TITLE V MINOR MODIFICATION PERMIT APPLICATION EVALUATION AND REGULATORY REVIEW (00101-01TV(R))

Valero Refining Company – Tennessee, LLC
Source No. 00101

DRAFT

SHELBY COUNTY HEALTH DEPARTMENT
AIR POLLUTION CONTROL SECTION
MAJOR SOURCES BRANCH

PERMIT APPLICATION EVALUATION

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TITLE V MAJOR SOURCE OPERATING PERMIT APPLICATION EVALUATION AND REGULATORY REVIEW

This narrative was prepared to assist the reviewer in understanding the facility and sources being permitted, and the content, the regulatory basis, and decisions made in preparing this permit action. This document was also prepared to meet the requirements for the statement of basis in 40 CFR § 70.7(a)(5). This document will become a part of the permanent facility record maintained by the Pollution Control Section of the Shelby County Health Department.

I. FACILITY INFORMATION

Facility Name:	Valero Refining Company - Tennessee, LLC
Facility Address:	2385 Riverport Road Memphis, TN 38109
Mailing Address:	2385 Riverport Road Memphis, TN 38109
Facility Owner:	Valero Refining Company – Tennessee, LLC
Owner Address:	Same
Responsible Official, Title:	Eric L. Brown – Vice President/General Manager
Mailing Address:	2385 Riverport Road Memphis, TN 38109
Telephone:	(901) 774-3100
Technical or Environmental Contact:	Greg Swearingen – Manager Environmental Engineering
Mailing Address:	2385 Riverport Road Memphis, TN 38109
Telephone:	(901) 947-8348
Billing Contact:	Greg Swearingen – Manager Environmental Engineering
Mailing Address:	Same
Telephone:	(901) 947-8348
Owner's Registered Agent:	CT Corporation System 300 Montvue Road Knoxville, TN 37919-5546
Facility's Primary Activity:	Petroleum Refinery
SIC/NAICS Code(s):	324110

Existing Permits:

Permit No.	Type of Permit	Description	Issued	Expires
00101-01TV	Operating	Petroleum Refinery	3/7/23	3/7/28
01196-01TV	Operating	Truck Loading Rack	7/5/22	7/5/27

II. APPLICATION INFORMATION

Application Received: July 26, 2023

Application Dated: July 21, 2023

Permit Engineer: Mark A. Landry
Surrounding States Notice Date: DRAFT
Public Notice Date: DRAFT
Public Hearing: DRAFT
Comments Received: DRAFT
Draft Permit Issued: October 7, 2023
Proposed Permit Issued: DRAFT
Initial Minor Modification Notice to EPA: October 5, 2023
EPA Notice: DRAFT
EPA Comments Received: DRAFT

Permit Issue Date: DRAFT

Facility classification:
[X] Major-NSR/PSD (PM, VOC, NOx, CO, SO_2)
[X] Major-Title V (Conditionally applicable as per §70.2 and 70.3(a)(1))
[X] NSPS (40 CFR Part 60, Subpart A, Db, J, Ja, Kb, GGG, GGGa, QQQ, and IIII)
[X] NESHAP (40 CFR Part 61, Subpart FF)
[X] MACT (40 CFR Part 63 – Subpart Y, CC, UUU, ZZZZ, DDDDD and GGGGG)
[X] LAER/BACT/RACT

Type of permit:
[ ] New construction
[ ] Synthetic Minor
[ ] Title V Operating
[X] Modification (Minor Modification)
[ ] Amendment
[ ] Permit renewal requested

Emission change:
[ ] Emissions increase (VOC)
[ ] Emissions decrease
[X] Emissions the same

III. SPECIFIC REASON(S) FOR APPLICATION

The facility has chosen to apply *40 CFR Subpart GGGa – Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006* to all affected sources under *40 CFR Part 60, Subpart GGG – Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for which Construction, Reconstruction, or Modification Commenced After January 4, 1983, and on or Before November 7, 2006.* This change will apply more stringent requirements, and will simplify recordkeeping and compliance under the fugitive emissions program at the refinery. The permit will be changed to denote the applicability of Subpart GGGa to all components formerly subject to the requirements of Subpart GGG. The requirements of Subpart GGG are at least as stringent as those in GGG (see comparison discussion in Section VI below). This modification does not result in an increase in emissions.

IV. EMISSION UNITS

Emission Unit/ Emission Group	Description	Pollutants
GRP-E-TK-01*	**Tanks from permit 0101-01T(R)**	VOC
GRP-E-TK-02*	**Tanks from permit 0101-02TC**	VOC
GRP-REF*	**Refinery equipment in permit 05P(R2)**	
FUG-01	West Crude Unit 01	VOC
FUG-02	Cryogenic Unit 02	
FUG-03	Cryogenic Unit 03	
FUG-04	East Crude Unit 04	
FUG-06	Alky Unit 06	
FUG-11	Fluidized Catalytic Cracking Unit 11	
FUG-12	Gas Concentration Unit 12	
FUG-13	Distillate Hydrotreater 13	
FUG-15	Cat Gas Hydrotreater 15	
FUG-17	Sats Gas Unit 17	
FUG-20	Sulfur Recovery Unit #1 20	
FUG-22	Sulfur Recovery Unit#2 22	
FUG-23	Barge Loading 23	
FUG-24	Tank Farm 24	
FUG-26	Naphtha Hydrotreater 26	
FUG-28	Continuous Catalytic Reformer 28	
P003	West Crude Unit Heater	PM/PM_{10}, SO_2, NOx, CO, VOC
P005	NHDS Reactor Charge Heater	
P006	CCR Reactor Heater/Interheaters No. 1, 2 & 3	
P010A	No. 1 East Crude Unit Heater	
P010B	No. 3 East Crude Unit Heater	
P011	CGHT Stabilizer Reboiler	
P012	Light Straight Run Heater	
P013a	DHDS Reactor Charge Heater	
P013b	DHDS Fractionater Reboiler Heater	
P015	NHDS Stabilizer Reboiler Heater	
P017	Alky Unit Isostripper Reboiler Heater	
P019	SRU Hot Oil Heater	

