



DES
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AND SUSTAINABILITY



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PART 70
TECHNICAL SUPPORT DOCUMENT
(STATEMENT of BASIS)

APPLICATION FOR:

Renewal of Part 70 Operating Permit

SUBMITTED BY:
Calnev Pipe Line LLC
Source ID: 00013

LOCATION:
5049 North Sloan Lane
Las Vegas, Nevada, 89115

SIC code 4226, "Special Warehousing and Storage, Not Elsewhere Classified"
NAICS code 493190, "Other Warehousing and Storage"

Application Received: November 16, 2021

TSD Date: January 29, 2024

EXECUTIVE SUMMARY

Calnev Pipe Line LLC is a bulk fuel storage and transfer operation located in Hydrographic Area 212, which is currently designated as an attainment area for all regulated air pollutants except ozone, which was classified as a moderate nonattainment area on January 5, 2023. The source is a Categorical Stationary Source, as defined by AQR 12.2.2(j)(23): petroleum storage and transfer units with total storage capacity exceeding 300,000 barrels. The source is a major source for volatile organic compound (VOC) pollutants and a minor source for all other criteria pollutants and HAP. The source consists of petroleum storage tanks, vapor holding tank, loading lanes, diesel-powered air compressor, diesel-powered fire water engine, cooling tower, wastewater treatment system, and haul roads. The source falls under SIC Code 4226: Special Warehousing and Storage, Not Elsewhere Classified and NAICS Code 493190: Other Warehousing and Storage.

Fuels are delivered to the site by two underground pipelines originating in southern California. Incoming fuels are diverted to storage tanks. From these storage vessels fuels are piped to other terminals or loaded onto delivery trucks. As the trucks are filled, specialized additives are injected according to customer’s specifications.

The following table summarizes the source’s potential to emit (PTE) each regulated air pollutant from all emission units addressed by this Part 70 Operating Permit.

Table 1: Source-wide Potential to Emit

Pollutant	PM₁₀	PM_{2.5}	NO_x	CO	SO₂	VOC	HAPs¹	Pb	H₂S	GHG²
Tons/year	8.40	1.42	3.26	2.55	0.18	188.00	9.30	0	0	11,440.88
Major Source Thresholds (Categorical)	100	100	100	100	100	100	10/25 ¹			100,000

¹ A major source is defined as 10 tons for any individual HAP or 25 tons for combination of all HAPs.

² Metric tons per year of carbon dioxide equivalent. GHG = greenhouse gas pollutants.

This Technical Support Document (TSD) accompanies the proposed Part 70 Operating Permit for Calnev Pipe Line LLC.

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ACRONYMS AND ABBREVIATIONS

(These terms may be seen in the technical support document)

AOS	alternate operating scenario
AQR	Clark County Air Quality Regulations
AST	aboveground storage tank
ATC	Authority to Construct
CAAA	Clean Air Act, as amended, or Clean Air Act Amendments
CE	control efficiency
CEMS	continuous emissions monitoring system
CF	control factor
CFR	United States Code of Federal Regulations
CO	carbon monoxide
DAQ	Division of Air Quality
DES	Department of Environment and Sustainability
EF	emission factor
EPA	United States Environmental Protection Agency
EU	emission unit
FAR	final action report
GDO	gasoline dispensing operation
GHG	greenhouse gas
HAP	hazardous air pollutant
HP	horsepower
H ₂ S	hydrogen sulfide
MMBtu	Millions of British Thermal Units
NEI	net emission increase
NESHAP	National Emission Standards for Hazardous Air Pollutants
NMHC	non-methane hydrocarbons
NO _x	nitrogen oxides
NOV	Notice of Violation
NRS	Nevada Revised Statutes
NSPS	New Source Performance Standards
NSR	New Source Review
OP	Operating Permit
PM ₁₀	particulate matter less than 10 microns
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTE	potential to emit
RATA	Relative Accuracy Test Audit
RMP	risk management plan
scf	standard cubic feet
SDS	safety data sheets
SIP	State Implementation Plan
SO ₂	sulfur dioxide
TDS	total dissolved solids
TSD	Technical Support Document
TSP	total suspended particulates
VOC	volatile organic compound
VOL	volatile organic liquid

SOURCE INFORMATION

General

Permittee: Calnev Pipe Line LLC
 Responsible Official: John Pannell, Vice President of Operations
 Phone Number: (713) 420-4945

Description of Process

Kinder Morgan's subsidiary Calnev Pipe Line, LLC (Calnev) owns and operates a petroleum products distribution terminal facility at 5049 North Sloan Lane in Las Vegas, Nevada. Las Vegas Terminal (LVT) operations include receiving petroleum fuel products via pipeline or truck and transferring gasoline, diesel, and biodiesel from storage tanks into trucks via loading racks.

Permitting History

Table 1. Actions Since the Last Renewal

Issued Date	Description
11/18/2021	Part 70 ATC — 124.3.2(b)
6/25/2019	Part 70 ATC — 12.4.3.2(b)
6/1/2017	Title V OP — Renewal

ATC = Authority to Construct Permit.

Current Permitting Action

Calnev submitted the applications, shown in Table 2, to the Clark County Department of Environment & Sustainability, Division of Air Quality (DAQ). Emissions of air pollutants from the LVT are regulated under the jurisdiction of DAQ, and the facility operates under a DAQ-issued Part 70 Operating Permit.

Table 2. Application Submittals Included in this Action

Submittal Date	Application Type	Description
6/17/2021	Part 70 ATC – 12.4.3.2(b)	Adding butane blending process
11/16/2021	Title V OP - Renewal	Renewal, adding butane blending tank, minor edits
2/23/2022	Part 70 ATC – Administrative Revision	Include inspection and maintenance under 40 CFR Part 63, Subpart WW
2/23/2022	Part 70 OP – Administrative Revision	Include inspection and maintenance under 40 CFR Part 63, Subpart WW
1/30/2023	Part 70 OP – Minor Revision	Incorporate a Risk Management Plan

On November 16, 2021, the permittee applied to renew their Part 70 Operating Permit (OP) with revisions according to Section 12.5.2.1(a)(2) of the Clark County Air Quality Regulations (AQRs). Four additional applications were submitted proposing minor changes to the permit: adding butane blending equipment; incorporating 40 CFR Part 63, Subpart WW, maintenance requirements to

storage tanks subject to 40 CFR Part 60, Subpart Kb, and or 40 CFR Part 63, Subpart BBBB; and adding a Risk Management Plan pursuant to 40 CFR Part 68. This renewal incorporates all the actions denoted in Table 2.

The Part 70 ATC and OP administrative revisions dated February 23, 2022, are not being issued as a separate documents, but are incorporated into the Part 70 OP renewal along with the other actions. Under AQR 12.5.2.13(a)(3), administrative permit revisions are allowed for permit revisions that require increased monitoring or reporting by the permittee.

Also, Calnev submitted two prior notifications that addressed temporary alternative operating scenarios with no impact on emissions. These prior notices are not included with this renewal because they were temporary.

Calnev also requested that the diesel-powered fire water pump be renamed to “diesel-powered fire water engine (EU: D02).” This engine consists of two parts: the engine and the pump. The engine can be started without powering the pump and the pump can be replaced without affecting the engine. Therefore, the pump is not a source of emissions.

Additionally, the emissions for the haul roads (EU: E01) were recalculated to incorporate the service roads, which were formerly insignificant activities. This is a methodology change; therefore, those emissions will not be considered during the significance evaluation or for billing. The calculations are included as an attachment.

On January 10 2024, the permittee sent an email asking to include Subpart 68.215(a)(2)(i) and (ii) to the permit to mirror the federal language entirely. This request was made during the EPA public notice period and will be addressed in the permit and added as a comment in the final action report (FAR).

On January 17, 2024, the permittee sent an email notifying DES that the analytical laboratory that usually performs their testing has closed indefinitely. A new analytical laboratory was identified. However, this lab operates equipment that performs EPA Methods TO-3 and TO-15 that are commensurate with the EPA methods that the previous lab conducted. This request was made during the EPA public notice period and will be switched in the permit and added as a comment in the FAR.

