STATEMENT OF BASIS

For the issuance of Draft Air Permit # 0868-AOP-R24 AFIN: 70-00016

1. PERMITTING AUTHORITY:

Division of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317

2. APPLICANT:

Lion Oil Company
1005 Robert E. Lee St.
El Dorado, Arkansas 71730

3. PERMIT WRITER:

Bart Patton

4. NAICS DESCRIPTION AND CODE:

NAICS Description: Petroleum Refineries
NAICS Code: 324110

5. ALL SUBMITTALS:

The following is a list of ALL permit applications included in this permit revision.

Date of Application	Type of Application (New, Renewal, Modification, Deminimis/Minor Mod, or Administrative Amendment)	Short Description of Any Changes That Would Be Considered New or Modified Emissions
8/5/2024	Minor Mod	Added SN-880 Diesel Railcar Loading Racks

6. REVIEWER'S NOTES:

This application was submitted as a minor modification to make the following change:

- Add SN-880 Diesel Railcar Loading Racks (diesel fuel loading added to existing loading racks that are also used for crude oil)

Because SN-880 added a small amount of Benzene, and the TLV of Benzene has decreased below 1 mg/m^3, a risk assessment was added to the modeling section of the Statement of Basis. The facility is already subject to NESHAP Subpart CC, related to Benzene emissions from refineries.

Annual permitted emission rates increased as follows: 3.6 tpy VOC.

7. COMPLIANCE STATUS:

The following summarizes the current compliance of the facility including active/pending enforcement actions and recent compliance activities and issues.

The facility was most recently inspected on February 28, 2024. Some areas of concern were noted. EPA and Arkansas DEQ have been pursuing a joint CAO against the facility for violations from previous years. It has not yet been determined whether the most recent areas of concern should be added to the joint CAO as part of the regular review process, or whether they should be handled outside of the federal case. This permit modification was not submitted to address any issues identified during that inspection.

8. PSD/GHG APPLICABILITY:

a) Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, etc.)? N

b) Is the facility categorized as a major source for PSD? Y
- *Single pollutant ≥ 100 tpy and on the list of 28 or single pollutant ≥ 250 tpy and not on list*

If yes for 8(b), explain why this permit modification is not PSD.

Emission increases do not exceed PSD SER levels for any pollutant that would cause a PSD analysis. The project is not associated with debottlenecking or an increase in throughput capacity of the overall system.

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
Tanks (permit has table)	VOC HAPs	NSPS Ka NSPS Kb NSPS UU MACT CC
SN-821		NSPS Db
SN-850 and 862		NSPS Dc
Facility		NSPS J
FCCU SN-809, SN-805N, 822, 823, 876	NOx, H_2S	NSPS Ja

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
Wastewater system		NSPS QQQ
Leaks		NSPS VV
		NSPS GGG
SN-864, 865, 870, 871		NSPS IIII
Benzene Waste Operations	Benzene	NESHAP Part 61 FF
Refinery MACT	HAPs	MACT CC
868 870 871 879	HAPs	MACT ZZZZ
867 879	Criteria	NSPS JJJJ

10. UNCONSTRUCTED SOURCES:

Unconstructed Source	Permit Approval Date	Extension Requested Date	Extension Approval Date	If Greater than 18 Months without Approval, List Reason for Continued Inclusion in Permit
N/A				

11. PERMIT SHIELD – TITLE V PERMITS ONLY:

Did the facility request a permit shield in this application? N – Existing one remains from previous permits.

12. COMPLIANCE ASSURANCE MONITORING (CAM) – TITLE V PERMITS ONLY:

List sources potentially subject to CAM because they use a control device to achieve compliance and have pre-control emissions of at least 100 percent of the major source level. List the pollutant of concern and a brief summary of the CAM plan (temperature monitoring, CEMs, opacity monitoring, etc.) and frequency requirements of § 64.