Emission Unit/ Emission Group	Description	Pollutants
P020	SRU No. 1	PM/PM_{10}, SO_2, NOx, CO, VOC
P021e	No. 10 Boiler	
P026	API Separators	
P029	North Refinery Flare	
P030	South Refinery Flare	
P033	CCR Platform Stabilizer Reboiler	
P058	No. 2 Cooling Tower	
P059	No. 3/4 Cooling Tower	
P060	No. 6 Cooling Tower	
P061a	No. 7 Cooling Tower	
P061b	No. 7a Cooling Tower	
Individual Emission Units (Units not included as part of an emission group)		
FUG-01-JET	WCU Jet Merox Treater Fugitives	VOC
FUG-18	Hydrocracking Unit 18 Fugitive Emissions	VOC
FUG-29	Hydrogen Unit 29 Fugitive Emissions	VOC
FUG-30	Reformate Splitter 30 Fugitive Emissions	VOC
FUG-BWON	Benzene Stripper Fugitives	VOC
P001	FCCU	PM/PM_{10}, SO_2, NOx, CO, VOC, H_2SO_4 Mist, HCN
P024	Barge Loading Operations	VOC
P024-FLARE	Barge Loading Flare (Petroleum products/ethanol)	PM/PM_{10}, SO_2, NOx, CO, VOC
P024-CRUDE	Barge Loading Flare (Crude Loading)	PM/PM_{10}, SO_2, NOx, CO, VOC
P031	No. 8 Cooling Tower	PM/PM_{10}, VOC
P037	SHU Splitter Reboiler Heater	PM/PM_{10}, SO_2, NOx, CO, VOC
P038	CGHT Reactor Charge Heater	PM/PM_{10}, SO_2, NOx, CO, VOC
P042	SRU No. 2	PM/PM_{10}, SO_2, NOx, CO, VOC
P043	HCU 18 Reactor Charge Heater	PM/PM_{10}, SO_2, NOx, CO, VOC
P044	HCU 18 Fractionator Reboiler Heater	PM/PM_{10}, SO_2, NOx, CO, VOC
P045	WWT Centrifuge Emissions Control System	VOC
P048	No. 9 Cooling Tower	PM/PM_{10}, VOC
P049	No. 11 Boiler	PM/PM_{10}, SO_2, NOx, CO, VOC, H_2SO_4 Mist
P055	WWT Conveyor System	VOC
P071	Steam Methane Reformer Heater	PM/PM_{10}, SO_2, NOx, CO, VOC, H_2SO_4 Mist
P021f	No. 12 Boiler	PM/PM_{10}, SO_2, NOx, CO, VOC, H_2SO_4 Mist
WWT-BOX	Roll-Off Box	PM/PM_{10}
24-09-022	ULSD Tank	VOC
24-09-045	Benzene Stripper Feed Tank	VOC
24-09-085	Tank No. 150085	VOC
24-09-086	Heartcut Reformate Tank	VOC
24-09-105	Process wastewater tank	VOC

*Emission groups are comprised of multiple emission units

Notes on Emission Groups and Regulatory Groups within the permit

For organization and brevity, the emission units are divided into Emission Groups and Regulatory Groups within the permit. Emission Groups are collections of similar emission units that are all subject to a common set of emission limits. Not all emission units belong to an Emission Group; some emission units stand alone in this respect. Regulatory Groups are groupings of emission units that are all subject to the same sets of regulations.

V. PROCESS DESCRIPTION

The Valero facility is a petroleum refinery that primarily produces gasoline, fuel oils, kerosene, and jet fuel. Finished products are stored in tanks of various sizes and configurations before being loaded into piping, barges and/or trucks for delivery to customers.

Crude Units

The East Crude Unit (ECU) and West Crude Unit (WCU) are the first major processing units in the refining process. Raw crude oil is first washed with water to remove salts and other impurities. The "treated" crude oil is then preheated by passing it through a series of heat exchangers before it is routed into the Preflash Tower where light ends are "flashed" from the crude oil. The crude leaves the Preflash Tower and passes through a furnace (P003 [WCU heater], P010a and P010b [ECU heaters]) where it is heated. After the crude oil passes through the furnace it enters the Crude Column where the crude oil is separated by boiling point using distillation into feedstocks for downstream units.

A portion of the kerosene fraction is sent to a treating unit to make finished kerosene or jet fuel. The Merox Treating Unit treats jet fuel to remove acidic components and mercaptans from the product. The Merox process uses a caustic prewash and catalytic reaction on the jet fuel stream. Following the catalytic reaction, the fuel stream passes through a series of water washes and filters before moving to final product storage. Water wash streams discharge to oil water separators (APIs)/Dissolved Air Flotation (DAF) treatment.

Flexibility of Crude Unit operation is maintained by altering the crude slate being processed, as well as furnace temperatures, process flows, and pressures. Operational flexibility is required to meet required product yields, downstream processing needs and market demands.

Naphtha and Distillate Units

The Memphis Refinery employs one naphtha hydrotreating or hydrodesulfurization (NHDS) unit, one distillate hydrotreating (DHDS) unit, and one hydrocracking unit (HCU) to remove sulfur from products and feedstocks. All three units use basically the same chemistry in that hydrogen (H_2) is mixed with a hydrocarbon stream and passed through a reactor vessel with a fixed bed of catalyst containing metal oxides. The catalyst facilitates a reaction of the H_2 with sulfur compounds in the hydrocarbon to form hydrogen sulfide (H_2S). After the reactor effluent is cooled, the excess H_2 is separated from the liquid hydrocarbon along with most of the H_2S. The liquid hydrocarbon is stripped of any remaining H_2S and light ends before it goes to a storage tank as finished product. The gas stream containing the H_2 and H_2S is treated to remove the H_2S and the H_2 is recycled to the process. In addition, the hydrocracking unit uses hydrogen to convert a portion of the distillate feed to naphtha range material, based on market economics of the products.

The NHDS unit includes the NHDS Reactor Charge Heater (P005) and NHDS Stabilizer Reboiler Heater (P015). The DHDS unit includes the DHDS Reactor Charge Heater (P013a) and DHDS Stabilizer Reboiler Heater (P013b). The HCU unit includes the HCU 18 Reactor Charge Heater (P043) and HCU 18 Fractionator Reboiler Heater (P044).

Operational flexibility is required to meet product yields, downstream processing needs and market demands. Flexibility of Hydrotreating Unit operation is maintained by altering the feedstock being processed, furnace temperatures, process flows, pressures and catalyst.

Continuous Catalytic Reformer (CCR) Unit

The CCR process converts low octane naphthenes and paraffins into higher octane aromatic compounds. The process feed is mixed with H2 and heated to the vapor phase before being passed over a bed of catalyst in the first reactor where naphthenes are dehydrogenated to form aromatics in an endothermic reaction. The effluent from the first reactor is reheated before entering the second reactor where the reactions continue. This process continues through a third and fourth reactor. The CCR Reactor Heater and Interheaters No. 1, 2, and 3 are represented by (P006). The effluent from the last reactor is cooled and the liquid products condensed and the H2 is separated from the liquid in a separator vessel and recycled to the process. Any excess H2 is exported to other hydrogen consuming process units and/or the fuel system. The liquid portion is fractionated using a distillation column and the CCR Platform Stabilizer Reboiler (P033) to remove the lighter materials before being sent to a storage tank.

Over time, unwanted reactions occurring during the process (such as cracking) leave coke deposits on the catalyst, blocking its active sites and lowering the catalyst activity. The reaction section of the unit consists of the four reactors stacked vertically. The catalyst flows by gravity downward through each of the reactors. When it reaches the bottom, it is lifted to the top of the regenerator section. The coke is removed by combustion using the CCR Catalyst Regenerator (P007) and the catalyst is re-chlorinated before recycling to the top of the reactor stack.