Risk Management Plan

A Risk Management Plan was provided to DAQ per 40 CFR Part 68. The plan is not being incorporated into the permit, but was submitted with the application and will remain on file for reference.

Butane Blending

The application for the butane blending process was submitted prior to the AQR 12.4 rule update on July 20, 2021. The action is being added to the OP renewal because it was allowed under then-current AQR 12.4.3.2(b), minor revision of the OP. The butane blending process entails injecting butane into gasoline during the winter months (blending season: September 16–April 30) to acclimate the vapor pressure of the gasoline. The permittee is proposing to add the following: a bulk butane storage tank, a small sample recovery tank (EU: H18), a minor increase in vehicular

traffic, and associated piping and appurtenances for the process. The emission potential increase is attributed to the fugitives from valves and fittings, working and breathing losses from the sampling tank, and the haul road. The 90,000-gallon butane tank is a pressurized horizontal tank with a design internal pressure of 250 psi and a vacuum rating of 15 psi. The tank will be an insignificant activity because it is exempted under 40 CFR Part 60.110b(d)(2), since it is a pressurized tank that does not emit to the atmosphere under normal operation. The annual throughput being requested is 7,400,000 gallons.

The liquid butane will be pumped to a blending skid for direct injection into regular and premium unleaded gasoline lines that feed the site gasoline truck-loading rack. The blending skid controls the injected quantity. A Ruhrpumpen 1150VLG-HX 4-stage hydraulic pump equipped with a 1-hp electric engine pressurizes the butane prior to its injection into the gasoline.

The process also includes a double-walled sample recovery tank (EU: H18) that stores the analyzed samples of the pre-butane blended gasoline. The permittee is requesting a 13,000-gal/yr limit. This tank will thus be included as an emission unit. Table 3 shows the PTE for the blending process.

Table 3. PTE of Blending Process and Emissions Increase (tons per year)

	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC	Pb	H ₂ S	HAP
EU: H18	0	0	0	0	0	0.34	0	0	0.03
Emissions Increase	0	0	0	0	0	0.34	0	0	0.03
Minor NSR Significance Thresholds	7.5	7.5	20	35	40	20	0.6	5	N/A
RACT Required	No	No	No	No	No	No	No	No	N/A

Lastly, the piping and fittings (EU: B06) number associated with the proposed butane sampling process required updating. The permittee is requesting to revise the VOC and HAP totals for EU: B06. The components in light liquid service for post construction of the butane blending process were tallied.

The HAP values are derivatives of the butane blending application using the maximum hexane concentration. While the HAP emissions for gasoline and ethanol were determined using the weight percentages for gasoline.

The recount of the VOCs and HAP totals are less than what was originally provided in Table 4 of Appendix B in the application submitted on June 17, 2021. A breakdown of the values is in the attachments for reference.

Rule Applicability Revisited

Previously, rule applicability for 40 CFR Part 60, Subparts K, Ka, and Kb, was determined based on the application date of the units, but was revisited during this action and the units were properly placed according to corresponding rule and installation date, which created the need to address the missing conditions pertaining to 40 CFR 63, Subpart BBBBBB. Once the storage tanks were identified properly, using the installation date and the storage capacity, several EUs fell out of applicability under the Subpart K series of 40 CFR Part 60.

40 CFR Part 63, Subpart BBBBBB, is a National Emission Standard for HAPs (NESHAPs) that applies to area source gasoline distribution bulk terminals, bulk plants, and pipeline facilities, and its control requirements are applicable to gasoline storage tanks at the site. Several conditions were therefore added to this permit to reflect Subpart BBBBBB requirements.

Sources with emission units subject to the requirement of 40 CFR Part 60, Subpart Kb, and/or 40 CFR Part 63, Subpart BBBBBB, have the option of complying with portions of 40 CFR Part 63, Subpart WW. In addition to the format, the permit was updated to reflect which units meet the requirements of 40 CFR Part 60, Subpart Kb, and/or 40 CFR Part 63, Subpart BBBBBB, since those are the units eligible to exercise the option to comply with Subpart WW (EUs: A01–A13, A16, A17, A21, A28, A29, A45–A48, A58–A61, B04, and B05). The attachments contain a list of the identified units.

As a result of this update, the storage tanks may be operated and maintained under the worst case to the extent that the applicable requirement (AR) to which the units are now subject will allow. Depending on fuel type, not all EUs are required to comply with the conditions of the ARs, but the tanks were included in the relevant conditions for flexibility and convenience.

NAICS code Update

Based on the source’s understanding of the NAICS and SIC codes, 493190 and 4226 most appropriately described the Las Vegas Terminal (LVT). The LVT does not own the fuel stored in the tanks as would a wholesale distributor. Wholesale distributors buy products from manufacturers or suppliers in large quantities and sell them at wholesale prices to customers. The tanks serve as storage for their customers, who then have carriers load the fuel onto tanks for distribution to gas stations and other fueling operations.

Table 4 lists the emission units and insignificant activity lists at LVT.

Table 4. Emission Units List

EU	Source ID No.	Rating	Description	Product Stored	Optional Stored Products ¹	SCC
Bulk Petroleum Storage Tanks						
A01	Tank 530	11,200 bbl	External Floating Roof AST w/Primary and Secondary Seal	Diesel	Gasoline, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40400130
A02	Tank 531	12,890 bbl	External Floating Roof AST w/Primary and Secondary Seal	Diesel	Gasoline, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40400130
A03	Tank 532	8,080 bbl	External Floating Roof AST w/Primary and Secondary Seal	Gasoline	Diesel, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40400130
A04	Tank 533	11,330 bbl	External Floating Roof AST w/Primary and Secondary Seal	Gasoline	Diesel, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40400130
A05	Tank 534	8,080 bbl	External Floating Roof AST w/Primary and Secondary Seal	Transmix	Gasoline, Diesel, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40400130
A06	Tank 535	8,080 bbl	External Floating Roof AST w/Primary and Secondary Seal	Gasoline	Diesel, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40400130

EU	Source ID No.	Rating	Description	Product Stored	Optional Stored Products ¹	SCC
A07	Tank 536	17,550 bbl	External Floating Roof AST w/Primary and Secondary Seal	Gasoline	Diesel, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40400130
A08	Tank 537	22,250 bbl	External Floating Roof AST w/Primary and Secondary Seal	Gasoline	Diesel, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40400130
A09	Tank 538	11,330 bbl	External Floating Roof AST w/Primary and Secondary Seal	Gasoline	Diesel, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40400130
A10	Tank 539	11,330 bbl	External Floating Roof AST w/Primary and Secondary Seal	Gasoline	Diesel, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40400130
A11	Tank 540	16,320 bbl	Internal Floating Roof AST w/Primary and Secondary Seal	Denatured Ethanol	Gasoline, Diesel, Biodiesel, Transmix, Aviation Gasoline and Jet Fuel	40400170
A12	Tank 541	25,100 bbl	Domed External Floating Roof AST w/Primary and Secondary Seal	Biodiesel	Gasoline, Diesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40400130
A13	Tank 524	18,000 bbl	Internal Floating Roof AST w/Primary and Secondary Seal	Denatured Ethanol	Gasoline, Diesel, Biodiesel, Transmix, Aviation Gasoline and Jet Fuel	40400170
A14	Tank 542	45,000 bbl	Internal Floating Roof AST w/Primary Seal	Diesel	Biodiesel	40400160
A15	Tank 543	35,000 bbl	Internal Floating Roof AST w/Primary Seal	Diesel	Biodiesel	40400160
A16	Tank 545	37,000 bbl	Internal Floating Roof AST w/Primary and Secondary Seal	Gasoline	Diesel, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40400170
A17	Tank 546	4,000 bbl	Internal Floating Roof AST w/Primary and Secondary Seal	Gasoline	Diesel, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40400170
A18	Tank 522	50,000 bbl	Internal Floating Roof AST w/Primary and Secondary Seal	Denatured Ethanol		40400170
A19	Tank 525	50,000 bbl	Fixed Roof AST	Diesel	Biodiesel	40400121
A20	Tank 526	50,000 bbl	Fixed Roof AST	Diesel	Biodiesel	40400121
A21	Tank 547	50,000 bbl	Internal Floating Roof AST w/Primary and Secondary Seal	Gasoline	Diesel, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40400170
A22	Tank 512	40,000 bbl	Fixed Roof AST	Jet Fuel	Diesel and Biodiesel	40400121
A23	Tank 510	40,000 bbl	External Floating Roof AST w/Primary Seal	Jet Fuel	Diesel and Biodiesel	40400130
A24	Tank 511	4,000 bbl	External Floating Roof AST w/Primary Seal	Jet Fuel	Diesel and Biodiesel	40400130
A27	Tank 501	10,000 bbl	Internal Floating Roof AST w/Primary and Secondary Seal	Denatured Ethanol		40400170
A28	Tank 523	11,000 bbl	Internal Floating Roof AST w/Primary and Secondary Seal	Transmix	Gasoline, Diesel, Biodiesel, Denatured Ethanol, Aviation Gasoline and Jet Fuel	40400170
A29	Tank 544	12,890 bbl	Internal Floating Roof AST w/Primary and Secondary Seal	Denatured Ethanol	Gasoline, Diesel, Biodiesel, Transmix, Aviation Gasoline and Jet Fuel	40400170