Source	Pollutant Controlled	Cite Exemption or CAM Plan Monitoring and Frequency
None		

13. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

14. AMBIENT AIR EVALUATIONS:

The following are results for ambient air evaluations or modeling.

a) NAAQS

A NAAQS evaluation is not required under the Arkansas State Implementation Plan, National Ambient Air Quality Standards, Infrastructure SIPs and NAAQS SIP per Ark. Code Ann. § 8-4-318, dated March 2017 and the DEQ Air Permit Screening Modeling Instructions.

b) Non-Criteria Pollutants:

1st Tier Screening (PAER)

Estimated hourly emissions from the following sources were compared to the Presumptively Acceptable Emission Rate (PAER) for each compound. The Division of Environmental Quality has deemed the PAER to be the product, in lb/hr, of 0.11 and the Threshold Limit Value (mg/m^3), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

Pollutant	TLV (mg/m^3)	PAER (lb/hr) = 0.11 × TLV	Proposed lb/hr	Pass?
Acrolein	0.229	0.02519	0.0578	No
Ammonia	174.13	1.915	36.766	No
Antimony	0.5	0.05	0.00127	Yes
Arsenic	0.01	0.0011	0.00198	No
Benzene	Evaluated under NESHAP Subpart CC (see below)			
Beryllium	0.00005	0.0000055	0.000556	No
Cadmium	0.002	0.00022	0.00351	No
Chromium	0.002	0.00022	0.008086	No
Cobalt	0.02	0.0022	0.000233	Yes
Formaldehyde	0.368	0.0405	0.7266	No
Lead	0.05	0.0055	0.0103	No
Manganese	0.02	0.0022	0.0136	No
Mercury	0.01	0.0011	0.000698	Yes
Nickel	1.5	0.165	0.0222	Yes

Pollutant	TLV (mg/m^3)	PAER (lb/hr) = 0.11 × TLV	Proposed lb/hr	Pass?
Sulfuric Acid	0.2	0.022	1.948	No
Xylenes	434.19	47.761	23.083	Yes

2nd Tier Screening (PAIL)

AERMOD air dispersion modeling was performed on the estimated hourly emissions from the following sources, in order to predict ambient concentrations beyond the property boundary. The Presumptively Acceptable Impact Level (PAIL) for each compound has been deemed by the Division of Environmental Quality to be one one-hundredth of the Threshold Limit Value as listed by the ACGIH.

Pollutant	PAIL ($\mu g/m^3$) = 1/100 of Threshold Limit Value	Modeled Concentration ($\mu g/m^3$)	Pass?
Acrolein	2.29	0.15308	Yes
Ammonia	174.13	12.14659	Yes
Arsenic	0.1	0.00122	Yes
Benzene	Evaluated under NESHAP Subpart CC (see below)		
Beryllium	0.0005	0.00036	Yes
Cadmium	0.02	0.00178	Yes
Chromium	0.02	0.00349	Yes
Formaldehyde	15*	1.57153	Yes
Lead	0.5	0.00674	Yes
Manganese	0.2	0.00923	Yes
Sulfuric Acid	2.0	1.26225	Yes

*ADEQ approved alternate PAIL

3rd Tier Screening (Alternative Risk Assessment: Benzene)

The facility is subject to NESHAP Subpart CC, also referred to as the Refinery MACT, or Refinery MACT 1. The subpart governs Benzene and other HAPs associated with petroleum refineries. For the purpose of the non-criteria pollutant air evaluation required by ADEQ Non-Criteria Pollutant Control Strategy (NCPCS, or the Strategy), the facility cited compliance with NESHAP Subpart CC as the basis of its risk assessment for Benzene at Permit #0868-AOP-R24.

The standard for Benzene used in NESHAP Subpart CC, an annual average calculated using monitoring samples taken every 14 days, is not easily comparable to the 24-hour average concentration and the TLV-TWA used in ADEQ's NCPCS. A discussion follows.

The subpart (especially 40 C.F.R. § 63.658) requires the permittee to collect data, to analyze it, and to address issues quickly. The facility must install passive fenceline monitors for Benzene, take samples every 14 days, evaluate these samples to determine Benzene impacts from the facility's affected source, and submit the results to the Administrator (U.S. EPA). As of 2024, the facility had 24 fenceline monitoring points and 2 years of monitoring data.

EPA posts this monitoring data on its website. The facility's monitoring data may be viewed by entering Delek El Dorado as the Refinery Name at the following address:

https://awsedap.epa.gov/public/extensions/Fenceline_Monitoring/Fenceline_Monitoring.html?sheet=MonitoringDashboard

The metric used in the subpart is ΔC, the facility impact on the Benzene concentration. To determine its ΔC for each 2-week period, the facility collects and evaluates Benzene concentrations from each of its monitors. The facility takes the highest and lowest Benzene concentrations and subtracts the lowest value (as a kind of proxy for a background ambient concentration at the fenceline) from the highest value, resulting in a bi-weekly ΔC. (The subpart also includes provisions for site-specific adjustments to the calculation based on offsite upwind sources or onsite sources excluded from the facility's impact, and provisions for requesting a site-specific monitoring plan from EPA.) The facility then calculates the annual average ΔC based on the average of the 26 most recent 14-day sampling periods and updates this annual average value after receiving the results of each subsequent 14-day sampling period.