Operational flexibility of the reforming unit is required to meet product yields and downstream processing needs such as hydrogen production, pool octane and market demands. Flexibility of Reformer Unit operation is maintained by altering the feedstock being processed, furnace temperatures, process flows, pressures and catalyst regeneration.

Fluid Catalytic Cracking (FCC)

The FCC process uses a catalyst composed of very fine particles which behave as a fluid when aerated with a vapor. The fluidized catalyst is continuously circulated between the reactor and regenerator vessels and acts as a vehicle to transfer heat from the regenerator to the oil feed and reactor. Heat from the regenerated catalyst vaporizes the feed oil and heats it to the desired reaction temperature. The cracking reactions start when the hot catalyst and feed oil are mixed at the bottom of the reactor riser and continue until the hydrocarbon vapors and catalyst are separated at the top of the reactor vessel. The hydrocarbon vapors flow into a fractionator for separation into gas and liquid products. The catalyst that has been separated from the hydrocarbon vapors in the top of the reactor fall to the bottom of the upper reactor section where steam is passed through it to remove hydrocarbons that may have been absorbed by the catalyst, but coke that was formed on the catalyst during the process remains. The catalyst flows by gravity from the reactor vessel to the bottom of the regenerator vessel.

The catalyst regenerator used at the Memphis Refinery is a "full burn" design and combusts the coke to carbon dioxide. After the coke combustion, the regenerated catalyst is separated from the combustion gases and is recirculated back to the reactor. The regenerator temperatures and coke burn-off can be controlled by varying the amount of oxygen available for combustion. The regenerator exhaust gases pass through a venturi scrubber for removal of particulate matter (PM) and sulfur dioxide (SO2) emissions. The scrubber is also equipped with Wet Gas Scrubber Plus technology which provides control for nitrogen oxides (NOX) emissions.

Operational flexibility of the FCCU (P001) is required to meet product yields, downstream processing needs, pool octane and market demands. Product yield flexibility from the FCCU is maintained by varying process temperatures, pressures, flows, feedstock quality and the type of catalyst used. Process product yields are greatly influenced by reaction temperatures which are controlled by the temperature and rate of the catalyst entering the reactor riser which, in turn, is dictated by regenerator operations.

Gas Concentration Unit

The Gas Concentration (Gas Con) Unit recovers light liquid, liquid petroleum gas (LPG) and other gases from the FCC process using compression, absorption, and fractionation. Any non-condensable gases are sent to the Cryo Units for further processing. Recovered LPG is treated to remove sulfur compounds before being sent to the Alkylation (Alky) Unit for further processing or to storage. The liquid fraction (cat gasoline) is sent to a storage tank and/or the Cat Gasoline Hydrodesulfurization (or Hydrotreater) Unit (CGHT) for further processing before it is used to blend finished gasoline.

Cat Gas Hydrodesulfurization or Hydrotreater Unit (CGHT)

The gasoline recovered in the Gas Con Unit (cat gasoline) is treated in the CGHT Unit to meet the Tier 2 Low Sulfur Gasoline regulations. The cat gasoline is passed over a fixed catalyst bed where light sulfur compounds are converted into heavier sulfur compounds. The reactor effluent is then fractionated into light cat naphtha (LCN) and heavy cat naphtha (HCN) using a distillation column and the SHU Splitter Reboiler Heater (P037). The LCN is either sent to storage for use in finished gasoline blending or recombined with the HCN downstream of the CGHT. The HCN is processed in the hydrotreating section of the unit using a process much like the naphtha and distillate hydrotreaters. The feed is mixed with hydrogen, heated using the CGHT Reactor Charge Heater (P038), and passed over a fixed catalyst bed where sulfur compounds are converted to H2S. The H2S is separated from the liquid and the liquid fractionated using the CGHT Stabilizer Reboiler (P011) to remove light end products. The treated HCN is recombined with the LCN and sent to storage for use to blend finished gasoline.

Alkylation Unit

The Alkylation (Alky) unit process combines monolefin molecules (butylenes and propylenes) with isobutane in the presence of hydrofluoric (HF) acid and produces larger molecules. The LPG feed from the Gas Con Unit is first fractionated to remove propylene from the stream and sent to storage. Some water is also removed from the LPG feed during this fractionation step. The remaining butane-butylene (BB) mix from the first fractionation is sent to storage or to a selective hydrogenation process (SHP) to convert any 1,3-butadiene present into 1-Butene and 2-Butene before the stream enters the Alky. After a second fractionation removes any non-condensable compounds and remaining water, the BB mixture then passes into the Alky reactor where it is mixed with isobutane and HF acid. The reactor effluent is separated into HF acid and

hydrocarbon. The hydrocarbon is fractionated to separate any remaining propane and isobutane from the heavier fraction or alkylate. The Alky Unit Isostripper Reboiler Heater (P017) provides process heat for this step. The alkylate goes to storage for use in blending finished gasoline.

Saturated Gas (Sats Gas) Plant
The Sats Gas Plant (SGP) processes saturated hydrocarbon off-gases from other process units using compression, absorption, and fractionation. LPGs are fractionated into propane, isobutane, normal butane, light gasoline, and an off-gas. H2S is removed from the recovered LPG streams before being sent to storage for use in Refinery processes, gasoline blending, or sale. Non-condensable gases are sent to the Cryogenic Units for recovery of any remaining propane and butane.

Cryogenic Unit
The Cryogenic Gas Plant (Cryo Units 1 and 2) utilizes cryogenic cooling and fractionation to recover LPG from Refinery gas streams before treatment to remove H2S and use as refinery fuel gas. Operational flexibility is maintained by varying process temperatures, pressures, and flows.

Sulfur Recovery Units
The Sulfur Recovery Units (SRUs) process acid gas-containing streams produced when H2S and ammonia (NH3) are removed from various Refinery streams using amine absorbers located throughout the Refinery, as well as the off gas from the sour water stripper (SWS). The Memphis Refinery operates two SRUs: SRU No. 1 (P020) and SRU No. 2 (P042). The SWS off gas is injected directly into the Claus Thermal Reactor. The H2S and NH3 are removed from the amine solution using heat and fractionation. The regenerated amine solution is recirculated back to the amine absorbers. The gases stripped from the amine solution (referred to as amine acid gas [AAG]) and SWS off gas are injected into the thermal reactor where their components (H2S, NH3, and a small amount of hydrocarbons) are oxidized. About one-third of the H2S in the AAG is oxidized to form SO2 and H2O ($H2S + 1.5\ O2 \rightarrow SO2 + H2O$). The SO2 then reacts with the remaining H2S to form elemental sulfur and water vapor ($2\ H2S + SO2 \rightarrow 1.5\ S2 + 2\ H2O$). Also, a small portion of the H2S in the AAG dissociates to free hydrogen and elemental sulfur ($H2S + Heat \rightarrow H2 + 0.5\ S2$). The NH3 is oxidized to nitrogen and water ($NH3 + 0.75\ O2 \rightarrow 0.5\ N2 + 1.5\ H2O$). Any hydrocarbons in the AAG are oxidized to carbon dioxide (CO2), carbon monoxide (CO) and H2O. About 60% of the sulfur production is formed non-catalytically in the thermal reactor. This sulfur is condensed and drained from the process gas stream prior to entering the first catalytic reactor bed. Two successive catalytic reactor beds, each followed by condensation and removal of liquid sulfur, convert the remaining H2S and SO2 to elemental sulfur.

