STATEMENT OF BASIS

Shell Chemical, L.P.
Blakeley Island Terminal
Mobile, Mobile County, Alabama
Facility No. 503-0009

This proposed Major Source Operating Permit (MSOP) 4th renewal is issued under the provisions of ADEM Admin. Code Chap. 335-3-16. The above named applicant has requested authorization to perform the work or operate the facility shown on the application and drawings, plans and other documents attached hereto or on file with the Air Division of the Alabama Department of Environmental Management, in accordance with the terms and conditions of this permit. The current MSOP was issued on August 25, 2015, and is scheduled to expire on June 30, 2020.

Shell Chemical, L.P. (Shell) operates a bulk loading terminal for crude oil and associated refined petroleum products (SIC 5171). The terminal is used for loading and storing the following petroleum products: crude oil; naphtha/gasoline; heavy naphtha; and jet fuel/distillate. Crude oil and other petroleum products are unloaded from ocean vessels and barges into external floating roof storage tanks for shipment via pipeline to the Shell Chemical refinery off-site. Petroleum products from the refinery are sent via pipeline to the terminal and loaded into external floating roof storage tanks for loading into ocean vessels and barges.

The significant sources of air pollutants at this facility are four (4) 9,450,000 gallon external floating roof tanks (Tank Nos. 901-904), one 6,300,000 gallon external floating roof tank (Tank No. 906), one 4,200,000 gallon external floating roof tank (Tank No. 907), a marine loading/unloading dock, a 550 hp Detroit Diesel fire pump engine (90-20-0300 Dock Fire Pump), and a 220 hp John Deere fire pump engine (90-20-0700 East Fire Pump). Insignificant emission sources at this facility include equipment used for hydraulic or hydrostatic testing; brazing, soldering, or welding equipment; vacuum truck use; and intermittent road grading on plant property.

Applicability: Federal Regulations

Title V

This facility is considered a major source under Title V regulations because the potential emissions for Volatile Organic Compounds (VOC) exceed the 100 TPY major source threshold. It is not a major source of Hazardous Air Pollutants (HAP) because individual HAP potential emissions do not exceed 10 TPY, and the total HAP potential emissions do not exceed 25 TPY.

Prevention of Significant Deterioration (PSD)

This facility is located in an attainment area for all criteria pollutants and the facility operations are one of the 28 major source categories (total petroleum storage capacity exceeds 300,000 barrels); therefore, the major source threshold of concern is 100 TPY. This facility is a major source under PSD regulations because the potential emissions of VOC exceed the 100 TPY threshold, but they do not hold a PSD permit. Shell currently has product throughput limitations for the tanks and marine loading dock, a product vapor pressure limit for the tanks, and a requirement for 98% submerged fill for the marine loading dock. The origin and modifications of these limitations and requirements are chronicled below:

- On December 21, 1984 Shell (then Louisiana Land & Exploration, "LL&E") was issued Air Permits to store and load naphtha, gasoline, and Jet A fuel in addition to the existing approved products (crude oil and #2/#6 distillate oils). At that time, Mobile County was a nonattainment area for the 1-hour NAAQS for ozone. Product specific throughput limitations were established for the tanks and marine loading dock to limit the facility's emissions below 100 TPY and in order to avoid becoming a major source under NSR.

- On May 13, 1987, Mobile County was redesignated as attainment for the 1-hour NAAQS for ozone.

- On May 19, 1989, Shell (then LL&E Petroleum Marketing) was issued an Air Permit for its marine loading dock to load heavy naphtha. The marine loading dock product throughput limitations for naphtha and gasoline were lowered, and throughput limitations for heavy naphtha were established to limit the facility's emissions below 100 TPY in order to avoid becoming a major source under PSD.

- On January 5, 1990, Shell (then LL&E Petroleum Marketing) was issued PSD permits for the construction of two new tanks and an increase in the product throughput limitations for the tanks and marine loading dock because the change was considered a major modification under PSD. The increase in VOC emissions underwent PSD review as required. Best Available Control Technology (BACT) for the new tanks was determined to be external floating roofs with double seals (as required by 40 CFR Part 60, Subpart Ka). BACT for the increase in VOC emissions from the marine loading dock was determined to be 98% submerged fill for the loading lines of its marine loading dock. The proposed tanks were not constructed within the 24-month timeframe specified in their PSD permits; therefore, these two permits were voided.