EU	Source ID No.	Rating	Description	Product Stored	Optional Stored Products ¹	SCC
A45	Tank 548	12,890 bbl	Domed External Floating Roof AST w/Primary and Secondary Seal	Gasoline	Diesel, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40400130
A46	Tank 549	18,000 bbl	Domed External Floating Roof AST w/Primary and Secondary Seal	Gasoline	Diesel, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40400130
A47	Tank 550	20,000 bbl	Internal Floating Roof AST w/Primary and Secondary Seal	Gasoline	Diesel, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40400170
A48	Tank 551	10,100 bbl	Internal Floating Roof AST w/Primary and Secondary Seal	Gasoline	Diesel, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40400170
A56	Tank 513	50,000 bbl	Internal Floating Roof AST w/Primary and Secondary Seal	Jet Fuel	Diesel and Biodiesel	40400170
A57	Tank 514	50,000 bbl	Internal Floating Roof AST w/Primary and Secondary Seal	Jet Fuel	Diesel and Biodiesel	40400170
A58	Tank 553	80,000 bbl	Internal Floating Roof AST w/Primary and Secondary Seal	Gasoline	Diesel, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40400170
A59	Tank 554	80,000 bbl	Internal Floating Roof AST w/Primary and Secondary Seal	Diesel	Gasoline, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40400170
A60	Tank 555	80,000 bbl	Internal Floating Roof AST w/Primary and Secondary Seal	Gasoline	Diesel, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40400170
A61	Tank 552	40,000 bbl	Internal Floating Roof AST w/Primary and Secondary Seal	Gasoline	Diesel, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40400170
B04	Tank 500	3,000 bbl	Internal Floating Roof AST w/Primary and Secondary Seal	Transmix	Gasoline, Diesel, Biodiesel, Denatured Ethanol, Aviation Gasoline and Jet Fuel	40400170
B05	Tank 521	5,000 bbl	Internal Floating Roof AST w/Primary and Secondary Seal	Transmix	Gasoline, Diesel, Biodiesel, Denatured Ethanol, Aviation Gasoline and Jet Fuel	40400170
Additive Storage Tanks						
A25	ASA Conductivity Improver	1.3 bbl	Fixed Roof AST	Anti-Static Agent (Jet Fuel Additive)		40714697
A26	Tank 500AIA	252 bbl	Fixed Roof AST	Anti-Icing agent (Jet Fuel Additive)		40400170
A30	Tank 533A	252 bbl	Fixed Roof AST	Gasoline Additive		40174697
A31	Tank 537A	464 bbl	Fixed Roof AST	Gasoline Additive		40174697
A32	Tank 541A	380 bbl	Fixed Roof AST	Gasoline Additive		40174697
A33	Tank 541B	380 bbl	Fixed Roof AST	Gasoline Additive		40174697
A34	Tank 542D	215 bbl	Fixed Roof AST	Gasoline Additive		40174697
A35	Tank 542A	143 bbl	Fixed Roof AST	Gasoline Additive		40174697
A36	Tank 531A	143 bbl	Fixed Roof AST	Lubricity (Diesel Fuel Additive)		40174697
A37	Tank 542C	12 bbl	Fixed Roof AST	Red Dye (Diesel Fuel Additive)		40174697
A38	Tank 537B	447 bbl	Fixed Roof AST	Gasoline Additive		40174697

EU	Source ID No.	Rating	Description	Product Stored	Optional Stored Products ¹	SCC
A39	Tank 531B	119 bbl	Fixed Roof AST	Gasoline Additive		40174697
A49	Tank 542B	4 bbl	Fixed Roof AST	Red Dye (Diesel Fuel Additive)		40174697
A53	Tank 548B	238 bbl	Fixed Roof AST	Gasoline Additive		40174697
A54	Tank 548A	238 bbl	Fixed Roof AST	Gasoline Additive		40174697
H10	Tank 500B	10,000 gallons	Fixed Roof Vertical AST	Anti-Icing Agent (Jet Fuel Additive)		40174697
H14	ASA Tote	350 gallons	Fixed Roof Rectangular AST	Anti-static Agent (Jet Fuel Additive)		40174697
H15	CI Tote	350 gallons	Fixed Roof Rectangular AST	Corrosion Inhibitor (Jet Fuel Additive)		40174697
H16	Lane 7 Red Dye Tote	350 gallons	Fixed Roof Rectangular AST	Red Dye (Diesel Fuel Additive)		40174697
H17	Lane 12 Red Dye Tote	40,000 bbl	Fixed Roof Rectangular AST	Gasoline		
Loading Racks						
B01	Loading Racks	1,486,000,000 gal/yr	15 Loading Lanes	All Petroleum Products Stored On-site are Dispensed through Loading Racks		40400150
Fuel Unloading						
B01A	B-100	147,168,000 gal/yr	Biodiesel Offloading Rack			40400150
H09	Ethanol	76,104,000 gal/year	Ethanol unloading system			40700810
Vapor Recovery Units						
B02	John Zink VRU		Vapor control unit; loading lanes			40400153
B10	Flare Processing		Vapor control unit for loading lanes (includes saturator and vapor holding tank)			40400153
SR04	SVE and GW Treatment System		Soil Vapor Extraction and Groundwater Treatment System (includes control units)			50410312
Underground Storage Tanks						
H02	Mainline Sump	1,000 gallons	Mainline Sump UST	Gasoline	Diesel, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40174697
H03	Rack Sump	3,000 gallons	Rack Sump UST	Gasoline	Diesel, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40174697
H04	Mainline Sump	4,200 gallons	New Mainline Sump UST	Gasoline	Diesel, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40174697
H06	Nellis Sump	2,000 gallons	Nellis Delivery System Sump, UST	Jet Fuel		40174697
H07	Rack Sump	1,000 gallons	Rack 6 Sump, UST	Diesel	Biodiesel	40174697
H08	QC Sump	100 gallons	Quality Control Lab Sump UST	Gasoline	Diesel, Biodiesel, Denatured Ethanol, Transmix, Aviation Gasoline and Jet Fuel	40174697

EU	Source ID No.	Rating	Description	Product Stored	Optional Stored Products ¹	SCC	
Miscellaneous Tanks							
D01	Tank DG	250 gallons	Fixed Roof AST	Diesel	Biodiesel	40400121	
H11	OWS Tank		Oil-water separator tank	Oil and Water		30600508	
H12	OST-100-DW	1,000 gallons	Fixed Roof Horizontal AST w/Dual Wall	Gasoline		40400313	
H18 ^N	Sample Recovery Tank	125 gallons	Vertical Fixed Roof Sample Recovery Tank	Pre-butane Blended Gasoline		40400108	
Miscellaneous Emission Units							
B06	Piping and Fittings		Misc. Losses/Leaks from Valves, Flanges, Pumps and VCU			40400151	
E01	Haul Road	0.5 mi RT	Paved Haul Road			30502504	
H05	Cooling Tower	220 gpm		Baltimore Aircoil; M/N: F2841KE; S/N: U013422001MAD		38500101	
Internal Combustion Engines							
EU	Rating	Description	Manufacturer		Model Number	Serial Number	SCC
B11	48 hp	Air Compressor	Ingersoll Rand		P185WJD	315261UHK231	20300201
		Diesel Engine; DOM: 2000	John Deere				
D02	208 hp	Fire Water Engine ²	Peerless		8AFF170	667235	20300201
		Diesel Engine; DOM 1990	Cummins		6BTA5.-F1	45175100	

Note: N = new emission unit.