The tail gas exiting the third Claus reactor contains small amounts of unconverted sulfur compounds such as H2S, SO2, and sulfur (S), as well as carbon disulfide (CS2), and carbonyl sulfide (COS), which are formed in the thermal reactor. A tail gas treating unit (TGTU) using technology such as Shell Claus Off Gas Treating (SCOT) or ReSolve® converts the various sulfur compounds to H2S. Conversion to H2S is achieved through hydrolysis and a hydrogenation-type reaction. Some of the sulfur-related compounds react with H2O to form H2S and CO2 ([$COS + H2O \rightarrow H2S + CO2$], [$CS2 + 2H2O \rightarrow 2H2S + CO2$] and [$CO + H2O \rightarrow H2 + CO2$]). The remaining sulfur-related components react with hydrogen (H2) to form H2S and H2O ([$SO2 + 3H2 \rightarrow H2S + 2H2O$] and [$Sn + nH2 \rightarrow nH2S$]). The H2S is then removed from the tail gas as by absorption into an amine-based solution. The H2S is stripped from the amine

solution and recycled to the front of the Claus. SRU No. 1 includes the SRU Hot Oil Heater (P019), which provides hot oil used for process heating throughout the unit.

Operation of the SRUs is influenced by the amount of the AAG and SWS off gas and the concentration of H2S, NH3, and hydrocarbon entering the SRUs as well as the pressure drop across the Claus catalyst beds. As the component concentrations vary, so does the amount of air required to complete the reactions. The pressure drop across the catalyst beds can be caused either by the bed being partially plugged with a material such as soot from the combustion of hydrocarbons in the thermal reactor or by the unit running against its mechanical limitations.

Sour Water Stripper (SWS) and Benzene Strippers

Sour water containing NH3 and H2S is collected from various overhead systems throughout the Refinery in a common storage tank. Hydrocarbons entrained in the sour water separates from the water inside the tank and is removed using a skimmer located underneath the tank's floating roof. Water is drawn from the tank and pumped to the SWS located on the south side of the No. 2 SRU. The sour water enters the SWS near the top and falls down the tower while steam flows upward. The steam provides enough heat to raise the temperature of the sour water, lowering the solubility of the NH3 and H2S and enabling them to be stripped from the water. The SWS off gas leaves the top of the tower and flows to the SRU for processing and treatment.

Process water containing benzene is treated using two Benzene Strippers before it enters the process sewer system and wastewater treatment facilities. As with the SWS, the benzene-containing water is pumped into the stripper near the top and falls down the tower as steam flows upward. The rise in temperature makes the benzene less soluble in the water and allows the benzene to be stripped out. The benzene-containing off gas from the stripper is fed into the FCCU Main Column Overhead (MCOH) system where it is condensed, recovered and recycled into the process. An alternative to recovering the stream in the FCCU MCOH system is to route it into the East Crude Unit.

Wastewater Treatment

Process wastewater and contaminated stormwater run-off are treated to remove free oil and solids. The Refinery's wastewater treatment is considered to be primary treatment only. Process water containing entrained or free oil flows into parallel API separators (P026) where oil, water, and solids are gravimetrically separated.

The separator effluent flows by gravity into a mix basin where a flocculent is added and mixed into the water. The water is then pumped into a small tank where a coagulant is added and mixed into the water before it flows into a dissolved air flotation (DAF) unit. Just before the water flows into the DAF, a slip stream of DAF effluent that has been mixed with compressed air under pressure is injected. When the air-saturated water emerges from the DAF inlet into the vessel proper and is no longer under pressure, the air comes out of solution and forms microscopic bubbles. The bubbles attach themselves to the coagulated oil and solid particles and float them to the surface where they are skimmed into a collection tank. The treated water flows from the bottom of the vessel upwards between the vessel wall and an underflow weir where it combines with the Purge Treatment Unit (PTU) effluent water and then flows into the city sewer system.

The recovered DAF float is processed using a centrifuge (P045) to remove the free water and recover some oil. The solids material is transferred by a conveyor system (P055) to a roll-off box (WWT-BOX). The solids are sent offsite for recycling, or if a recycling facility is not available, to a hazardous waste treatment facility.

Auxiliary Facilities

The Memphis Refinery operates a number of auxiliary processes and equipment that produce products needed in the refining process. The following auxiliary processes provide vital products to the refining process:

- The No. 10 Boiler (P021e), No. 11 Boiler (P049), and No. 12 Boiler (P021f) provide process steam to various process units,
- The No. 2 Cooling Tower (P058), No. 3/4 Cooling Tower (P059), No. 6 Cooling Tower (P060), No. 7 Cooling Tower (P061a), No. 7a Cooling Tower (P061b), No. 8 Cooling Tower (P031 aka P062), No. 9 Cooling Tower (P048), and No. 10 Cooling Tower (P063) provide cooling water to various process units, and
- A hydrogen plant and associated Steam Methane Reformer Heater (P071) provide hydrogen necessary for the hydrotreating processes.
- A Flare Gas Recovery System (FGRS) including separator vessels (knockout drum, liquid seal drums) and a series of compressors is connected to the flare header system and utilized to reduce routine flaring and associated emissions.
- Process vents throughout the Refinery are routed to a vent header and sent for gas sweetening (sulfur removal) and eventual use as fuel in process units as needed. When excess fuel gas exists, the fuel gas is routed to the FGRS mentioned above. If the volume of flare gas relieved into the flare header system exceeds the capacity of the FGRS, the flare header pressure increases until it exceeds the back-pressure exerted by the liquid seal. This excess gas volume will pass through the Liquid Seal Drum and on to either the North Refinery Flare (P029) or the South Refinery Flare (P030) for emissions control where it will be combusted. This excess flare header pressure will be the case, for example, when there is a rapid increase in flare gas flow due to an emergency release.
- Several stationary (and portable) diesel-fired reciprocating internal combustion engines (RICE) are used to drive emergency generators and pumps in various locations throughout the Refinery.

Barge Loading Facilities

The Memphis Refinery includes a barge loading dock that allows the Refinery to ship product via barge on the Mississippi River. The Refinery is also able to receive crude oil via pipeline and subsequently load it into barges for export at the North River Dock. The North Dock is equipped with a vapor recovery system and flare (P024), which is used to control emissions during product and crude oil loading.

