post-project, rather than to railcar or pipeline, as a worst-case emissions estimate.

2020-2021 Actual Emissions

Sulfur Throughput	32	LTPD
Storage Temperature	140	°C
H_2S concentration [(a)]	**15**	**ppmw**
H_2S vapor pressure [(b)]	**2,028**	**psi**

Fraction of Liquid H_2S in Sulfur Stream (X_A) = ppm * Molecular weight of sulfur / Molecular weight of H_2S

Fraction of H_2S Vapor in Sulfur Stream (Y_A) = X_A * Vapor Pressure at Storage Temperature (psia) / Atomospheric Pressure (psia)

X_A= **1.41E-05**

Y_A^1= **1.95E-03** (ft^3 H_2S/ft^3S)

Total Volume of Vapor Displaced (ft^3/day) = Sulfur to Storage (LTPD) *2240 (lb/LT)/ density of sulfur (lb/ft^3)

Volume of Vapor Displaced (ft^3 S /day) = **627.5** ft^3/day

Volume of Vapor Displaced (ft^3 sulfur/yr) = Sulfur Production (LT S/yr) * (2240 lb/LT) / (Density of Water (lb/ft^3) * Specific Gravity of Sulfur)

Volume of Vapor Displaced (ft^3 H_2S/yr) = Volume of Vapor Displaced (ft^3 Sulfur/yr) * Y_A^1 (ft^3 H_2S/ft^3 S)

Emission Rate (TPY H_2S) = Volume of Vapor Displaced (ft^3 H_2S/yr) / Molar Volume (ft^3/lbmol) * Molecular Weight of H_2S (lb/lbmol) / (2000lb/ton)

Emission Rate (Avg. lb/hr Hg) = Sulfur Production (LT/yr) * (2,240 lbs/LT) / (Operation hrs/yr) * (5.06E-09 g Hg/g S) * 10%

Molar Volume = **543.07** ft^3/lbmole (V/n = RT/P, P = 14.7 psia, R = 10.73 psia*ft^3/lbmole)

H_2S/TRS emissions	**0.01**	**ton/yr**

(a) 15 ppmw H2S concentration based on BACT as established for ACF; sulfur degassing will effectively reduce H2S to 15 ppmw as BACT.

(a) Calculated using Antoine's Coefficients from Lange's Handbook of Chemistry, Thirteenth Edition, Table 10-7 (A=6.99392, B=768.13, C=249.09) at the storage temperature. Does not represent a partial pressure.

Table A-40 Sulfur Tanks 14 and 15 Emissions

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Post Project Emissions

Sulfur Throughput	1,205	LTPD		
Storage Temperature	140	°C		
Operating Schedule	8,760	hr/year		
H_2S in sulfur fed to tanks [a]	50	ppmw	5.62	lb/hr
H_2S in sulfur leaving tanks [a]	15	ppmw	1.69	lb/hr
H_2S emissions before control			3.94	lb/hr
Thermal Oxidizer Emission Control				
Thermal oxidizer flow rate	1200	scfm		
H_2S in emissions after control	16.00	ppmv		
H_2S emissions	0.102	lb/hr	0.44	ton/yr
H_2S control efficiency	97.42%			
H_2S oxidation to SO2	97.42%			
H_2S molecualr weight	34	lb/lb mole		
SO_2 molecular weight	64	lb/lb mole		
SO_2 emissions	7.22	lb/hr	31.62	ton/yr

(a) Chevron data

Note: Total sulfur assumed to go to Tanks 14/15 then to barge post-project, rather than to railcar or pipeline, as a worst-case emissions estimate.