¹The PTE and rule applicability is based on the worst-case configuration.

²The fire water engine (aka fire pump) is separate from the engine and may be replaced independently; and therefore, was removed from the permit. It's being retained in the TSD for reference.

The units in Table 5 are present at this source, but are insignificant activities pursuant to AQR 12.5.2.5. The emissions from these units or activities, when added to the PTE of the source, will not make the source major for any additional pollutant.

Table 5. Summary of Insignificant Activities

Equipment	Description
Tank 476	Wastewater
Tank 479	Free Product Extracted from Wells of the Groundwater System
Tank 535-A	Diesel Lubricity Additive Storage Tank, 10,000 gallons, 0.026 psia
Underground Storage Tanks (2)	Wastewater Runoff Collection
B-100 Prover	Portable Prover for B-100 fuel
Nellis Line Prover	Horizontal Loop Piping Circuit
Main Line Prover	Horizontal Loop Piping Circuit
Water Surge Tank	Wastewater Treatment (Oil and Water Separator)
Parts Washer	R&D Fountain Industries Company; 3.5-gal Tub; 35" W x 24" L x 17" D
Evaporation Tank/Pond	Wastewater Evaporation

Equipment	Description
Butane Blending Tank ^N	90,000-gal horizontal pressurized tank storing butane
N=new equipment.	

EMISSIONS INFORMATION

Calculation of Emissions

The TANKS program (version 4.09d) was used to estimate annual VOC emissions from the fuel storage tanks. Since there are no changes to the existing storage tanks, the same emissions estimates have been retained for this renewal application.

The emission potential for the two proposed tanks were hand-calculated using AP-42 values and tank total, standing, and working losses. Minimal emissions will result from the proposed 125-gallon sampling tank.

A slight increase in particulates will result from existing haul road emissions. Fugitive emissions from piping and piping components connecting the butane tank into existing ducting were derived using the document “Protocol for Equipment Leak Emission Estimates” (EPA-453/R-95-017, Tables 2-2 and 2-3).

Calnev is a major source of VOCs and a minor source of PM₁₀, PM_{2.5}, NO_x, CO, SO₂, and HAP emissions. Table 6 shows the source-wide PTE.

Table 6. Source-wide PTE (tons per year)

Pollutant	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC	HAP
Proposed PTE	8.40	1.42	3.26	2.55	0.18	188.00	9.30

OPERATIONAL LIMITATIONS

Calnev shall limit the total annual tank throughput of all the tanks in Table 7 to 4,504,505,338 gallons (107,250,172 barrels) in any consecutive 12-month period. Table 7 also denotes the throughput limits for the tanks individually.

Table 7. Source-wide PTE (tons per year)

EU	Annual Throughput (gallons)	EU	Annual Throughput (gallons)
Bulk Storage Tanks			
A01	28,560,000	A27	9,540,000
A02	32,460,000	A28	23,580,000
A03	20,340,000	A29	27,720,000
A04	28,560,000	A45	32,460,000
A05	20,340,000	A46	32,460,000
A06	20,340,000	A47	70,000,000
A07	44,220,000	A48	50,400,000
A08	90,000,000	A56	189,000,000

EU	Annual Throughput (gallons)	EU	Annual Throughput (gallons)
A09	28,560,000	A57	189,000,000
A10	50,000,000	A58	302,400,000
A11	137,000,000	A59	604,800,000
A12	864,000,000	A60	604,800,000
A13	50,760,000	A61	126,000,000
A14	118,500,000	B04	7,560,000
A15	114,660,000	B05	12,720,000
A16	88,200,000	D01	25,000
A17	100,800,000	H02	302,400
A18	9,000,000	H03	806,400
A19	350,000,000	H04	100,800
A20	220,500,000	H06	75,600
A21	100,800,000	H07	36,000
A22	126,000,000	H08	7,200
A23	100,800,000	H11	15,768,000
A24	100,800,000	H12	365,000
Fuel Additive Tanks			
A25	5,040	A38	95,949
A26	95,949	A39	44,100
A30	95,949	A49	5,040
A31	95,949	A53	57,519
A32	148,050	A54	95,949
A33	148,050	H10	132,000
A34	81,207	H14	390
A35	79,286	H15	3,300
A36	55,661	H16	6,150
A37	5,040	H17	6,150
		H18	13,000

The permittee is requesting that the proposed sample recovery tank's (EU: H18) limit will be 13,000 gal/yr. The 90,000-gallon butane tank's annual throughput will be 7.4 million gallons. This is technically not a limit because the tank is insignificant.

Loading Racks

The total throughput for the loading racks (EU: B01), including all petroleum products, will continue to be limited to 1,485,956,934 gallons (35,379,927 barrels) in any consecutive 12-month period.

Offloading Rack

The permittee shall maintain the total throughput limit of the B-100 offloading rack (EU: B01A) to 147,168,000 gallons in any consecutive 12-month period.

Auxiliary Flare

The flare's hours of operation will remain limited to 438 hours in any consecutive 12-month period (EU: B10).

Ethanol Unloading System

The permittee shall retain the limit on the amount of ethanol unloaded through the ethanol loading system (EU: H09) to 76,104,000 gallons in any consecutive 12-month period.

Haul Road

The haul road methodology for calculating emissions has changed to include unpaved and paved roads. The source used DAQ default emission factors. The emission calculations have been included as an attachment.

Engines

The diesel-powered air compressor (EU: B11) will continue to be limited to 100 hours per year.

The permittee shall limit the operation of the diesel-powered fire water engine (EU: D02) for testing and maintenance purposes to 100 hours per year, including an allowance for up to 50 hours annually for nonemergency situations.

CONTROL TECHNOLOGY

40 CFR Part 63, Subpart BBBBBB

Under 40 CFR 63.11100 "Gasoline storage tank or vessel," the proposed sample butane blending tank does not meet this definition. Therefore, the sample butane blending tank is not subject to the requirements of 40 CFR Part 63, Subpart BBBBBB.

40 CFR Part 63, Subpart BBBBBB, identifies controls specific to storage tanks. These can vary depending on the capacity of each storage tank. The control requirements for each storage tank have been identified and spelled out in the permit (EUs: A01–A13, A16, A17, A21, A28, A29, A45–A48, A58–A61, B04, and B05). Additionally, any specifics relative to the vapor collection system were added for clarification and rule applicability.

40 CFR Part 63, Subpart WW

40 CFR Part 63, Subpart WW, specifies the control and maintenance for the eligible units (EUs: A16, A17, A21, A58–A61, B04, and B05) according to the requirements spelled out in 40 CFR Part 60, Subpart Kb, and 40 CFR Part 63, Subpart BBBBBB. Conditions detailing controls based on capacity, as found in the regulation, have been added to the permit.

APPLICABLE REQUIREMENTS

40 CFR Part 60—New Source Performance Standards

40 CFR Part 60, Subpart A

The source shall be subject to the requirements in the subsections of Subpart A—General Provisions unless other requirements are specified from another subpart of 40 CFR Part 60.