Crude Oil, Intermediate and Product Storage

Incoming crude oil, intermediate products, and outgoing refined products are stored in a number of fixed roof and floating roof storage tanks collectively referred to as the “tank farm”. The tank farm is designed to allow the Refinery to operate without interruption, and each tank has design characteristics based on the material stored.

VI. REGULATORY ANALYSIS *(See Appendix A for a full regulatory applicability overview)*

40 CFR Part 60, Subpart GGG – Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for which Construction, Reconstruction, or Modification Commenced After January 4, 1983, and on or Before November 7, 2006

This subpart is applicable to affected facilities in petroleum refineries. A compressor is an affected facility. The group of all equipment within a process unit is an affected facility. Facilities subject to subpart VV, subpart VVa, or subpart KKK of this part are excluded from this subpart. As per §60.590(e), until the EPA takes final action and publishes a document in the Federal Register, the definition of "*process unit*" shall be "*components assembled to produce intermediate or final products from petroleum, unfinished petroleum derivatives, or other intermediates; a process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.*"

40 CFR Part 60, Subpart GGGa – Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for which Construction, Reconstruction, or Modification Commenced After November 7, 2006

This subpart is applicable to affected facilities in petroleum refineries. A compressor is an affected facility. The group of all equipment within a process unit is an affected facility. Facilities subject to subpart VV, subpart VVa, or subpart KKK of this part are excluded from this subpart. As per §60.590a(e), until the EPA takes final action and publishes a document in the Federal Register, the definition of "*process unit*" shall be "*components assembled to produce intermediate or final products from petroleum, unfinished petroleum derivatives, or other intermediates; a process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.*"

Comparison of Subparts GGG and GGGa

Currently, fugitive components at several process units are subject to 40 CFR Part 60, Subpart GGG (New Source Performance Standard-Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for which Construction, Reconstruction, or Modification Commenced After January 4, 1983, and on or Before November 7, 2006), while other process units are subject to 40 CFR Part 60, Subpart GGGa. The following is a regulatory comparison of the significant differences between NSPS 40 CFR Part 60, Subparts GGG and GGGa:

GGG		GGGa		GGGa More Stringent? (Yes/No/Same)
Code Citation	**Requirement**	**Code Citation**	**Requirement**	
60.590	Applicability and designation of affected facility	§60.590a	Applicability and designation of affected facility	Same
60.591	Definitions	§60.591	Definitions	Same
60.592	Standards	§60.592a	Standards	**Yes**
60.592(a)	Comply with *§§60.482-1 through 60.482-10*	60.592a(a)	Comply with *§§60.482-1a through 60.482-10a*	**Yes**
60.482-1	*General Standards*	*60.482-1a*	*General Standards*	*Same*
60.482-2	*Standards: Pumps in light liquid service* ***-Leak detected at 10,000 ppm***	*60.482-2a*	*Standards: Pumps in light liquid service* ***-Leak detected at 2,000 ppm***	***Yes***
60.482-3	*Standards: Compressors*	*60.482-3a*	*Standards: Compressors*	*Same*
60.482-4	*Standards: Pressure relief devices in gas/vapor service*	*60.482-4a*	*Standards: Pressure relief devices in gas/vapor service*	*Same*

GGG		GGGa		GGGa More Stringent? (Yes/No/Same)
Code Citation	**Requirement**	**Code Citation**	**Requirement**	
60.482-5	*Standards: Sampling connection systems*	*60.482-5a*	*Standards: Sampling connection systems*	*Same*
60.482-6	*Standards: Open-ended valves or lines*	*60.482-6a*	*Standards: Open-ended valves or lines*	*Same*
60.482-7	*Standards: Valves in gas/vapor service and in light liquid service* ***-Leak detected at 10,000 ppm***	*60.482-7a*	*Standards: Valves in gas/vapor service and in light liquid service* ***-Leak detected at 500 ppm***	***Yes***
60.482-8	*Standards: Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and connectors* *-Includes all connectors*	60.482-8a	*Standards: Pumps, valves, and connectors in heavy liquid service and pressure relief devices in light liquid or heavy liquid service* *-Only includes connectors in heavy liquid service*	Same (see discussion below this table)
60.482-9	*Standards: Delay of repair*	*60.482-9a*	*Standards: Delay of repair*	*Same*
60.482-10	*Standards: Closed vent systems and control devices*	*60.482-10a*	*Standards: Closed vent systems and control devices*	*Same*
		60.482-11a	Standards: Connectors in gas/vapor service and in light liquid service	**Yes (see discussion below this table)**
60.592(b)	May elect to comply with the requirements of 60.483-1, 60.483-2, or Phase III provisions in 63.168 (facility may follow 60.482-7(f) instead of 63.168 for leakless valves)	60.592a(b)	May elect to comply with the requirements of 60.483-1a, 60.483-2a, or Phase III provisions in 63.168 (facility may follow 60.482-7a(f) instead of 63.168 for leakless valves)	**Yes**
60.483-1	*Alternative standards for valves-allowable percentage of valves leaking* ***-Leak detected at 10,000 ppm***	*60.483-1a*	*Alternative standards for valves-allowable percentage of valves leaking* ***-Leak detected at 500 ppm***	**Yes**
60.483-2	*Alternative standards for valves-skip period leak detection and repair*	*60.483-2a*	*Alternative standards for valves-skip period leak detection and repair*	Same
60.482-7(f)	Valves designated for no detectable emissions	60.482-7a(f)	Valves designated for no detectable emissions	Same
60.592(c)	Determination of equivalency	50.592a(c)	Determination of equivalency	Same
60.592(d)	Test methods and procedures	60.592a(d)	Test methods and procedures	Same
60.592(e)	Recordkeeping **-Refers to 60.486, which does not require records of each monitoring event or weekly visual inspections**	60.592a(e)	Recordkeeping **-Refers to 60.486a, which requires records of each monitoring event and each weekly visual inspection**	**Yes**
60.593	Exceptions -No exception for connectors	60.593a	Exceptions -Contains exception for connectors exempting requirements in 60.482-11a if facility complies with 60.482-8a for all connectors	Same (see discussion below this table)

Discussion of Subpart GGGa/GGG Connector Standards

40 CFR 60, Subpart GGGa

As per 40 CFR 60.593a(g), connectors in gas/vapor service are exempt from the requirements in 60.482-11a, provided the facility complies with 60.482-8a for all connectors, not just those in heavy liquid service.

60.482-8a Standards: Pumps, valves, and connectors in heavy liquid service and pressure relief devices in light liquid or heavy liquid service

60.482-8a(a): If evidence of a potential leak is found by visual, audible, olfactory, or any other detection method at pumps, valves, and connectors in heavy liquid service and pressure

relief devices in light liquid service, the owner or operator shall follow either one of the following procedures:
60.482-8a(a)(1) The owner or operator shall monitor the equipment within 5 days by the method specified in 60.485a(b) and shall comply with the requirements of paragraphs (b) through (d) of this section.
60.482-8a(a)(2) The owner or operator shall eliminate the visual, audible, olfactory, or other indication of a potential leak within 5 calendar days of detection.
60.482-8a(b) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.