SO2 Baseline - 2020-2021 Actual Emissions

Sulfur Throughput	804	LTPD		
Storage Temperature	140	°C		
Operating Schedule	8,760	hr/year		
H_2S in sulfur fed to tanks [a]	130	ppmw	9.75	lb/hr
H_2S in sulfur leaving tanks [a]	50	ppmw	3.75	lb/hr
H_2S emissions before control			6.00	lb/hr
Current Thermal Oxidizer Emission Control				
Thermal oxidizer flow rate	1200	scfm		
H_2S in emissions after control	10.80	ppmv		
H_2S emissions	0.07	lb/hr	0.30	ton/yr
H_2S control efficiency	98.86%			
H_2S oxidation to SO2	98.86%			
H_2S molecualr weight	34	lb/lb mole		
SO_2 molecular weight	64	lb/lb mole		
SO_2 emissions	11.16	lb/hr	48.90	ton/yr

(a) Chevron data

F-34401 Thermal Oxidizer Natural Gas Combustion Baseline & Post-Project Emissions

		NOx	PM/PM10/PM2.5	VOC	CO	GHG
	Emission Factor (lb/MMBtu)(AP-42, 1.4)	0.098	0.0075	0.0054	0.0824	117.1
	Baseline Year Emissions	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr
	2016				0.72	1026
	2017		0.02	0.01	0.18	256
	2018		0.02	0.01		
	2021	0.21				
	2022	0.21				
	Baseline Actual Emissions	0.21	0.02	0.01	0.45	641
	Post-Project Potential Emissions (3.3 MMBtu/hr)	1.42	0.11	0.08	1.19	1693

Table A-41 Emissions from Barge Loading of Sulfur

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Inputs		
Conversion factor	2240	lb/LT
Density of water	62.43	lb/ft^3
Specific gravity of S	1.801	
Density of sulfur	112.45	lb/ft^3

Post Project Emissions

Sulfur Throughput	1,205	LTPD
Storage Temperature	140	°C
H_2S concentration [(a)]	**15**	**ppmw**
H_2S vapor pressure [(b)]	**2,024**	**psi**

Fraction of Liquid H_2S in Sulfur Stream (X_A) = ppm * Molecular weight of sulfur / Molecular weight of H_2S

Fraction of H_2S Vapor in Sulfur Stream (Y_A) = X_A * Vapor Pressure at Storage Temperature (psia) / Atomospheric Pressure (psia)

X_A= **1.41E-05**

Y_A^1= **1.94E-03** (ft^3 $H_2S/ft^3 S$)

Total Volume of Vapor Displaced (ft^3/day) = Sulfur to Storage (LTPD) *2240 (lb/LT)/ density of sulfur (lb/ft^3)

Volume of Vapor Displaced (ft^3 S /day) = **24,003** ft^3/day

Volume of Vapor Displaced (ft^3 sulfur/yr) = Sulfur Production (LT S/yr) * (2240 lb/LT) / (Density of Water (lb/ft^3) * Specific Gravity of Sulfur)

Volume of Vapor Displaced (ft^3 H_2S/yr) = Volume of Vapor Displaced (ft^3 Sulfur/yr) * Y_A^1 (ft^3 H_2S/ft^3 S)

Emission Rate (TPY H_2S) = Volume of Vapor Displaced (ft^3 H_2S/yr) / Molar Volume (ft^3/lbmol) * Molecular Weight of H_2S (lb/lbmol) / (2000lb/ton)

Emission Rate (Avg. lb/hr Hg) = Sulfur Production (LT/yr) * (2,240 lbs/LT) / (Operation hrs/yr) * (5.06E-09 g Hg/g S) * 10%

Molar Volume = **542.83** ft^3/lbmole (V/n = RT/P, P = 14.7 psia, R = 10.73 psia*ft^3/lbmole)

H_2S/TRS emissions	**0.53**	**ton/yr**

(a) 15 ppmw H2S concentration based on BACT as established for ACF; sulfur degassing will effectively reduce H2S to 15 ppmw as BACT.

(a) Calculated using Antoine's Coefficients from Lange's Handbook of Chemistry, Thirteenth Edition, Table 10-7 (A=6.99392, B=768.13, C=249.09) at the storage temperature. Does not represent a partial pressure.

Note: Total sulfur assumed to go to Tanks 14/15 then to barge post-project, rather than to railcar or pipeline, as a worst-case emissions estimate.