The facility compares its ΔC_{annual} to an action level for Benzene of 9 $\mu g/m^3$ (micrograms per cubic meter) on an annual average basis, set in the subpart. If the facility's ΔC_{annual} is less than or equal to 9 $\mu g/m^3$, the concentration is below the action level. If the facility's ΔC_{annual} is greater than 9 $\mu g/m^3$, the concentration is above the action level, and the facility is required to conduct a root cause analysis and corrective action in accordance with the subpart within 5 days of determining that the action level has been exceeded. If the corrective action does not resolve the issue, the subpart includes provisions for the facility to submit a corrective action plan and schedule to the Administrator.

The Strategy uses ACGIH's TLV-TWA for Benzene, which was 0.02 ppm (63.9 $\mu g/m^3$) in 2024, and from that TLV, a PAIL (Presumptively Acceptable Impact Level) of 0.639 $\mu g/m^3$. The PAIL is usually compared to a concentration from an AERMOD dispersion model, either the highest 24-hour average over a 1-year period or the 2nd highest over a 5-year period, with the facility operating at its full potential to emit. The full potential to emit, including any limitations in the permit, is used in the model to obtain a conservative result. Past meteorological data, typically from an offsite airport, is used in the air dispersion model.

There are many differences between these two methods of analyzing the facility's environmental impact. The subpart was tailored for petroleum refineries. Whereas the Strategy uses modeling to consider concentrations on the fenceline and an area beyond it, EPA developed the subpart's method using AERMOD to address impacts everywhere, not just an area near fenceline. Whereas the subpart's method and the Strategy both use historical information (meteorology, terrain, monitoring) to guard against high concentrations in the future, the subpart's method is much more sensitive to changes in real-world conditions. The subpart's method also indirectly takes into account the real-world fluctuations in operating load and hours, whereas the AERMOD models typically used under the Strategy assume operation at maximum potential to emit based on physical limitations and permit conditions. Under the subpart, the facility has an ongoing incentive to follow good work practices to maintain its ΔC_{annual}, and the failure to do so represents a violation of federal, not state, regulations.

At Permit #0868-AOP-R24, ADEQ accepted the facility's risk assessment for Benzene based on the facility's ongoing compliance with NESHAP Subpart CC.

c) H_2S Modeling:

A.C.A. §8-3-103 requires hydrogen sulfide emissions to meet specific ambient standards. Many sources are exempt from this regulation, refer to the Arkansas Code for details.

Is the facility exempt from the H_2S Standards Y
If exempt, explain: Facility is subject to NSPS Subpart J and Subpart GGG [A.C.A. §8-3-103(d)(2)(ii)(a) and (d)]

15. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
803	PM, VOC AP-42 SO_2 Subpart J H_2S Limit CO NOx Vendor Data	lb/MMBtu PM/PM_{10}: 0.0075 SO_2: 0.0337 VOC: 0.0054 CO: 0.0495 NO_X: 0.0350 Total HAP: 0.00265	none		
804	PM, VOC AP-42 SO_2 Subpart J H_2S Limit CO NOx BACT	lb/MMBtu PM/PM_{10}: 0.0075 SO_2: 0.0337 VOC: 0.0054 CO: 0.0400 NO_X: 0.0450 Total HAP: 0.00265			
805	PM, VOC AP-42 SO_2 Subpart J H_2S Limit CO NOx Vendor Data	lb/MMBtu PM/PM_{10}: 0.0075 SO_2: 0.0337 VOC: 0.0054 CO: 0.0625 NO_X: 0.0350 Total HAP: 0.00265			
805N	PM, VOC AP-42 SO_2 Subpart J H_2S Limit CO NOx BACT	lb/MMBtu PM/PM_{10}: 0.0075 SO_2: 0.0337 VOC: 0.0054 CO: 0.0400 NO_X: 0.0350 Total HAP: 0.00265			