40 CFR 60, Subpart GGG
As per 40 CFR 60.592(a), each owner or operator subject to the provisions of this subpart shall comply with the requirements of 60.482-1 to 60.482-10 as soon as practicable, but no later than 180 days after initial startup.

60.482-8 Standards: Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and connectors
60.482-8(a): If evidence of a potential leak is found by visual, audible, olfactory, or any other detection method at pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and connectors, the owner or operator shall follow either one of the following procedures:
60.482-8(a)(1) The owner or operator shall monitor the equipment within 5 days by the method specified in 60.485(b) and shall comply with the requirements of paragraphs (b) through (d) of this section. **[Same as 60.482-8a(a)(1)]**
60.482-8(a)(2) The owner or operator shall eliminate the visual, audible, olfactory, or other indication of a potential leak within 5 calendar days of detection. **[Same as 60.482-8a(a)(2)]**
60.482-8(b) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected. **[Same as 60.482-8a(b)]**

In summary, the requirements for connectors in Subparts GGG and GGGa are the same for both light liquid and heavy liquid service.

Affected Sources

The following table contains a summary of the affected Emission Units under subparts GGG and GGGa:

Emission Unit	Description	Pre-Modification Regulatory Group	Post-Modification Regulatory Group
FUG-03	Cryogenic Unit 03	GRP-FUG-GGG	GGGa
FUG-04	East Crude Unit 04		
FUG-12	Gas Concentration Unit 12		
FUG-13	Distillate Hydrotreater 13		
FUG-15	Cat Gasoline Hydrotreater 15		
FUG-17	Sats Gas Unit 17		
FUG-18	Hydrocracking Unit 18		
FUG-20	Sulfur Recovery Unit #1 20		
FUG-22	Sulfur Recovery Unit #2 22		
FUG-23	Barge Loading 23		
FUG-23a	Crude Loading Fugitives Only		
FUG-24	Tank Farm 24		
FUG-26	Naphtha Hydrotreater 26		
FUG-28	Continuous Catalytic Reformer 28		
FUG-BWON	Benzene Stripper Fugitives		
FUG-01	West Crude Unit 01	GRP-FUG-GGGa	
FUG-01-JET	WCU Jet Merox Treater Fugitives		
FUG-02	Cryogenic Unit 02		
FUG-06	Alky Unit 06		
FUG-10	Flare Gas Recovery 10		
FUG-11	Fluidized Catalytic Cracking Unit 11		
FUG-29	Hydrogen Unit 29		
FUG-30	Reformate Splitter 30		

Applicable requirements are listed in Section H of the facility's Title V Major source Operating Permit. Where required, revisions have been made to incorporate the changes associated with this minor modification. These revisions are limited to an annotation denoting that the procedures outlined in Subpart GGGa will be used to demonstrate compliance with all Subpart GGG-applicable sources. There are no emission increases associated with this modification.

Key Local Regulations

This minor modification does not affect the applicability of any local regulations.

The following local regulations are applicable to the facility:

- 16-50 – Open Burning
- 16-52 – Good Engineering Practice Stack Height Regulations
- 16-59 – Emergency Powers of Health Officer
- 16-60 – Emergency Episode Plan
- 16-83 – Visible Emissions
- 16-76 – New Source Performance Standards
  - 1200-3-16-.09 – Petroleum Refineries

- 1200-3-16-.47 – Equipment Leaks of VOCs in Petroleum Refineries
- 1200-3-16-.59 – Industrial-Commercial-Institutional Steam Generating Units

- 16-77 – Construction and Operating Permits
- 16-78 – Process Emission Standards
- 16-79 – Non-Process Emission Standards
- 16-80 – Volatile Organic Compounds
  - 1200-3-18-.06 – Handling, Storage, Use, and Disposal of Volatile Organic Compounds (VOC's)
  - 1200-3-18-.26 – Petroleum Refinery Sources
  - 1200-3-18-.27 – Leaks from Petroleum Refinery Equipment
  - 1200-3-18-.28 – Petroleum Liquid Storage in External Floating Roof Tanks
  - 1200-3-18-.29 – Petroleum Liquid Storage in Fixed Roof Tanks
- 16-81 – Hazardous Air Contaminants
- 16-82 – Control of Sulfur Dioxide Emissions
- 16-85 – Testing and Monitoring Air Contaminant Sources
- 16-86 – Test Methods
- 16-87 – Limits on Emissions Due to Malfunctions, Startups and Shutdowns
- 16-88 – Nuisance Abatement
- 16-89 – Fugitive Dust
- 16-91.3 – Case By Case Determinations of Hazardous Air Pollutant Control Requirements
- 16-91.4 – Prevention of Accidental releases
- 1200-3-10 – Required Sampling, Recording and Reporting
- 1200-3-12 – Methods of Sampling and Analysis
- 1200-3-27 – Nitrogen Oxides
- 1200-3-26 – Administrative Fees Schedule

VII. POTENTIAL to EMIT (PTE) EVALUATION

Permit Number	Description	Allowable Emissions (ton/yr)					
		NOx	CO	$PM/PM_{10}/PM_{2.5}$	VOC	SO_2	HAP
00101-01TV(R)	Petroleum Refinery	1064.92	1211.21	302.16	1032.62	388.49	332.68
01196-01TV	Truck Loading Rack	14.2	35.6	--	67.44	--	9.9/24.9
TOTAL		1079.12	1246.81	302.16	1100.06	388.49	357.58

VIII. FEES

The following fees are applicable to this permit action:

No.	Permit Action	Description	Fee
1	Minor Modification	Minor Modification to allow source to opt 40 CFR Part 60, Subpart GGG affected sources in to 40 CFR Part 60, Subpart GGGa	$130.00
		TOTAL:	$250.00

IX. PUBLIC COMMENTS

DRAFT

APPENDIX A

(Regulatory Applicability Overview Table)

Valero Refining Company – Tennessee, LLC (Source No. 00101) - Federal Regulatory Overview
Title V Major Source Operating Permit No. 00101-01TV(R)
Minor Modification – DRAFT