2020-2021 Actual Emissions

Sulfur Throughput	805	LTPD
Storage Temperature	140	°C
H_2S concentration [a]	**15**	**ppmw**
H_2S vapor pressure [b]	**2,028**	**psi**

Fraction of Liquid H_2S in Sulfur Stream (X_A) = ppm * Molecular weight of sulfur / Molecular weight of H_2S
Fraction of H_2S Vapor in Sulfur Stream (Y_A) = X_A * Vapor Pressure at Storage Temperature (psia) / Atomospheric Pressure (psia)

X_A= **1.41E-05**
Y_A^1= **1.95E-03** (ft^3 H_2S/ft^3S)

Total Volume of Vapor Displaced (ft^3/day) = Sulfur to Storage (LTPD) *2240 (lb/LT)/ density of sulfur (lb/ft^3)
Volume of Vapor Displaced (ft^3 S /day) = **16,026** ft^3/day

Volume of Vapor Displaced (ft^3 sulfur/yr) = Sulfur Production (LT S/yr) * (2240 lb/LT) / (Density of Water (lb/ft^3) * Specific Gravity of Sulfur)

Volume of Vapor Displaced (ft^3 H_2S/yr) = Volume of Vapor Displaced (ft^3 Sulfur/yr) * Y_A^1 (ft^3 H_2S/ft^3 S)

Emission Rate (TPY H_2S) = Volume of Vapor Displaced (ft^3 H_2S/yr) / Molar Volume (ft^3/lbmol) * Molecular Weight of H_2S (lb/lbmol) / (2000lb/ton)

Emission Rate (Avg. lb/hr Hg) = Sulfur Production (LT/yr) * (2,240 lbs/LT) / (Operation hrs/yr) * (5.06E-09 g Hg/g S) * 10%

Molar Volume = **543.07** ft^3/lbmole (V/n = RT/P, P = 14.7 psia, R = 10.73 psia*ft^3/lbmole)

H_2S/TRS emissions	**0.36 ton/yr**

(a) 15 ppmw H2S concentration based on BACT as established for ACF; sulfur degassing will effectively reduce H2S to 15 ppmw as BACT.
(a) Calculated using Antoine's Coefficients from Lange's Handbook of Chemistry, Thirteenth Edition, Table 10-7 (A=6.99392, B=768.13, C=249.09) at the storage temperature. Does not represent a partial pressure.

Table A-42 NOx and PM10/PM2.5 Emission Limit Revisions for Process Heaters and Boilers

Chevron - Pascagoula Refinery
Pascagoula Aggregate PSD Project

Refinery Emissions Source	Plant		MDEQ ID	Projected Post Project Duty (NOx)	Projected Post Project Duty (PM)	Short Term Heat Input Safety Factor (NO_x)	NOx Emission Factor	$PM/PM_{10}/PM_{2.5}$ Emission Factor	Current NO_x Limits		Current $PM/PM_{10}/PM_{2.5}$ Limits		Future NO_x Limits		Future $PM/PM_{10}/PM_{2.5}$ Limits		NO_x Limit Changes		$PM/PM_{10}/PM_{2.5}$ Limit Changes	
				MMBtu/hr	MMBtu/hr		lb/MMBtu	lb/MMBtu	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
F-1501/02/03	15	Rheniformer I/ NHT I	AG-043		439.3			0.0075				16.20				14.43				-1.77
F-8300A	83	Coker	BQ-521	203.5		1.25	0.098		29.91				24.93				-4.98			
F-8300B	83	Coker	BQ-522	203.5		1.25	0.098		29.91				24.93				-4.98			
F-8300C	83	Coker	BQ-523	203.5		1.40	0.098		29.91				27.92				-1.99			
F-2201	22	Hydrofiner	AM-111	48.0		1.25	0.140		13.20	46.25			8.40	29.43			-4.80	-16.82		
F-2101	21	Boiler Plant	FL-2101		223.5			0.0075				8.65				7.34				-1.30
F-2102	21	Boiler Plant	FL-2102		223.5			0.0075				8.65				7.34				-1.31
F-2103	21	Boiler Plant	FL-2103		223.5			0.0075				8.65				7.34				-1.31
F-8110	81	RDS	BP-511	65.0		1.26	0.110		12.19	42.71			9.00	31.32			-3.19	-11.39		
F-8210	82	Isodewaxing/ Hydrofinishing	CK-003		37.1			0.0075				1.70				1.22				-0.48
F-8220	82	Isodewaxing/ Hydrofinishing	CK-004		76.1			0.0075				2.83				2.50				-0.33
F-8250	82	Isodewaxing/ Hydrofinishing	CK-005		31.4			0.0075				1.45				1.03				-0.42
F-8280	82	Isodewaxing/ Hydrofinishing	CK-006		58.1			0.0075				2.30				1.91				-0.39
																Project Net Impact to Current Limits:	-19.94	-28.21		-7.30