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
806	PM, VOC, CO, NOx AP-42 SO_2 NSPS Limit	lb/MMBtu PM/PM_{10}: 0.0075 SO_2: 0.0337 VOC: 0.0054 CO: 0.0824 NO_X: 0.140 Total HAP: 0.00265			
808	PM, VOC, CO AP-42 SO_2 Subpart J H_2S Limit NOx Vendor Data	lb/MMBtu PM/PM_{10}: 0.0075 SO_2: 0.036 VOC: 0.0054 CO: 0.0824 NO_X: 0.0350 Total HAP: 0.00265			
809	PM, VOC, CO consent Decree limit VOC NOx AP-42	See table in application			
810 811 812 813a 814	PM, VOC, CO, NOx AP-42 SO_2 NSPS Limit	lb/MMBtu PM/PM_{10}: 0.0075 SO_2: 0.0336 VOC: 0.0054 CO: 0.0824 NO_X: 0.140 Total HAP: 0.00265			

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
821a,b,c	PM VOC Ap-42 NO_x SO_2 NSPS Limits CO MACT Limit	lb/MMBtu PM/PM_{10}: 0.0117 SO_2: 0.0336 VOC: 0.0147 CO: 0.7126 NO_X: 0.0300 Total HAP: 0.00326			
821d	AP-42 Section 1.4	lb/MMscf VOC: 5.5 SO_2: 0.6 PM/PM_{10}: 7.6 NO_X: 50 CO: 84 Total HAP: 1.89			99.9 MMBtu/hr natural gas Temporary boiler
822 823 876	VOC 99.5% destruction SO_2 NSPS Limit PM CO NOx AP-42 H_2S and NH_3 CARB refinery factors	lb/MMcf VOC: 93.7 SO_2: 26.9 PM/PM_{10}: 11.0 NO_X: 68.0 CO: 370 NH_3: 3.33 H_2S: 1.9	Flare	99.5% VOC	
828 829 830 832 842 850	PM, VOC, CO, NOx AP-42 SO_2 NSPS Limit	lb/MMBtu PM/PM_{10}: 0.0075 SO_2: 0.0336 VOC: 0.0054 CO: 0.0824 NO_X: 0.140 Total HAP: 0.00265			

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
831	Manufacturer vendor data	lb/hr PM/PM_{10}: 2.0 SO_2: 2.0 VOC: 2.0 CO: 2.6 NO_X: 2.0			
841A	PM SO_2 VOC AP-42 CO NOx Vendor Information	g/hp-hr CO: 3 NO_X: 2 lb/MMBtu PM/PM_{10}: 0.0384 SO_2: 0.000588 VOC: 0.12 Total HAP: 0.0744			
844	PM Stack test SO_2 NSPS limits VOC CO NOx vendor data	lb/hr PM/PM_{10}: 12 SO_2: 19.10 VOC: 1.5 CO: 8.1 NO_X: 6 lb/ton Carbonyl Sulfide: 0.12 Carbon Disulfide: 0.04			
846	MACT Limit	VOC: 3.505 lb/10^3 bbl Total HAP: 5.84 wt %			
847 847A 873	AP-42	lb/hr VOC: 647.2 Total HAP: 33.09			

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
849	AP-42	lb/hp-hr PM/PM_{10}: 0.0022 SO_2: 0.0019 VOC: 0.0025 CO: 0.01874 NO_X: 0.031 Total HAP: 2.77E-05			
851A	AP-42	VOC/HAP: 0.0195 lb/10^3 gal			
853, 853a, 853b, 859	AP-42, Table 5.1-3, petro refinery cooling tower, uncontrolled	6.0 lb VOC/ MMgal water (without controls) The facility chose to use the uncontrolled factor and apply their own estimated control efficiency based on having some control measures in place. The results (3.0 and 2.4 lb/MMgal) are still much higher than AP-42's factor for controlled emissions, 0.7.	Work practices (Minimization of leaks)	60% (CT #5 only) 50% (all other CTs)	Max flow in 10^3 gpm: CT #3: 19. CT #5: 25.2. CT #6,7: 12 each. CT #8: 20. CT #17: 1.05. CT #3 VOC = 19,000 gal/min x 60 min/hr x 1 MMgal/10^6 gal x (1 - 50%) x 6.0 lb VOC/ MMgal) = 3.42 lb VOC/hr. 3.42 lb/hr x 8,784 hr/yr x 1 ton/2,000 lb = 15.03 tpy. 8,784 max hr/yr (8,760 + 24 in case of leap years).