- On May 16, 1994, Shell (then LL&E Petroleum Marketing) was issued Air Permits to convert their existing permits to general VOC storage for each tank. In order to offset the potential VOC emissions increase from this change, the throughput limitation for heavy naphtha was reduced and a product vapor pressure limit was established.

- On August 30, 1996, Air Permits were issued for the name change from LL&E Petroleum Marketing to Shell Chemical Company.

- On May 14, 1998, Shell was issued Air Permits to increase the crude oil throughput limitation for its tanks and marine loading dock. It was determined that the increase was allowable without triggering a new PSD review because the higher limitations could have been approved if requested during the 1990 PSD review.

- On December 30, 1999, Shell was issued revised Air Permits to correct the crude oil throughput limitation that was established in the Air Permits issued on May 14, 1998. There was a discrepancy between the increase Shell requested in the cover letter and the increase indicated on the ADEM Form 108. Erroneously, the Air Permits were processed based on the amount submitted on the application form. When Shell personnel noticed the discrepancy in the Air Permits that they received, they requested the correction.

Below are the current throughput limitations per product during any consecutive 12-month period:

Naphtha/Gasoline	151,200,000 gallons
Heavy Naphtha	80,000,000 gallons
Jet-A/Distillate	306,600,000 gallons
Crude Oil	1,533,000,000 gallons

MACT

National Emission Standards for Hazardous Air Pollutants (NESHAP) –Subpart Y

The marine loading dock is not an affected source under CFR Part 63, Subpart Y, National Emission Standards for Marine Tank Vessel Loading Operations [Adopted by reference in ADEM Admin. Code r. 335-3-11-.06(24)], or the General Provisions (40 CFR Part 63, Subpart A). An affected source under Subpart Y is defined as a source with individual HAP emissions of 10 tons or total HAP emissions of 25 tons, a new source with HAP emissions less than 10 and 25 tons, a new major source offshore loading terminal, a source with throughput of 10 Million (M) barrels of gasoline or 200 M barrels of crude oil, or the Valdez Marine Terminal (VMT) source, that is subject to the emissions standards in 40 CFR §63.562. Because Shell is considered an existing source, is not a major source of HAP, and has not loaded gasoline or crude oil in excess of 10 M or 200 M barrels, respectively, the marine loading dock does not meet the definition of an affected source.

NESHAP –Subpart ZZZZ

The stationary reciprocating internal combustion engines (RICE) at the facility are affected sources under 40 CFR Part 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (the RICE MACT). Under this Subpart, the 220 hp East Fire Pump is classified as a new emergency compression ignition (CI), diesel fuel injected RICE located at an area source. In accordance with 40 CFR §63.6590(c), a new stationary RICE located at an area source of HAP emissions must meet the requirements of the RICE MACT by meeting the requirements of 40 CFR Part 60, Subpart IIII. No further requirements apply to the fire pump engine under Subpart ZZZZ.

The 550 hp Dock Fire Pump is classified as an existing emergency CI, diesel fuel injected RICE located at an area source. In accordance with 40 CFR §63.6595(a)(1), Shell is subject to the requirements of 40 CFR Part 63, Subpart ZZZZ and Subpart A for this RICE.

According to 40 CFR §63.6603, an existing emergency stationary RICE located at an area source of HAP emissions must comply with the requirements in Table 2d to this subpart that apply.

According to Item 4 in Table 2d to Subpart ZZZZ, existing emergency CI RICE are subject to the following work practice requirements:

- Change oil and filter every 500 hours of operation or annually, whichever comes first; or participate in the oil analysis program as allowed by 40 CFR §63.6625(i);

- Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and

- Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

In accordance with 40 CFR §63.6640(f), this engine is limited to operating during:

- Emergency situations;

- Maintenance checks and readiness testing, not to exceed 100 hours per year; and

- Non-emergency situations, not to exceed 50 hours per year (those 50 hours are counted towards the 100 hours per year provided for maintenance and testing)

According to Tables 4 and 5 to Subpart ZZZZ, no initial or subsequent performance testing is required for this emergency engine. 40 CFR §63.6625(e) and Item 9 in Table 6 to Subpart ZZZZ, requires the facility operate and maintain the engine according to the manufacturer's written instructions or develop a maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions. 40 CFR §63.6625(f) requires the installation of a non-resettable hour meter if one is not already installed.