40 CFR Part 60, Subpart K

Each vessel that stores petroleum liquids with a capacity between 40,000 and 65,000 gallons and that was constructed, reconstructed, or modified after June 11, 1973, but before May 19, 1978— or after June 11, 1973, but before May 19, 1978 and with a capacity greater than 65,000 gallons— shall meet the standards of performance for Subpart K. “Petroleum liquids” means petroleum, condensate, and any finished or intermediate products manufactured in a petroleum refinery, but does not mean Nos. 2 through 6 fuel oils as specified in ASTM D396–78, 89, 90, 92, 96, or 98; gas turbine fuel oils Nos. 2–GT through 4–GT as specified in ASTM D2880–78 or 96; or diesel fuel oils Nos. 2–D and 4–D as specified in ASTM D975–78, 96, or 98a. There are no units at the facility that meet these criteria.

40 CFR Part 60, Subpart Ka

The source has one storage vessel (EU: A29) that holds petroleum liquids that was constructed, reconstructed, or modified in 1978, before July 23, 1984. The actual month of construction is not known, so this unit is being regulated based on the worst case, which puts it under Subpart Ka.

40 CFR Part 60, Subpart Kb

The permittee operates storage vessels that were constructed, reconstructed, or modified after July 23, 1984, and contain volatile organic liquids (VOLs). VOLs are any organic liquid that can emit VOCs into the atmosphere, including petroleum liquids. (EUs: A16, A17, A21, A58–A61, B04, and B05).

40 CFR Part 60, Subpart XX

The provisions of Subpart XX apply to the loading racks (EU: B01) that deliver liquid product into gasoline tank trucks at this facility.

40 CFR Part 63—National Emissions Standards for Hazardous Air Pollutants

40 CFR Part 63, Subpart A

Subpart A contains the general provisions for all the subparts contained in Part 63 applicable to the source, unless provisions are specified otherwise in another subpart. These provisions include, at a minimum, definitions, units and abbreviations, prohibited activities and circumvention,

preconstruction review and notification requirements, compliance with standards and maintenance requirements, performance testing requirements, monitoring requirements, notification requirements, recordkeeping and reporting requirements, and control device and work practice requirements.

40 CFR Part 63, Subpart BBBBBB

Subpart BBBBBB applies to gasoline distribution bulk terminals, bulk plants, and pipeline facilities. Because the source matches this description, it is subject to the emission limits, management practices, and compliance demonstration requirements in this subpart.

Under Part 63.11087(f), gasoline storage tanks subject to and complying with the control requirements of 40 CFR Part 60, Subpart Kb, are deemed to be in compliance with Subpart BBBBBB.

Pursuant to Table 1 in Subpart BBBBBB, the source proposes to use the compliance methodology under 40 CFR Part 63, Subpart WW, as long as the facility meets the requirements detailed in Subpart BBBBBB.

40 CFR Part 63, Subpart CCCCCC

Subpart CCCCCC establishes emission limitations for HAPs emitted from storage tanks at gasoline dispensing facilities. Calnev is not an area source that meets the definition of gasoline dispensing under Subpart CCCCCC, so it is not subject to these provisions.

40 CFR Part 63, Subpart R

The provisions of Subpart R apply to all bulk gasoline terminals except those that are not major sources or located within a contiguous area and under common control of a major source of HAPs, as defined in 40 CFR Part 63.2. Since Calnev is not a major source of HAPs, Subpart R does not apply to this facility.

40 CFR Part 63, Subpart WW

40 CFR Part 60, Subpart Kb, allows for owners or operators to comply with Subpart WW to satisfy the requirements of 40 CFR Parts 60.112b–60.117b for storage vessels containing VOLs that meet certain design capacity and true vapor pressure requirements. The permittee has opted to use this alternative compliance method. The permit was revisited to identify the tanks that are subject to the provisions of Subpart Kb and therefore qualify for this alternative compliance methodology (EUs: A16, A17, A21, A58–A61, B04, and B05). Additionally, under Table 1 in Subpart BBBBBB, if the storage tank containing gasoline meets the control standards in Subpart Kb, then Subpart WW may be used to satisfy the compliance requirements in Subpart BBBBBB.

40 CFR Part 63, Subpart ZZZZ

Area sources of HAP emissions that operate a stationary reciprocating internal combustion engine (RICE) are subject to the provisions of this subpart. The permittee operates a diesel air compressor

and a diesel fire water engine (EUs: B11 and D02, respectively), both of which were manufactured prior to 2006, so some requirements of Subpart ZZZZ apply.

40 CFR Part 68, Subpart G—Chemical Accident Provisions

Part 68 contains a list of regulated substances and thresholds concerning the prevention of accidental releases. The introduction of the butane blending process activated this requirement. As a result, the permittee is required to prepare and maintain a Risk Management Plan for the U.S. Environmental Protection Agency and provide a copy to the regulating air agency (in this case, DAQ).

MONITORING

40 CFR Part 63, Subpart BBBBBB, requires monthly leak inspections for all equipment in gasoline service using sight, sound, or smell per 40 CFR Part 63.11089(a) & (b), along with maintaining a log book.

The inspection routine and frequency for storage tanks with internal and external floating roofs requirements under 40 CFR Part 63.1063(c) & (d) (40 CFR Part 63, Subpart WW), as an alternative compliance method were added to the permit per Subpart BBBBBB and 40 CFR Part 60, Subpart Kb, (EUs: A01-A13, A16, A17, A21, A28, A29, A45–A48, A58–A61, B04, and B05).

The visual emissions observations requirements were updated to reflect current DAQ policy (Section 4.1 of the OP).

The general conditions pertaining to AQR 4.2 were added to the permit as standard requirements. This is customary for all permits issued by DAQ.

Lastly, by including unpaved road emissions, the monitoring requirements were revised to include monitoring vehicle miles traveled and road length for recordkeeping and reporting requirements.

PERFORMANCE TESTING

There are no changes to the existing testing requirements in the Part 70 OP. Neither the blending process nor the associated tanks are subject to performance testing.

Standard language has been updated to the current format, which specifies the process for receiving approval for use of alternative test methods. Also, a condition was added stating that the source may provide necessary holes or ducts in stacks for sampling and testing. Lastly, a condition was added to state that the Control Officer has the authority to request and observe additional tests if excess emissions are believed to occur.

All existing testing requirements for the loading racks and the soil vapor extraction and groundwater treatment system are still applicable for this permitting action.

RECORDKEEPING AND REPORTING

The units being serviced under the 40 CFR Part 63, Subpart WW, alternative compliance demonstration shall comply with the recordkeeping and reporting requirements detailed in 40 CFR Part 60.110b(e).

Conditions pertaining to the recordkeeping and reporting requirements for 40 CFR Part 63, Subpart BBBBBB, have been incorporated into the permit. Per Subpart BBBBBB, Notices of Compliance Status are required in the semiannual compliance reports.

Recordkeeping for CEMS audit results, accuracy checks, corrective actions, etc. as applicable are required by 40 CFR 60, Appendix F and the CEMS QA Plan. Also, the permittee shall maintain the information required by the CEMS monitoring plan under 40 CFR 75, Subpart F, and the OP's monitoring requirements.

The recordkeeping conditions for non-vapor-tightness documentation in Subpart BBBBBB have been incorporated into the permit as required.

Recordkeeping provisions for storage tank maintenance, malfunctions, and repairs, as prescribed by Subpart BBBBBB, have been incorporated into the permit.

Subpart BBBBBB also requires that records on the loading racks be kept for each loading of a gasoline cargo tank for which vapor tightness documentation has not been previously obtained by the facility.

The proposed sample blending tank (EU: H18) will require the same recordkeeping and reporting on monthly throughput as similar units at the facility.

PUBLIC PARTICIPATION

The public participation required for OP renewal by AQR 12.5.2.17 shall consist of a 30-day notice on the department website. To facilitate public outreach consistent with environmental justice requirements, DAQ shall publish the notice in the *Las Vegas Review-Journal*.

INCREMENT ANALYSIS

An increment analysis is not required, since the new blending process does not emit a pollutant that triggers a minor source baseline date (NO_x and SO₂) for Hydrographic Area 212 (the Las Vegas Valley). The last increment analysis completed on this source was for the Part 70 OP renewal issued on June 1, 2017. Modeling will be conducted for this renewal to ensure the source is current.