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
853, 853a, 853b, 859	TDS Testing	PM/PM_{10}: 1500 mg/L (annual CT #5 only) = 12.517 lb/Mgal (10^3 gal) 3000 mg/L (all other CT) = 25.034 lb/Mgal (10^3 gal) CT #5 tests showed lower average TDS long-term but it is calculated at the higher rate for short-term (hourly) emissions to be conservative	None	N/A	Windage Loss/Drift %: CT#3: 0.001%. CT#17: 0.02%. All other CT: 0.008%. PM/PM_{10} = Flow x drift% x TDS conc. CT #3 PM_{10} = (19,000 gal/min x 60 min/hr x 1 Mgal/10^3 gal) x 0.001% x (25.04 lb PM_{10}/ Mgal) = 0.2855 lb PM_{10}/hr. 0.2855 lb/hr x 8,784 hr/yr x 1 ton/2,000 lb = 1.254 tpy. 453.6 g/lb. 3.785 L/gal. 8,784 max hr/yr (8,760 + 24 in case of leap years).
851	Leak estimation	See table in application			
856	AP-42 TANKS	<u>lb/hr</u> PM/PM_{10}: 16.40 VOC: 5728.20 CO: 123.60 Ammonia: 3.30			

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
857 860 861 862	PM, VOC, CO, AP-42 SO_2 NSPS Limit NOx Vendor Guarantee	lb/MMBtu PM/PM_{10}: 0.0117 SO_2: 0.0337 VOC: 0.0147 CO: 0.0824 NO_X: 0.0350 Total HAP: 0.00265			
864 865 866 867 868 DS-028 879	AP-42 Or NSPS limits.	lb/hp-hr PM/PM_{10}: 0.00028 SO_2: 0.00205 VOC: 0.00609 CO: 0.00214 NO_X: 0.00609 Total HAP: 2.78E-05			
874	AP-42 11.17.4	2.2 lb/ton	none		
876	Uncontrolled: AP-42 Section 5.2 Controlled: 5x MACT CC statement of 20ppm	Equation 100ppm	None Yes unspecified		

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
878	AP-42 Tables 1.4-2, 1.4-3, 1.4-4, and 1.5-1 Worst-case mass balance	Off-Gas Combustion (lb/MMcf) PM/PM_{10}: 7.6 SO: 4617 VOC: 5.5 CO: 84 NO_X: 190 Lead: 0.0005 HAPs: 1.894 Propane Combustion PM/PM_{10}: 0.7 lb/10^3 gal SO: 0.015 lb/10^3 gal VOC: 1.0 lb/10^3 gal CO: 7.5 lb/10^3 gal NO_X: 13.0 lb/10^3 gal Lead: 4.90E-07 lb/MMBtu HAPs: 0.00185 lb/MMBtu	Up to 5 TOs in operation		0.0066 MMscf/hr and 2.50 MMscf/yr off-gas volume
880	AP-42, Chapter 7.1, Eqn 1-25 and Table 7.1-2	$P_{True\ Vapor}$ of diesel at 100 °F 0.0222735 psia			100°F (560 R) conservatively used as avg daily liquid surface temp, T_{LA}. From Table 7.1-2, A=12.101, B = 8907 R, MW_{Vapor} = 130 lb/lb-mol. PTV = exp [A-(B/T_{LA})] = exp(12.101-15.905357) = 0.0222735 psia.

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
880	AP-42, Chap 5.2, Eqn 1 Table 5.2-1 See $P_{True\ Vapor}$ calculation above AP-42, Table 7.1-2, No. 2 Fuel Oil	Loading Loss L_L (lb VOC / 10^3 gal loaded) 0.03866 Saturation S 0.6, submerged loading, normal service, truck or railcar $P_{True\ Vapor}$ 0.0222735 psia (see above) Mol wt of Vapor 130 lb/lb-mol for diesel			Hourly/annual throughput x LL = VOC lost per hr or year. $L_L = 12.46 \times SP_{TV}M_V/T$. LL = (12.46 x 0.6 x 0.222735 x 130) / 560 = 21.65/560 = 0.3866 lb/10^3 gal loaded. 4,380,000 bbl/yr x 42 gal/bbl x 10^3gal/ 1,000 gal x 0.03866 lb VOC/10^3 gal x 1 ton/2,000 lb = 3.56 tpy VOC. 6,000 bbl loaded/hr max, 9.741 lb VOC/hr.
880	Spec data	1.4151% Total HAP by wt including 0.0008% Benzene by wt			9.741 lb VOC/hr x 1.4151% = 0.138 lb HAP/hr. 3.56 tpy VOC x 1.4151% = 0.0504 tpy HAP.

16. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
804, 805N	CO NOx	10, 7E	5 years	BACT compliance demonstration
809	PM	5 or 5B	Annual	NSPS
809	PM_{10} filterable and condensable	5B and 202	5 years	
841A	CO NOx	10, 7E	5 years	
844	H_2S	15	One Time	Facility current permit has 360 tons of H_2S. The application did not include any H_2S emissions. This is the most likely source to emit H_2S. Test to verify no H_2S emissions.
846	Vapor System	Method 21	One Time	MACT requirement

17. MONITORING OR CEMS:

The permittee must monitor the following parameters with CEMS or other monitoring equipment (temperature, pressure differential, etc.)

SN	Parameter or Pollutant to be Monitored	Method (CEM, Pressure Gauge, etc.)	Frequency	Report (Y/N)
803, 805, 808, 810, and 842	O_2	CPMS	Continuous	Y
811, 804	NO_x	CEMs	Continuous	Y
809	NO_x SO_2 CO	CEMs	Continuous	Y
809	hourly average pressure drop, liquid feed rate, and exhaust gas flow rate	CPMS	Continuous	Y
809	of CO_2, O_2, (dry basis), and if needed, CO	CEMs	Continuous	Y
844	SO_2		Continuous	Y
821a, 821b, 821c	CO NO_x		Continuous	Y
854 858f	Leaks		Monthly	Y
Refinery gas	SO_2 or H_2S	CEMs	Continuous	Y
UUU requirements	CO and SO_2	CEMs	Continuous	Y
846	Organics	CMS	Continuous	Y

18. RECORDKEEPING REQUIREMENTS:

The following are items (such as throughput, fuel usage, VOC content, etc.) that must be tracked and recorded.

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
803, 804, 805, 805N, 806, 808, 810, 811, 812, 813a, 814 830, 842 850, 857 860, 861	Annual BTU	See Condition FHR 3	Monthly	Yes
850 and 862	Fuel Combusted	No limit Dc record	Monthly	Yes

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
809	Coke burn off rate	11,700-15,000 lb coke burn-off per hour (FCCU 11)	Monthly	Yes
809	Compressor hp hrs	1,560,000 horsepower-hours on an annual basis	Monthly	Yes
821	MMBTU total	5,314,320 MMBtu	Monthly	Yes
821	Fuel Oil Combusted and sulfur content	No limit	Monthly	Yes
822 823	Gas flared	6 MM scf/day and a total limit of 486 MM scf per consecutive twelve months	Daily and Monthly	Yes
841A	ZZZZ Records	No limit	Per Event	Yes
846	Gasoline/diesel	12,775,000 bbl per 12 mo	Monthly	Yes
847	VOC Emissions	647.2 lb/hr 282.9 tpy	Monthly	Yes
849	Hours	1900 per 12 mo	Monthly	Yes
849	Sulfur content	0.5%	For each fuel	Yes
851a	Wastewater processed	1,064.6 MM gal	Monthly	Yes
851a	NSPS Subpart QQQ	No limit see condition WW5	As required	Yes
853	Billion gallons of water circulated in Cooling Towers per 12 mo	Total: 47.04	Monthly	Yes
854 and 854f	Component Inventory	No limit	Annual	Yes
854 and 854f	NSPS GGG Records	No limit see condition LEAK 4	As required	Yes
854 and 854f	NSPS VV Records	No limit see condition LEAK 5	As required	Yes
856 tanks and facility	Crude feed rate	100,000 bbl/day 36.6 MM bbls per 12 mo	Monthly	Yes