40 CFR §63.6655(f) requires Shell to keep records of the hours of operation of the engine that are recorded through the non-resettable hour meter. They must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation.

NSPS

New Source Performance Standards (NSPS) –Subpart Ka

Tank Nos. 901-904 and 906-907 are subject to 40 CFR Part 60, Subpart Ka, the Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and prior to July 23, 1984 [Adopted by reference in ADEM Admin. Code r. 335-3-10-.02(9)(a)]. Construction of these tanks commenced in 1980, after the May 18, 1978, applicability date for Subpart Ka. These tanks are external floating roof tanks. Each is equipped with a metallic shoe primary seal and rim-mounted secondary seal which complies with the applicable VOC emission standard [40 CFR §60.112a(a)] for tanks storing products with a true vapor pressure ≥ 1.5 psia, but ≤ 11.1 psia. 40 CFR §60.112a(a) also prescribes the acceptable accumulated area of gaps in the seals and the acceptable width of any individual gap in the seals.

NSPS –Subpart IIII

40 CFR Part 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE) [Adopted by reference in ADEM Admin. Code r. 335-3-10-.02(87)] applies to owners/operators of stationary CI ICE that commence construction after July 11, 2005, and are manufactured after April 1, 2006 [40 CFR §60.4200(a)(2)(ii)]. Since the 220 hp East Fire Pump engine was constructed/manufactured in 2011, it is subject to this Subpart. According to 40 CFR §60.4205(c) owners and operators of fire pump engines with a displacement of less than 30 liters per cylinder must comply with the emission standards in Table 4 to the Subpart. The Subpart also has fuel requirements for the sulfur content of the fuel (≤15 ppm) and the Cetane index (≥40) or aromatic content (≤35% by volume). The engine must be equipped with a non-resettable hour meter. The Subpart also limits the operation of the engine to emergency situations and 100 hours per year for maintenance checks and readiness testing.

Emission Limitations

In accordance with Table 4 to this Subpart, the fire pump engine must meet a NO_x + NMHC emission standard of 3.0 g/Hp-hr, a CO emission standard of 2.6 g/Hp-hr, and a PM emission standard of 0.15 g/Hp-hr. This engine is certified by the manufacturer to meet the NSPS standards. Shell must operate and maintain the engine in a manner that meets these emission standards over the entire life of the engine.

Compliance Requirements

To demonstrate compliance with the operational limitations, Shell purchased an engine certified to meet the emission standards. Shell must install and configure the engine according to the manufacturer's emission-related specifications. Shell is required to maintain records of the date, time, duration, and purpose of operation each time the engine is operated. To demonstrate compliance with the fuel limitations, Shell is required to maintain records of the sulfur content and either the Cetane index or aromatic content of the diesel fuel that is burned in the engine. All records shall be maintained in a form suitable for inspection and shall be retained for a period of two years from the date of generation.

Testing Requirements

There are no testing requirements for this fire pump engine because it is certified by the manufacturer.

Applicability: State Regulations

All of the tanks meet the applicability criteria of ADEM Admin. Code r. 335-3-6-.03, "Loading and Storage of VOC." However, the State emission standard is superseded by the emission standard of 40 CFR Part 60, Subpart Ka, in accordance with ADEM Admin. Code r. 335-3-10-.01(2) because the federal standard is more stringent.

The marine loading dock is not subject to ADEM Admin. Code r. 335-3-6-.03(3), "Loading and Storage of VOC," because this regulation only applies to loading VOC products into tank trucks and trailers.