Note: Projected post-project duties for $PM/PM_{10}/PM_{2.5}$ are annualized MMBtu/hr estimates used for the purpose of setting annual ton per year limits, not maximums.
Lb/hr limits include a safety factor to the projected post-project duties.

Appendix B Supporting BACT Information

FUGITIVE COMPONENTS (PROCESS TYPE 50.007), PERMIT DATES FROM 1/01/2015 THROUGH 1/17/2025
LISTINGS FOR VOC

RBLCID	FACILITY NAME	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION
IL-0115	WOOD RIVER REFINERY	IL	1/23/2015	EQUIPMENT LEAKS/FUGITIVE EMISSIONS	LDAR BUT LOWER LEAK DEFINITION FOR VALVES IN G/LL SERVICE (500 PPM) AND PUMP SEALS IN LL (2000 PPM); LOW EMISSION VALVES WHERE APPROPRIATE.
IL-0119	PHILLIPS 66 PIPELINE LLC	IL	1/23/2015	Equipment Leaks / Fugitive Emissions	LDAR
IN-0317	RIVERVIEW ENERGY CORPORATION	IN	6/11/2019	Block 2000 fugitive emissions	leak detection and repair (LDAR) program
IN-0317	RIVERVIEW ENERGY CORPORATION	IN	6/11/2019	Block 4000 fugitive emissions	Leak detection and repair (LDAR) program
LA-0282	ALLIANCE REFINERY	LA	4/2/2015	Unit Fugitives for the Low Sulfur Gasoline Unit (294-FF, FUG 0004)	Louisiana MACT Determination for Refinery Equipment Leaks (Fugitive Emission Sources) dated July 26, 1994
LA-0283	ALLIANCE REFINERY	LA	8/14/2015	UNIT FUGITIVES FOR LOW SULFUR GASOLINE UNIT (294-FF, FUG 0004)	LDAR: Louisiana MACT Determination for Refinery Equipment Leaks (Fugitive Emission Sources) dated July 26, 1994
LA-0284	ALLIANCE REFINERY	LA	9/2/2015	Unit Fugitives for Loading Docks (406-FF, FUG 11)	LDAR: 40 CFR 63 Subpart H
LA-0316	CAMERON LNG FACILITY	LA	2/17/2017	fugitive emissions	Complying with LAC 33:III.2111
LA-0355	GARYVILLE REFINERY	LA	9/6/2018	Fugitives from Crude Unit, Coker Unit and FCCU	Comply with 40 CFR 60 Subpart GGGa
LA-0356	GARYVILLE REFINERY	LA	9/27/2019	Fugitive Emissions (Unit 305, Unit 333, Refinery, GRL)	Comply with 40 CFR 60 Subpart GGGa
LA-0362	LAKE CHARLES REFINERY, AREA D	LA	7/18/2019	Area D Process D Fugitives	Compliance with the most stringent applicable Leak Detection and Repair (LDAR) program, which is Louisiana MACT Determination for Refineries with Consent Decree Enhancements.
LA-0383	LAKE CHARLES LNG EXPORT TERMINAL	LA	9/3/2020	Fugitives (FUG0001)	Proper piping design and LDAR
LA-0385	GARYVILLE REFINERY	LA	2/11/2021	Refinery Fugitives	Comply with 40 CFR 60 Subpart GGGa (for components servicing streams with 10% or more VOC)
*PA-0324	MARCUS HOOK	PA	2/12/2021	Fugitive leaks	Leak Detection and Repair (LDAR) program with leak defined at 500 ppm and 0.5 leak percentage rate for a reduction in monitoring frequency