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
856	Ka records	No limit See Condition TANK 7	Monthly	Yes
856	Kb records	No limit	As required	Yes
856-FRAC	When done, what loaded, vapor pressure, control efficiency, emissions	Permit Emission Limits. Size Limits/vapor pressure limits	As required	Yes
869	MACT EEEE Records	No limits	As required	Yes
Benzene Waste Operations	40 CFR 61 Subpart FF Records	No limits	As required	Yes
MACT CC sources	MACT CC Records	No limits	As required	Yes
Subpart J sources	NSPS J records	No limits	As required	Yes
MACT UUU sources	MACT UUU Records	No limits	As required	Yes
Engines (867, 868, 870, 871, 879)	Hours and MACT/NSPS Records	500 hrs/calendar year	Monthly	Yes
873	Material Loaded	500,000 light liq. 1,000,000 heavy/12 mo	Monthly	Yes
874	Catalyst Loaded	1,400,000 lbs/12 mo	Monthly	Yes
877	Cleaning Events	1,040/12 mo	Monthly	No
878	Number of TOs, amount of fuel and off-gas combusted, sulfur content of off-gas, and total emissions	Specific Conditions TO 5 and TO 6	Monthly	Yes
Facility	Total HAP emissions	391.3 lb/hr 1062.7 tpy	Annually	No

19. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
803 804 805 805N 806 808 810 811 812 813a 814 821d 832 841A	5%	Department Guidance	NSPS J or Ja gas combustion only
809	20%	Department Guidance	NSPS Ja and proper scrubber operation
821a,b,c	5% gas 20% fuel oil	Department Guidance	J Ja or pipeline gas Daily observation
822 and 823 876	No visible except 60% not to exceed 5 min in any 2 hours	NSPS Requirement	Operate flare in accordance with NSPS
831	20%	Department Guidance	NSPS J gas only
844	20%	Department Guidance	Pipeline gas only
849	20%	Department Guidance	N/A
856	0%	NSPS Subpart UU	See Condition TANK 11
878	20%	Department Guidance	Weekly Observations
867, 868, and 879	5%	Department Guidance	Propane and Natural Gas Combustion only

20. DELETED CONDITIONS:

Former SC	Justification for removal
None	

21. GROUP A INSIGNIFICANT ACTIVITIES:

The following is a list of Insignificant Activities including revisions by this permit.

Source Name	Group A Category	Emissions (tpy)						
		PM/PM_{10}	SO_2	VOC	CO	NO_x	HAPs	
							Single	Total
Portable Maintenance Heaters (Up to 200 each fuel type)	A-1	3.24	0.86	0.63	4.64	9.24		0.63
Up to 250 A-2 Tanks	A-2			<5.0				<5.0
Up to 18 A-3 Tanks	A-3			4.48				
(3) Waste Oil Tanks	A-3			0.48				
Equipment Coating	A-13			0.09				
TAR Fugitive Road Dust	A-13	0.16						
Acid Fume Scrubber	A-13	0.01						
Lime Silo Baghouse	A-13	0.12						
Asphalt Protective Coating Baghouse	A-13	0.01						

22. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

The following is a list of all active permits voided/superseded/subsumed by the issuance of this permit.

Permit #
0868-AOP-R23

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 03-11-16

Facility Name: Lion Oil Company
Permit Number: 0868-AOP-R24
AFIN: 70-00016

$/ton factor	28.14	Annual Chargeable Emissions (tpy)	5758
Permit Type	Minor Mod	Permit Fee $	500

Minor Modification Fee $	500
Minimum Modification Fee $	1000
Renewal with Minor Modification $	500
Check if Facility Holds an Active Minor Source or Minor Source General Permit	☐
If Hold Active Permit, Amt of Last Annual Air Permit Invoice $	0
Total Permit Fee Chargeable Emissions (tpy)	0
Initial Title V Permit Fee Chargeable Emissions (tpy)	

HAPs not included in VOC or PM: *Chlorine, Hydrazine, HCl, HF, Methyl Chloroform, Methylene Chloride, Phosphine, Tetrachloroethylene, Titanium Tetrachloride*

Air Contaminants: *All air contaminants are chargeable unless they are included in other totals (e.g., H2SO4 in condensible PM, H2S in TRS, etc.)*

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
PM		256.1	256.1	0		
PM_{10}		256.1	256.1	0	0	256.1
$PM_{2.5}$		0	0	0		
SO_2		445.5	445.5	0	0	445.5
VOC		6578.5	6582.1	3.6	0	4000
CO		936.3	936.3	0		
NO_X		634.6	634.6	0	0	634.6
Lead	☐	0.0376702	0.0376702	0		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
Total HAPs	☐	1062.7	1062.7	0		
Ammonia	☑	64.3	64.3	0	0	64.3
H2S	☑	357.5	357.5	0	0	357.5