All of the tanks are exempt from ADEM Admin. Code r. 335-3-6-.23, "Petroleum Liquid Storage in External Floating Roof Tanks," based on the exception for sources with potential VOC emissions <100 TPY [ADEM Admin. Code r. 335-3-6-.01(1)(b)]. The State applies this exception based on the potential emissions of each tank rather than facility-wide potential emissions. Regardless of this exception, the requirements of ADEM Admin. Code r. 335-3-6-.23 is superseded by 40 CFR Part 60, Subpart Ka for these tanks because the federal standard is more stringent.

Although the fire pump engines at this facility are fuel combustion sources, they are not subject to any particulate matter (as TSP) emission limitation of ADEM Admin. Code Chap. 335-3-4 or any sulfur dioxide (SO_2) emission limitation of ADEM Admin. Code Chap. 335-3-5 because they do not meet the definition of fuel burning equipment nor is this facility considered one of the process industries, general or specific. The engines are, however, subject to the visible emissions standards of ADEM Admin. Code r. 335-3-4-.01(1), which states that no air emission source may emit particulate of an opacity greater than 20% (as measured by a six-minute average) more than once during any 60-minute period and at no time shall emit particulate of an opacity greater than 40% (as measured by a six-minute average). The engines are expected to be able to comply with this standard because they are fired exclusively with diesel fuel.

Emission Testing and Monitoring

Tank Nos. 901-904 and 906-907

As specified in 40 CFR Part 60, Subpart Ka, §60.113a, an annual seal gap test is required for the secondary seal and a quinquennial[1] seal gap test is required for the primary seal. Shell is also required to notify the Air Division at least 30 days prior to conducting the required seal gap tests.

Shell has proposed to demonstrate compliance with the product throughput limitations for the tanks by determining the cumulative throughput for each product within 10 days of the end of each calendar month for the preceding 12-month period. In addition, Shell would be required to certify on a semiannual basis that no product that exceeded the vapor pressure limit was stored during the respective reporting period.

Marine Loading Dock

Shell has proposed to demonstrate compliance with the product throughput limitations for the marine loading dock by determining the cumulative throughput for each product within 10 days of the end of each calendar month for the preceding 12-month period. In addition, Shell is required to certify on a semiannual basis that 98% submerged fill was achieved while loading all products during the respective reporting period.

Recordkeeping and Reporting

40 CFR Part 60, Subpart Ka, §60.115a requires that Shell maintain a record of the type of petroleum liquid stored, the period of storage, and maximum true vapor pressure of that liquid during the respective storage period. 40 CFR Part 60, Subpart Ka, §60.113a also requires that

[1] Once every five years

records of seal gap measurements be maintained on site from the date of each measurement. In accordance with ADEM Admin. Code r. 335-3-16-.05(c)2.(ii) and General Proviso No. 20(b), Shell is required to maintain all of these records on site for a period of five years from the date of generation rather than the two year timeframe specified in Subpart Ka.

In addition, Shell is required to maintain records of product throughputs for the tanks and marine loading dock on a monthly and 12-month rolling total basis in a permanent form suitable for inspection. These records shall also be maintained for a period of five years from the date of generation of each record and be made available upon request.

40 CFR §60.113a requires that Shell submit a report to the Air Division within 60 days of the date of a measurement if a seal gap measurement exceeds a specification set forth in 40 CFR §60.112a. The report must identify the vessel and list each reason why the vessel did not meet the specifications of 40 CFR §60.112a. The report must also describe the actions necessary to bring the storage vessel into compliance with the specifications of 40 CFR §60.112a. Shell is also required to report any exceedance of the product throughput limitations within two working days of determining that an exceedance occurred.

Compliance Assurance Monitoring (CAM)

The marine loading dock is the only emission source at the facility that has the potential to emit greater than 100 TPY of any criteria pollutant. The marine loading dock is required to achieve 98% submerged fill in accordance with the 1990 BACT determination. Since the marine loading dock does not employ an active control device as defined in the CAM regulations, the facility is not subject to CAM requirements.

Public Notice

The renewal of this Title V MSOP would require a 30-day public comment period and a 45-day EPA review period.

Recommendation

Based on the above analysis, I recommend that Shell Chemical, L.P.'s Title V MSOP be renewed with the conditions noted above pending the resolution of any comments received during the 30-day public comment period and 45-day EPA review.

Andrea Sellers

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Date

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