ENVIRONMENTAL JUSTICE

Securing environmental justice and equity for all environmentally overburdened communities is a high priority for EPA. To advance environmental justice and equity through permitting actions under the Clean Air Act (CAA), the office of Air and Radiation is providing resources and recommendations to the EPA regions regarding approaches for addressing environmental justice and advancing environmental equity. EPA regional air permitting staff are encouraged to

immediately apply the eight principles and associated practices in issuing federal CAA permit decisions. Regions are equally encouraged to work collaboratively and proactively with state, tribal, and local partners to facilitate their consideration and application of these same principles in their air permitting actions where appropriate to protect human health and the environment for all affected individuals, including those who live in communities with environmental justice and equity concerns.

An environmental justice analysis accomplishes two important policy objectives (1) it addresses the principle of fair treatment by further evaluating adverse and disproportionate impacts and identifying ways to prevent or mitigate such impacts; and (2) it addresses the principle of meaningful involvement by fostering enhanced community engagement in the permitting decision. Each analysis is conducted on a case-by-case basis and to what degree depends on the circumstances of any permit decision.

Calnev is located in northeast Las Vegas. The nearest residences are less than 0.6 miles from the source. A cursory analysis of the EPA’s Environmental Justice Screening and Mapping Tool (EJScreen) and using 3-mile radius shows that this permitting action will not have an adverse or disparate effect on an underserved population when compared to the general population of Las Vegas. The proposed modification results in less than a ton of total emissions and should have negligible impacts on nearby residents. Therefore, an extensive assessment wasn’t performed.

ATTACHMENTS

Blending Process and Haul Road Emissions Summary and Calculations (tpy)

Emission Source	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC	HAP
Current Potential to Emit	6.80	0.12	3.26	2.55	0.18	187.41	9.23
Fugitives Emissions (add'l components)	0	0	0	0	0	0.28	0.03
Sample Recovery Tank Emissions	0	0	0	0	0	0.06	0
Haul Roads (revised)	7.24	1.20	0	0	0	0	0
Proposed Potential to Emit	8.40	1.42	3.26	2.55	0.18	188.00	9.30
Change in Emissions	1.60	1.30	0.00	0.00	0.00	0.59	0.07

New Equipment	Rating	Annual Throughput	Description	Product Stored
Butane Tank	90,000 gal	7,400,000 gal	Horizontal pressurized AST	Butane
Sample Recovery Tank	125 gal	13,000 gal	Double-walled AST	Blended Gasoline
Affected Existing Emission Units				
Fugitive Components (EU B08)			Piping and piping components	Butane and Blended Gasoline
Haul Road (EU E01)	0.5 mi RT	462.5 VMT / 925 Trips	Paved and Unpaved Haul Road	

Sample Recovery Tank (EU: H18) — Vertical Fixed Roof Tank Calculations

Tank Emission Calculation Summary					
Parameter	Symbol	Equation	Value	Unit	AP-42 Ch.7 Reference
Total Loss	LT	$LT = LS + LW$	112.4790	lb	Equation 1-1
Standing Loss	LS	$LS = ND^3 \cdot WV \cdot KW \cdot KS$	68.7328	lb	Equation 1-2
Working Loss	LW	$LW = VQ \cdot KN \cdot KP \cdot KW \cdot KS$	43.7471	lb	Equation 1-35

Main Parameters in the Standing and Working Loss Equations					
Parameter	Symbol	Equation	Value	Unit	AP-42 Ch.7 Reference
Number of Days	ND		365	day	
Vapor Space Volume	VV	$VV = (pi)(D^2/4)HVO$	8.9743	ft ³	Equation 1-3
Stock Vapor Density	WV	$WV = (MV \cdot PVA) / (R \cdot TV)$	0.0933	lb/ft ³	Equation 1-22
Vapor Space Expansion Factor	KE	$KE = DELTA TV / (TLA + (DELTA TPV - DELTA TPB) / (PA - PVA))$	0.3788		Equation 1-8
Vented Vapor Saturation Factor	KS	$KS = (1 + 0.083 \cdot PVA \cdot HVO) / (1 + 0.083 \cdot PVA \cdot HVO)$	0.5940		Equation 1-21
Net Working Loss Throughput	VQ	$VQ = 5.614 \cdot Q$	1737.869827	ft ³	Equation 1-39
Working Loss Turnover (Saturation) Factor	KN	$KN = (180 + N) / (5 \cdot N)$ for $N \geq 36$ yr, $KN = 1$ for $N < 36$ yr	0.259967748		Equation 1-35
Working Loss Product Factor	KP	$KP = 0.75$ for crude oils, or 1 for all other organic liquids	1		Equation 1-35
Vent Setting Correction Factor	KB	$KB = 1$ for vent setting range up to +/- 0.03 psig	1		Equation 1-35

Tank Operating Parameters					
Parameter	Symbol	Equation	Value	Unit	AP-42 Ch.7 Reference
Net Throughput	Q		309.5208096	bbbl	
Number of Turnovers	N	$N = SIGMAHQI / (HLX + HLN)$	200.4413		Equation 1-36
Sum of Increases in Liquid Level	SIGMAHQI	$SIGMAHQI = (5.614 \cdot Q) / (pi)(D^2/4)$	200.4413	ft	Equation 1-37
Maximum Liquid Height	HLX	$HLX = HS - 1$	2	ft	Equation 1-37
Minimum Liquid Height	HLN	$HLN = 1$	1	ft	Equation 1-37

Tank Physical Size Parameters					
Parameter	Symbol	Equation	Value	Unit	AP-42 Ch.7 Reference
Tank Equivalent Diameter	D		2.76	ft	
Vapor Space Outage	HVO	$HVO = HS - HL + HRO$	1.5000	ft	Equation 1-16
Tank Shell Height	HS		3	ft	
Liquid Height	HL	$HL = 0.5 \cdot HS$	1.5	ft	Typical Assumption
Roof Outage	HRO	$HRO = (1/3) \cdot HS$	0.0000	ft	Equation 1-17
Tank Roof Height	HR	$HR = 5/8 \cdot HS$	0.0000	ft	Equation 1-18
Tank Cone Roof Slope	SR		0.0000		Default = 0.0025
Tank Shell Radius	RS		1.38	ft	

Tank Condition Characteristics					
Parameter	Symbol	Equation	Value	Unit	AP-42 Ch.7 Reference
Tank Roof Surface Solar Absorptance	ALPHA _R		0.25		Table 7.1-6
Tank Shell Surface Solar Absorptance	ALPHA _S		0.25		Table 7.1-6
Breather Vent Pressure Setting	PBP		0.03	psig	Default = 0.03
Breather Vent Vacuum Setting	PBV		-0.03	psig	Default = -0.03

Meteorological Conditions ²					
Parameter	Symbol	Equation	Value	Unit	AP-42 Ch.7 Reference
Average Daily Maximum Ambient Temperature	TAX		79.5	°F	Table 7.1-7
			539.17	°R	Unit Conversion
			26.39	°C	Unit Conversion
Average Daily Minimum Ambient Temperature	TAN		58.6	°F	Table 7.1-7
			518.27	°R	Unit Conversion
			14.78	°C	Unit Conversion
Average Daily Total Insulation Factor	I		1785	(Btu)(ft ² -day)	Table 7.1-7
Ideal Gas Constant	R	$R = 10.731 \text{ psia-ft}^3/\text{lb-mol-}^\circ\text{R}$	10.731	psia-ft ³ /lb-mol-°R	
Atmospheric Pressure	PA		14.69	psia	Table 7.1-7

Stored Liquid Physical Property and Constants ³					
Parameter	Symbol	Equation	Value	Unit	AP-42 Ch.7 Reference
Vapor Molecular Weight	MV		62	lb/lb-mol	Table 7.1-2
Vapor Pressure Equation Constant A	A		11.644		Table 7.1-2
Vapor Pressure Equation Constant B	B		5043.6	°R	Table 7.1-2