TX-0731	CORPUS CHRISTI TERMINAL CONDENSATE SPLITTER	TX	4/10/2015	, Petroleum Refining Equipment Leaks/Fugitive Emissions	Quarterly instrumental monitoring using a method 21 gas analyzer for all valves, pump seals, compressor seals, and agitator seals with a leak definition of 500 parts per million volume (ppmv) for valves and 2,000 ppmv for pump, compressor and agitator seals. Leaking components must be repaired within 15 days of detection of the leak.
TX-0756	CCI CORPUS CHRISTI CONDENSATE SPLITTER FACILITY	TX	6/19/2015	Fugitive Components	Fugitive Leak Detection and Repair (LDAR) program that requires quarterly monitoring of valves with a leak definition of 500 ppmv. Quarterly monitoring of pump and compressor seals with a leak definition of 2,000 ppmv.
TX-0759	PORT ARTHUR REFINERY	TX	7/31/2015	Hydrocracking and Hydro-treating Fugitive Components	Enhanced Fugitive Leak Detection and Repair (LDAR) program that requires quarterly monitoring of valves, pumps, and compressor seals with a leak definition of 500 ppmv. Enhancements to the LDAR program include: 1) Monitoring to be done with data loggers capable of assigning time stamps to individual monitoring events; 2) Repair of leaking components found during weekly physical inspections within 15 days; 3) First attempt of repair of any valve found with a VOC reading greater than 100 ppmv; 4) Conduct of annual training for all of all LDAR technicians in the application of Method 21 consistent with the requirements of the permit; 5) Performance of a third party audit by no later than December 31, 2015 and then at least once every two years thereafter to verify whether EPA Method 21 is being properly applied; 6) and Initiation of an optical gas imaging (OGI) enhanced monitoring program for equipment leaks at those process units subject to EPA Method 21. In addition to the enhanced program, Motiva has agreed to perform quarterly instrument monitoring on fugitive components in heavy liquid service as well as quarterly instrument monitoring on all connectors with a leak definition of 500 ppmv.
TX-0760	CORPUS CHRISTI TERMINAL	TX	8/6/2015	Fugitives	Fugitive Leak Detection and Repair (LDAR) per the 28 MID Monitoring program that requires quarterly monitoring of all components with a leak definition of 500 ppmv and directed maintenance.
TX-0765	SUNOCO MARINE VESSEL LOADING OPERATIONS	TX	9/18/2015	Petroleum Refining Equipment Leaks/Fugitive Emissions	Quarterly instrumental monitoring using a method 21 gas analyzer for all valves, pump seals, compressor seals, and agitator seals with a leak definition of 500 ppmv for valves and 2,000 ppmv for pump, compressor and agitator seals. Leaking components must be repaired within 15 days of detection of the leak.