CFR Part	Description	Applicable Req.	Notes
40 CFR 50.1 — 50.16	National Primary and Secondary Ambient Air Quality Standards	Yes	Contains general requirements
40 CFR 54	Prior Notice of Citizen Suits	Yes	Contains general requirements
40 CFR 60	New Source Performance Standards	Yes	Not Applicable
40 CFR Part 60, Subpart Db	Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units	Yes	Contains specific requirements
40 CFR Part 60, Subpart J	Standards of Performance for Petroleum Refineries	Yes	Contains specific requirements
40 CFR Part 60, Subpart Ja	Standards of Performance for Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007	Yes	Contains specific requirements
40 CFR Part 60, Subpart Kb	Standards of Performance for Volatile Organic Liquid Storage Vessels Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984	Yes	Contains specific requirements
40 CFR Part 60, Subpart GGG	Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for which Construction, Reconstruction, or Modification Commenced After January 4, 1983, and on or Before November 7, 2006	Yes	Contains specific requirements
40 CFR Part 60, Subpart GGGa	Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for which Construction, Reconstruction, or Modification Commenced After November 7, 2006	Yes	Contains specific requirements
40 CFR Part 60, Subpart IIII	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	Yes	Contains specific requirements
40 CFR Part 61, Subpart FF	National Emission Standard for Benzene Waste Operations	Yes	Contains specific requirements
40 CFR 63	National Emission Standards for Hazardous Air Pollutants	Yes	Contains specific requirements
40 CFR Part 63, Subpart Y	National Emissions Standards for Marine Tank Vessel Loading Operations	Yes	Contains specific requirements
40 CFR Part 63, Subpart CC	National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries	Yes	Contains specific requirements
40 CFR Part 63, Subpart UUU	National Emission Standards for Hazardous Air Pollutants for Petroleum Refineries: Catalytic Cracking Units, Catalytic Reforming Units, and Sulfur Recovery Units	Yes	Contains specific requirements
40 CFR Part 63, Subpart ZZZZ	National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines	Yes	Contains specific requirements
40 CFR Part 63, Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters	Yes	Contains specific requirements
40 CFR Part 63, Subpart GGGGG	National Emission Standards for Hazardous Air Pollutants: Site Remediation	Yes	Contains specific requirements

40 CFR 70	State Operating Permit Programs	Yes	Contains general requirements
40 CFR 82 (Subpart A)	Protection of Stratospheric Ozone — Production and Consumption Controls	Yes	Contains general requirements applicable facility-wide regarding the use of ozone depleting substances
40 CFR 82 (Subpart C)	Ban on Nonessential Products Containing Class I Substances and Ban on Nonessential Products Containing or Manufactured with Class II Substances	Yes	Contains general requirements applicable facility-wide regarding the use of ozone depleting substances
40 CFR 82 (Subpart E)	The Labeling of Products Using Ozone Depleting Substances	Yes	Contains general requirements applicable facility-wide regarding the use of ozone depleting substances
40 CFR 82 (Subpart F)	Recycling and Emissions Reduction	Yes	Contains general requirements applicable facility-wide regarding the use of ozone depleting substances

TDEC/Shelby/Memphis	Description	Applicable Req.	Notes
CHAPTER 1200-3-2(3-1A)(16-46)	**DEFINITIONS**		
1200-3-2-.01	General Definitions	NA	Defines terms used in chapter
1200-3-2-.02	Abbreviations	NA	Defines abbreviations used in chapter
CHAPTER 1200-3-3(3-6)(16-49)	**AMBIENT AIR QUALITY STANDARDS**		
1200-3-3-.01	Primary Air Quality Standard	No	No applicable requirements
1200-3-3-.02	Secondary Air Quality Standard	No	No applicable requirements
1200-3-3-.03	Tennessee's Ambient Air Quality Standard	No	No applicable requirements
1200-3-3-.04	Nondegradation Standard	No	No applicable requirements
CHAPTER 1200-3-5(3-17)(16-83)	**VISIBLE EMISSIONS**		
1200-3-5-.01	General Standards	Yes	Contains general facility-wide requirements
1200-3-5-.02	Exceptions	Yes	Contains general facility-wide requirements
1200-3-5-.03	Method of Recording	Yes	Contains general facility-wide requirements
1200-3-5-.04	Exemption	Yes	Contains general facility-wide requirements
CHAPTER 1200-3-6(3-21)(16-79)	**NON-PROCESS EMISSION STANDARDS (PM)**		Not Applicable
1200-3-6-.01	General Non-Process Emissions	Yes	Contains general facility-wide requirements
1200-3-6-.02	Non-Process Particulate Emission Standards	Yes	Contains general facility-wide requirements
1200-3-6-.03	General Non-Process Gaseous Emissions	Yes	Contains general facility-wide requirements
CHAPTER 1200-3-7(3-20)(16-78)	**PROCESS EMISSION STANDARDS (PM)**		Not Applicable
1200-3-7-.01	General Process Particulate Emission Standards	Yes	Contains general facility-wide requirements
1200-3-7-.03	New Processes	Yes	Contains general facility-wide requirements
1200-3-7-.04	Limiting Allowable Emissions	Yes	Contains general facility-wide requirements
CHAPTER 1200-3-9(3-5)(16-77)	**CONSTRUCTION AND OPERATING PERMITS**		
1200-3-9-.01	Construction Permits	Yes	Contains general facility-wide requirements
1200-3-9-.02	Operating Permits	Yes	Contains general facility-wide requirements
1200-3-9-.03	General Provisions	Yes	Contains general facility-wide requirements
1200-3-9-.04	Exemptions	Yes	Contains general facility-wide requirements
1200-3-9-.05	Appeal of Permit Application Denials and Permit Conditions	Yes	Contains general facility-wide requirements
CHAPTER 1200-3-10	**REQUIRED SAMPLING, RECORDING, AND REPORTING**		
1200-3-10-.01	Sampling Required to Establish Air Contaminant Emissions Levels	Yes	Contains general facility-wide requirements
1200-3-10-.02	Monitoring of Source Emissions, Recording and Reporting of Same are Required	Yes	Contains general facility-wide requirements
1200-3-10-.04	Sampling, Recording and Reporting Required for Major Stationary Sources	Yes	Contains general facility-wide requirements