Frequently Used H ₂ O Factored Constants					
Parameter	Symbol	Equation	Value	Unit	AP-42 Ch.7 Reference
Equation 1-27 Constant X	X	$X = 0.81(4.4 \cdot (HSD) + 3.6)$	0.0933		Equation 1-27
Equation 1-27 Constant Y	Y	$Y = 0.021(4.4 \cdot (HSD) + 3.6)$	0.0024		Equation 1-27
Equation 1-27 Constant Z	Z	$Z = 0.013 \cdot (HSD)(4.4 \cdot (HSD) + 3.6)$	0.0018		Equation 1-27
Equation 1-32 Constant M	M	$M = (2.2 \cdot (HSD) + 1.1)(2.2 \cdot (HSD) + 1.9)$	0.8136		Equation 1-32

Various Pressure Calculations					
Parameter	Symbol	Equation	Value	Unit	AP-42 Ch.7 Reference
True Vapor Pressure	PVA	$PVA = EXP(A - (B/TLA))$	8.5996	psia	Equation 1-25
Average Daily Vapor Pressure Range	DELTA PV	$DELTA PV = PVX - PVN$	1.8634	psia	Equation 1-9
Vapor Pressure at Average Daily Maximum Liquid Surface Temp	PVX	$PVX = EXP(A - (B/TLX))$	9.5681	psia	Equation 1-25
Vapor Pressure at Average Daily Minimum Liquid Surface Temp	PVN	$PVN = EXP(A - (B/TLN))$	7.7047	psia	Equation 1-25
Breather Vent Pressure Setting Range	DELTA PB	$DELTA PB = PBP - PBV$	0.06	psig	Equation 1-10

Various Temperature Calculations					
Parameter	Symbol	Equation	Value	Unit	AP-42 Ch.7 Reference
Average Daily Liquid Surface Temperature	TLA	$TLA = (0.5 \cdot X) \cdot TAA + (0.5 \cdot Y) \cdot TB + Y \cdot ALPHA \cdot T1 + Z \cdot ALPHA \cdot T2$	531.3173	°R	Equation 1-27
Average Daily Ambient Temperature	TAA	$TAA = (TAX + TAN) / 2$	32.0265	°C	Unit Conversion
Average Daily Ambient Temperature Range	DELTA TA	$DELTA TA = TAX - TAN$	58.72	°R	Equation 1-30
Liquid Bulk Temperature	TB	$TB = TAA + 0.003 \cdot ALPHA \cdot T1$	530.0489	°R	Equation 1-31
Average Vapor Temperature	TV	$TV = M \cdot TAA + 2 \cdot Y \cdot TB + 2 \cdot Y \cdot ALPHA \cdot T1 + 2 \cdot Z \cdot ALPHA \cdot T2$	532.9878	°R	Equation 1-32
Average Daily Vapor Temperature Range	DELTA TV	$DELTA TV = (1 - 2 \cdot Y) \cdot DELTA TA + 4 \cdot Y \cdot ALPHA \cdot T1 + 4 \cdot Z \cdot ALPHA \cdot T2$	24.2448	°R	Equation 1-6
Average Daily Maximum Liquid Surface Temperature	TLX	$TLX = TLA + 0.25 \cdot DELTA TV$	537.3784	°R	Figure 7.1-17
			28.3938	°C	Unit Conversion
Average Daily Minimum Liquid Surface Temperature	TLN	$TLN = TLA - 0.25 \cdot DELTA TV$	528.2861	°R	Figure 7.1-17
			18.6585	°C	Unit Conversion

Notes:
 1. Tank is a rectangular vessel. Calculations are completed using methodology for a vertical fixed roof tank.
 2. Meteorological Data for Las Vegas, Nevada.
 3. Tank contents 90% Gasoline (VAP 13.5) and 10% ethanol. Assumed 100% Gasoline.

Post-Construction Butane Blending Light Liquid Service Components

Fitting Type	Factor (lb/unit-hr)	Project Count	VOC Emission (lb/yr)	HAP Emission (lb/yr)	VOC Emission (ton/yr)	HAP Emission (ton/yr)
Valves (Butane)	9.48E-05	190	157.79	15.78	0.08	0.01
Valves (Gasoline, Ethanol)	9.48E-05	103	85.54	4.49	0.04	0.00
Fittings (Butane)	1.76E-05	442	68.15	6.81	0.03	0.00
Fittings (Gasoline, Ethanol)	1.76E-05	357	55.04	2.89	0.03	0.00
Pump Seals (Butane)	1.19E-03	1	10.42	1.04	0.01	0.00
Relief Devices (Butane)	2.87E-04	32	80.45	8.05	0.04	0.00
Other (Butane)	2.87E-04	6	15.08	1.51	0.01	0.00
Other (Gasoline, Ethanol)	2.87E-04	9	22.63	1.19	0.01	0.00
Total		1,140	495.10	41.76	0.25	0.02

Gasoline and Butane HAP Percentages

HAP	Gasoline Regular	Butane
	HAP-to-VOC Percent ¹	HAP-to-VOC Percent ²
Benzene	0.9000%	0.0000%
Ethylbenzene	0.1000%	0.0000%
Hexane	1.6000%	10.0000%
Naphthalene	0.0500%	0.0000%
Toluene	1.3000%	0.0000%
2,2,4-Trimethylpentane	0.8000%	0.0000%
Xylenes	0.5000%	0.0000%
Total HAPs	5.2500%	10.0000%

¹Emission factors are marketing terminal average emission factors from the EPA's "Protocol for Equipment Leak Emission Estimates" November 1995, EPA 4531, R - 95 - 017, Table 2 - 3.

²Hexane percentage (by weight) range on SDS provided in butane blending minor revision application is 1 - 10%, it is conservatively assumed to be 10% for the purposes of these calculations.

Piping and Fittings VOC and HAP Emissions Calculations

Fitting Type	Factor (lb/unit-hr)	Total Fittings	VOC Emission (lb/yr)	HAP Emission (lb/yr)	VOC Emission (ton/yr)	HAP Emission (ton/yr)
Valves (Gas Service)	2.87E-05	2,376	597.35	31.36	0.30	0.02
Valves (Light Liquid Service)	9.48E-05	1,523	1264.77	73.90	0.63	0.04
Valves (Heavy Liquid Service)	9.48E-05	1,598	1327.06	69.67	0.66	0.03
Fittings (Gas)	9.26E-05	6,455	5236.14	274.90	2.62	0.14
Fittings (Light Liquid)	1.76E-05	4,093	631.04	36.37	0.32	0.02
Fittings (Heavy Liquid)	1.76E-05	4,620	712.29	37.40	0.36	0.02
Pump Seals (Gas)	1.43E-04	56	70.15	3.68	0.04	0.00
Pump Seals (Light Liquid)	1.19E-03	28	291.88	15.82	0.15	0.01
Pump Seals (Heavy Liquid)	1.19E-03	27	281.46	14.78	0.14	0.01
Relief Devices (Light Liquid)	2.87E-04	44	110.62	9.63	0.06	0.00
Relief Devices (Heavy Liquid)	2.87E-04	24	60.34	3.17	0.03	0.00
Relief Devices (Gas)	2.87E-04	35	87.99	4.62	0.04	0.00
Other (Gas)	2.65E-04	434	1007.49	52.89	0.50	0.03
Other (Light Liquid)	2.87E-04	254	638.59	34.24	0.32	0.02
Other (Heavy Liquid)	2.87E-04	321	807.03	42.37	0.40	0.02
Total		21,888	13,124.21	704.79	6.56	0.35

Fugitive Emissions

Liquid VOC Weight Fraction	100%
Hexane Weight Fraction ¹	10%

Light Liquid				
Number ²	Component	Emission Factor (kg/hr of THC per component ³)	kg/hr	lb/yr
463	Valves	4.30E-05	0.019909	383.686248
2	Pump seals	5.40E-04	0.00108	20.81376
1017	Connectors	8.00E-06	0.008136	156.796992
Total			0.029125	561.297