FUGITIVE COMPONENTS (PROCESS TYPE 50.007), PERMIT DATES FROM 1/01/2015 THROUGH 1/17/2025
LISTINGS FOR VOC

RBLCID	FACILITY NAME	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION
TX-0797	CORPUS CHRISTI TERMINAL	TX	5/4/2016	Petroleum Refining Equipment Leaks/Fugitive Emissions	Fugitive Leak Detection and Repair (LDAR) per the 28 MID Monitoring program that requires quarterly monitoring of all components with a leak definition of 500 ppmv and directed maintenance.
TX-0812	CRUDE OIL PROCESSING FACILITY	TX	10/31/2016	Equipment Leaks	Quarterly instrumental monitoring of accessible pumps, compressors and valves in vapor or light liquid service, with leak definitions of 500 ppmv (valves) and 2,000 ppmv (pump and compressor seals). Upon detection of a leak, a first attempt to repair must be made within 5 days, and repairs must be completed within 15 days.
TX-0840	CORPUS CHRISTI TERMINAL	TX	10/31/2018	FUGITIVES	Fugitive Leak Detection and Repair (LDAR) per the 28 MID Monitoring program that requires quarterly monitoring of all components with a leak definition of 500 ppmv and directed maintenance.
TX-0847	VALERO PORT ARTHUR REFINERY	TX	9/16/2018	Equipment Leaks/Fugitive Emissions	28 VHP
TX-0850	CORPUS CHRISTI TERMINAL	TX	7/15/2018	FUGITIVES	28 MID
TX-0851	RIO BRAVO PIPELINE FACILITY	TX	12/17/2018	FUGITIVES	28VHP
TX-0852	CORPUS CHRISTI WATERFRONT TERMINAL	TX	1/2/2019	Fugitive Components	28LAER
TX-0855	BUCKEYE SOUTH TEXAS GATEWAY TERMINAL	TX	3/13/2019	Fugitives	28 VHP, 28PI LDAR
TX-0861	BUCKEYE TEXAS PROCESSING CORPUS CHRISTI FACILITY	TX	8/29/2019	FUGITIVES	28VHP LDAR
TX-0864	EQUISTAR CHEMICALS CHANNELVIEW COMPLEX	TX	9/9/2019	Fugitive Components	28LAER & 28PI
TX-0865	EQUISTAR CHEMICALS CHANNELVIEW COMPLEX	TX	9/9/2019	FUGITIVES	28LAER, 28PI LDAR
TX-0871	PORT ARTHUR REFINERY	TX	1/31/2020	Fugitives	28VHP leak detection and repair (LDAR)
TX-0872	CONDENSATE SPLITTER FACILITY	TX	10/31/2019	Fugitives (Routine)	28VHP. Leak-less connectors.
TX-0872	CONDENSATE SPLITTER FACILITY	TX	10/31/2019	Meter Proving "" Vacuum Truck (MSS)	One event per hour. 32 events per year Best Management Practices including minimizing MSS activity and maintain recordkeeping.
TX-0872	CONDENSATE SPLITTER FACILITY	TX	10/31/2019	Product Sampling "" Vacuum Truck (MSS)	Contained in a sealable container. Best Management Practices including minimizing MSS activity and recordkeeping. Maximum sample size 32 oz.
TX-0873	PORT ARTHUR REFINERY	TX	2/4/2020	FUGITIVES	28 MID, 28 AVO and OGI fugitive programs. Authorized for infrared camera (28MID+).
TX-0874	PORT ARTHUR REFINERY	TX	2/4/2020	FUGITIVES	28MID LDAR and 28CNTQ.
TX-0877	SWEENY REFINERY	TX	1/8/2020	FUGITIVES	28 MID, 28CNTQ, and 28 PI programs. 28 MID: 97% control efficiencies for valves in gas/vapor and light liquid, 93% control efficiency for pumps light liquids and 30% for heavy liquid, 95% for compressors, 97% for relief valves. 28CNTQ: 97% control efficiencies for flanges/connectors in gas/vapor and light liquid and 30% for heavy liquid. 28PI: 30% control efficiencies for valves all phases, pumps all phases, flanges/connectors all phases, compressors, and relieve valves.
TX-0887	MIDLAND PLAINS MARKETING TERMINAL	TX	4/7/2020	Fugitives	The site-wide fugitive emissions are less than 10 tpy uncontrolled VOC emissions. LADR program and emission reduction credit is not applied.
TX-0892	NEDERLAND TERMINAL	TX	7/13/2020	fugitives	28-VHP LDAR fugitive
TX-0903	SWEENY REFINERY	TX	9/9/2020	Equipment Leaks/Fugitive Emission	Fugitive Leak Detection and Repair (LDAR) per the 28MID, 28PI, 28CNTQ, and 28CNTA monitoring programs.
TX-0909	POLYETHYLENE UNIT 1792	TX	12/8/2020	Fugitives	28VHP
TX-0910	POLYETHYLENE UNIT 1796	TX	12/11/2020	FUGITIVES	28 VHP
TX-0914	BORGER REFINERY	TX	1/21/2021	FUGITIVE COMPONENTS	28VHP
TX-0916	CEDAR BAYOU	TX	2/1/2021	FUGITIVE COMPONENTS	28 VHP