CODE SECTION 16-85	**TESTING AND MONITORING AIR CONTAMINANT SOURCES**	Yes	Contains general facility-wide requirements
CHAPTER 1200-3-11(3-25)(16-81)	**HAZARDOUS AIR CONTAMINANTS**		Contains general requirements
CHAPTER 1200-3-12	**METHODS OF SAMPLING AND ANALYSIS**		
1200-3-12.01	General	Yes	Contains general facility-wide requirements
1200-3-12-.02	Procedures for Ambient Air Sampling and Analysis	Yes	No applicable requirements
1200-3-12-.03	Source Sampling and Analysis	Yes	Contains general facility-wide requirements
CODE SECTION 16-86 (3-8)	**TEST METHODS**	Yes	Contains general facility-wide requirements
CHAPTER 1200-3-14(3-24)(16-82)	**SULFUR OXIDE EMISSIONS**		
1200-3-14-.01	General Provisions	Yes	Contains general requirements
1200-3-14-.02	Non-Process Emission Standards	Yes	Contains general requirements
1200-3-14-.03	Process Emission Standards	Yes	Contains general requirements
CHAPTER 1200-3-16(3-15)(16-76)	**NEW SOURCE PERFORMANCE STANDARDS**		
1200-3-16-.09	Petroleum Refineries	Yes	Contains specific requirements
1200-3-16-.47	Equipment Leaks of VOCs in Petroleum Refineries	Yes	Contains specific requirements
1200-3-16-.59	Industrial-Commercial-Institutional Steam Generating Units	Yes	Contains specific requirements
CHAPTER 1200-3-18(3-22)(16-80)	**VOLATILE ORGANIC COMPOUNDS**		
1200-3-18-.06	Handling, Storage, Use and Disposal of Volatile Organic Compounds (VOCs)	Yes	Contains general facility-wide requirements
1200-3-18-.26	Petroleum Refinery Sources	Yes	Contains specific requirements
1200-3-18-.27	Leaks from Petroleum Refinery Sources	Yes	Contains specific requirements
1200-3-18-.28	Petroleum Liquid Storage in External Floating Roof Tanks	Yes	Contains specific requirements
1200-3-18-.29	Petroleum Liquid Storage in Fixed Roof Tanks	Yes	Contains specific requirements
CHAPTER 1200-3-20(3-9)(16-87)	**LIMITS ON EMISSIONS DUE TO MALFUNCTIONS, STARTUPS, AND SHUTDOWNS**		
1200-3-20-.01	Purpose	Yes	Contains general facility-wide requirements
1200-3-20-.02	Reasonable Measures Required	Yes	Contains general facility-wide requirements
1200-3-20-.03	Notice Required When Malfunction Occurs	Yes	Contains general facility-wide requirements
1200-3-20-.04	Logs and Reports	Yes	Contains general facility-wide requirements
1200-3-20-.05	Copies of Logs Required	Yes	Contains general facility-wide requirements
1200-3-20-.06	Report Required Upon the Issuance of a Notice of Violation	Yes	Contains general facility-wide requirements
1200-3-20-.07	Special Reports Required	Yes	Contains general facility-wide requirements
1200-3-20-.08	Rights Reserved	Yes	No applicable requirements
1200-3-20-.09	Additional Sources Covered	Yes	No applicable requirements
CHAPTER 1200-3-21(3-28)(16-90)	**GENERAL ALTERNATE EMISSION STANDARDS**		Not Applicable
CHAPTER 1200-3-22(3-29)(16-91)	**LEAD EMISSION STANDARDS**		Not Applicable

CHAPTER 1200-3-24(3-40)(16-52)	**GOOD ENGINEERING PRACTICE STACK HEIGHT REGULATIONS**		
1200-3-24-.01	General Provisions	Yes	Contains general facility-wide requirements
1200-3-24-.02	Definitions	Yes	Contains general facility-wide requirements
1200-3-24-.03	Good Engineering Practice Stack Height Standards	Yes	Contains general facility-wide requirements
1200-3-24-.04	Specific Emission Standards	Yes	Contains general facility-wide requirements
CHAPTER 1200-3-25(3-39)(16-91.1)	**STANDARDS FOR INFECTIOUS WASTE INCINERATORS**		Not Applicable
CHAPTER 1200-3-26	**ADMINISTRATIVE FEES SCHEDULE**		Contains general requirements
CHAPTER 1200-3-27	**NITROGEN OXIDES**		Contains general requirements
CHAPTER 1200-3-30(3-36)(16-91.2)	**ACIDIC PRECIPITATION CONTROL**		Not Applicable
CHAPTER 1200-3-31(3-37)(16.91.3)	**CASE BY CASE DETERMINATIONS OF HAZARDOUS AIR POLLUTANT CONTROL REQUIREMENTS**		Contains general requirements
CHAPTER 1200-3-32(3-38)(16-91.4)	**PREVENTION OF ACCIDENTAL RELEASES**		Contains general requirements
OTHER (LOCAL ONLY)			
(3-2)(16-56)	Violations of Chapter - Notice; Citation; Injunctive Relief	Yes	Contains general requirements
(3-3)(16-57)	Penalties - Misdemeanor, Civil, and Noncompliance	Yes	Contains general requirements
(3-4)(16-59)	Enforcement - Emergency Powers of Health Officer	Yes	Contains general requirements
Code Section 16-60	Emergency Episode Plan	Yes	Contains general requirements
Code Section 16-61	Right of Entry	Yes	Contains general requirements
(3-7)(16-85)	Testing and Monitoring Air Contaminant Sources	Yes	Contains general requirements
(3-8)(16-86)	Test Methods	Yes	Contains general requirements
(3-10)(16-58)	Enforcement – Variances	Yes	Contains general requirements
(3-11)(16-51)	Severability	Yes	Contains general requirements
(3-12)(16-48)	Words, Phrases Substituted in State Regulations Adopted by Reference	Yes	Contains general requirements
(3-13)(16-61)	Right Of Entry	Yes	Contains general requirements
(3-16)(16-50)	Open Burning	Yes	Contains general requirements
(3-18)(16-89)	Fugitive Dust	Yes	Contains general requirements
(3-19)(16-88)	Nuisance Abatement	Yes	Contains general requirements
(3-35)(16-71)	Created; Membership; Term of Office; Jurisdiction; Hearings; Appeals	Yes	No applicable requirements
(14.5-27-28, 30-32, 34-36)(16-93 through 100)	Permits and Fees (Various)	Yes	Contains general requirements
(14.5-35)(16-101)	Penalty Provisions	Yes	Contains general requirements
(14.5-36)(16-102)	Annual Review of Fee Structure and Financial Need	Yes	Contains general requirements
(16-103)	Severance	Yes	Contains general requirements

APPENDIX B

(Emission Summary Table)

EMISSION SUMMARY TABLE

DATE	SOURCE #		FACILITY NAME	FACILITY CLASSIFICATION			LAST INSPECTION
				MAJOR	MINOR	SYNTHETIC MINOR	
DRAFT	00101		Valero Refining Company - Tennessee, LLC	X			08/15/24

PERMIT ENG: MAL

RECORD: 5728

ALLOWABLE PERMITTED POLLUTANT (tons per 12-month rolling period)

																	Check if Applicable			
PERMIT #	ISSUED	REVISED	EXPIRED	TSP/PM	SO2	VOC	CO	NOX	PB	Dioxin/furans Total	HCL	Cd	Hg	HAP	PM10	GHG's	MACT	NESHAP	NSPS	PSD OR NSR
00101-01TV	03/07/23	DRAFT	03/07/28	302.16	388.49	1032.62	1211.21	1064.92						332.68			X	X	X	X
01196-01TV	07/05/22		07/05/27			67.44	35.6	14.2						9.9/24.9			X		X	
TOTAL TONS:				302.16	388.49	1100.06	1246.81	1079.12	0	0	0	0	0	357.58						
Classification for each pollutant should be added here based on number of tons: A = Major SM = Synthetic Minor B = Minor				A	A	A	A	A						A						
CHECK IF NONATTAINMENT STATUS APPLIES:															Subparts:		Y, CC, UUU, ZZZZ, DDDDD, GGGGG	FF	A, Db, J, Ja, Kb, GGGa, QQQ, IIII	
															Pollutant:		VOC/ HAP	Benzene	VOC/ HAP	