FUGITIVE COMPONENTS (PROCESS TYPE 50.007), PERMIT DATES FROM 1/01/2015 THROUGH 1/17/2025
LISTINGS FOR VOC

RBLCID	FACILITY NAME	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION
TX-0921	HOUSTON PLANT - 22052	TX	6/13/2022	FUGITIVES	28LAER
TX-0922	HOUSTON PLANT - 46307	TX	6/13/2022	FUGITIVES	28 LAER
TX-0924	HOUSTON PLANT - 19806	TX	6/13/2022	FUGITIVES	28 LAER
TX-0929	FORMOSA POINT COMFORT PLANT	TX	10/15/2021	FUGITIVES	modified 28VHP LDAR program in VOC service. A more stringent 500ppmv leak definition of 28MID is used. Annual 28CNTA monitoring is voluntarily used.
TX-0930	CENTURION BROWNSVILLE	TX	10/19/2021	Fugitive Components	Leak detection and repair (LDAR) monitoring and directed maintenance in accordance with the 28VHP program. Quarterly instrumental monitoring using a Method 21 gas analyzer.
TX-0936	BILL GREEHEY REFINERY EAST PLANT	TX	3/29/2022	REFINERY FUGITIVES	28VHP, 28AVO
TX-0937	VALERO CORPUS CHRISTI REFINERY EAST PLANT	TX	7/20/2023	FUGITVES	28VHP & 28AVO
TX-0939	ORANGE COUNTY ADVANCED POWER STATION	TX	3/13/2023	NATURAL GAS FUGITIVES	28AVO LDAR program
TX-0939	ORANGE COUNTY ADVANCED POWER STATION	TX	3/13/2023	AMMONIA FUGITIVES	28AVO LDAR program
TX-0939	ORANGE COUNTY ADVANCED POWER STATION	TX	3/13/2023	DIESEL FUGITIVES	28PI LDAR
TX-0962	POINT COMFORT PLANT	TX	9/22/2023	Fugitive Piping Leaks	A modified version of the 28VHP LDAR program using a 500 ppm leak definition is used. 28CNTA. 28PI specifically for mineral oil service.
TX-0966	EQUSTAR LAPORTE COMPLEX	TX	11/14/2023	FUGITIVES	28LAER LDAR program
TX-0980	MONT BELVIEU COMPLEX	TX	8/21/2024	FUGITIVE COMPONENTS	Area 7 Existing = 28VHP and 28CNTQ is accepting for the consolidated fugitive piping components. SOCMI without ethylene emission factors are used. Relief valve vents are claimed with 100% reduction credit since they are routed to an operating control device, or the relief valves are equipped with a rupture disc and pressure sensing device (between the valve and disc) to monitor for disc integrity. Area 5 = 28 LAER
WI-0273	SUPERIOR REFINING COMPANY LLC	WI	7/15/2022	F1: Fugitive Components	Leak Detection and Repair (LDAR)
WI-0279	CORPORATE/COMPANY NAME ENBRIDGE ENERGY LIMITED PARTNERSHIP -	WI	10/2/2017	Process Name F01 "" Piping Component/Pumping Fugitive	Complying with Leak Detection and Repair (LDAR) Program
WI-0279	CORPORATE/COMPANY NAME ENBRIDGE ENERGY LIMITED PARTNERSHIP -	WI	10/2/2017	PG02, PG03, and PG11 "" Pigging Equipment/Operations	Complying with Leak Detection and Repair (LDAR) Program
WI-0307	ENBRIDGE SUPERIOR TERMINAL	WI	9/22/2021	Piping Component Equipment Leak Fugitive (F01A)	Use certified low-leaking valves or fit certified low-leaking valve packing technology on pressure relief piping and leak detection and repair (LDAR) program.
WI-0311	SUPERIOR REFINING COMPANY LLC	WI	9/27/2019	Fugitive Components (F100)	Leak Detection and Repair (LDAR)
WI-0311	SUPERIOR REFINING COMPANY LLC	WI	9/27/2019	Crude-oil Range Material Bi-Directional Pipeline (P107-P110)	
WI-0315	SUPERIOR REFINING COMPANY LLC	WI	10/9/2020	Fugitive components (F100)	Leak Detection and Repair (LDAR)

Appendix C Modeling Input Files/Archive/Other Supporting Documents