Fugitive Total Emissions			
	Annual Emissions (lb/yr)	Annual Emissions (lb/hr)	Annual Emissions (tpy)
VOC	561.297	0.064075	0.2806485
Hexane	56.1297	0.0064075	0.02806485

Notes:	<p>1. Hexane percentage (by weight) range on SDS is 1-10%, it is conservatively assumed to be 10% for the purposes of these calculations.</p> <p>2. Component counts are estimated from the process P&IDs.</p> <p>3. Emission factors are marketing terminal average emission factors from the EPA's "Protocol for Equipment Leak Emission Estimates" November 1995, EPA 4531, R-95-017, Table 2-3.</p>
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Haul Roads Calculations

	Uncontrolled PM ₁₀ Emission Factor (lb/VMT) ¹	Uncontrolled PM _{2.5} Emission Factor (lb/VMT) ^{2,3}	Assumed Control Efficiency for PM ₁₀ and PM _{2.5} (%)	Annual Number of Trips ^{4,5}	Trip Travel Distance ^{6,7}	VMT/Year ⁸	PM ₁₀ Emissions (lb/year)	PM ₁₀ Emissions (ton/year)	PM _{2.5} Emissions (lb/year) ^{7,8}	PM _{2.5} Emissions (ton/year) ⁵
Paved Roads	7.57	1.14	98	199,260	0.50	99,630	15,083.98	7.54	2,271.56	1.14
Unpaved Roads	7.57	0.767	90	2,555	0.64	1,635	1,237.85	0.62	125.42	0.06
TOTAL (tpy)								8.16		1.20

¹7.57 lb/VMT from Justification of DAQ's Default Emission Factor.

²1.14 lbs/VMT from DAQ's Paved Haul Roads Emission Factor for PM^{2.5}.

³0.767 lbs/VMT from DAQ's Unpaved Haul Roads Emissions Factor for PM^{2.5}.

⁴Number of paved road trips determined using fueling tank trucks and trailers, butane delivery trucks, ethanol testing trucks, golf carts, and terminal trucks. Number of golf carts and terminal trucks is calculated from number of half-mile distance increments traveled.

⁵Number of unpaved road trips determined using golf carts and terminal trucks.

⁶Paved road travel distance normalized to half-mile trips to maintain consistency with previous EU E01 methodology for fueling tank trucks and trailers and butane delivery trucks.

⁷Unpaved road travel distance based on amount of facility the remains unpaved.

⁸VMT = Ann. # of trips * trip travel distance

Original Haul Road Calculation for Reference

1,485,956,934 gallons / 8571 gal per truck = 173,375 trucks

173,375 trucks * 0.5 mi * 7.57 lb per VMT * 0.02% / 2000 = 6.56 tpy

	Total Miles Per Trip (feet)	Total Miles Per Trip (miles)	Maximum Trips per Year	Vehicle Miles Travelled (miles/year)	PM10 Emission Factor ¹ (lb/VMT)	Control Efficiency ²	Annual Emissions	
							PM10 (lbs/year)	PM10 (tpy)
Haul Road (Paved)	2390	0.45	925	418.7	7.57	98%	63.39	0.03
Haul Road (Unpaved Haul Road)	250	0.05		43.8		90%	33.15	0.02
Totals:							96.55	0.05

Notes: 1. DAQ-default emission factor for haul roads.
 2. Clark County approved control efficiency for paved and unpaved haul roads.

Greenhouse Gas PTE

GHG PTE was calculated using the 2023 GHG Emission Factors Hub spreadsheet from EPA’s website ([GHG Emission Factors Hub | US EPA](#)). The four stationary combustion units included in this calculation were the flare (EU B10), SVE thermal oxidizer component of the GW Treatment System (EU SR04), air compressor (EU B11), and fire water engine (D02). From calculations used to establish criteria pollutant PTEs, the fuel type and fuel consumption amounts were determined. The fuel type for B10 and SR04 is propane and diesel (distillate fuel oil No. 2) for B11 and D02.

GHG PTE — Fuel Factors

Fuel Type	CO ₂ Factor	CH ₄ Factor	N ₂ O Factor
	kg CO ₂ per mmBtu	g CH ₄ per mmBtu	g N ₂ O per mmBtu
Propane Gas	61.46	3.0	0.60
	kg CO ₂ per gallon	g CH ₄ per gallon	g N ₂ O per gallon
Distillate Fuel Oil No. 2	10.21	0.41	0.08

GHG PTE — Emissions

Equipment	Fuel Type	Fuel Amount	Fuel Unit	kg/yr			tonne/yr			
				CO ₂	CH ₄	N ₂ O	CO ₂	CH ₄	N ₂ O	CO _{2e}
Flare (B10)	Propane	9,373.27	mmBTU	576,081	28.12	5.62	576.08	0.03	0.01	578.46
SVE Thermal Oxidizer (SR04)	Propane	175,204.38	mmBTU	10,768,061	525.61	105.12	10,768.06	0.53	0.11	10,812.53
Air Compressor (B11)	Diesel	270	Gals	2,757	0.11	0.02	2.76	0	0	2.77
Fire Water Engine (D02)	Diesel	4,600.00	Gals	46,966	1.89	0.37	46.97	0	0	47.12
									Total	11,440.88

Controls and Applicable Requirement by Individual Storage Tank

EU	Application Date	Install Year	Capacity (gallons)	Capacity (barrels)	Facility ID	Control Requirements	Primary Seal Type	Secondary Seal Type	AR
A01	08/15/1973	1960	476,000	11,200	530	External Floating Roof with primary and secondary seals	Stainless Steel Shoe	Compression Plate - Fixed Tip	6B, WW
A02	08/15/1973	1961	541,000	12,890	531	External Floating Roof with primary and secondary seals	Stainless Steel Shoe	Compression Plate - Fixed Tip	6B, WW
A03	08/15/1973	1961	339,000	8,080	532	External Floating Roof with primary and secondary seals	Stainless Steel Shoe	Compression Plate - Fixed Tip	6B, WW
A04	08/15/1973	1960	476,000	11,330	533	External Floating Roof with primary and secondary seals	Stainless Steel Shoe	Compression Plate - Fixed Tip	6B, WW
A05	08/15/1973	1961	339,000	8,080	534	External Floating Roof with primary and secondary seals	Stainless Steel Shoe	Compression Plate - Fixed Tip	6B, WW
A06	08/15/1973	1961	339,000	8,080	535	External Floating Roof with primary and secondary seals	Stainless Steel Shoe	Compression Plate - Fixed Tip	6B, WW
A07	08/15/1973	1961	737,000	17,550	536	External Floating Roof with primary and secondary seals	Stainless Steel Shoe	Compression Plate - Fabric Wiper	6B, WW
A08	08/15/1973	1961	935,000	22,250	537	External Floating Roof with primary and secondary seals	Galvanized Steel Shoe	Metallic Spring Wiper	6B, WW
A09	08/15/1973	1961	476,000	11,330	538	External Floating Roof with primary and secondary seals	Stainless Steel Shoe	Compression Plate - Wiper Tip	6B, WW
A10	08/15/1973	1961	476,000	11,330	539	External Floating Roof with primary and secondary seals	Galvanized Steel Shoe	Metallic Spring Wiper	6B, WW
A11	08/15/1973	1961	709,600	16,320	540	Internal Floating Roof with primary and secondary seals	Low Profile Stainless Shoe	Compression Plate - Wiper Tip	6B, WW
A12	08/15/1973	1961	1,055,000	25,100	541	Domed External Floating Roof with primary and secondary seals	Stainless Steel Shoe	Compression Plate - Wiper Tip	6B, WW
A13	09/18/1989	1961	846,000	18,000	524	Internal Floating Roof with primary and secondary seals	Stainless Steel Shoe	Compression Plate - Wiper Tip	6B, WW

EU	Application Date	Install Year	Capacity (gallons)	Capacity (barrels)	Facility ID	Control Requirements	Primary Seal Type	Secondary Seal Type	AR
A14	08/15/1973	1970	1,975,000	45,000	542	Internal Floating Roof, Primary Seal	Stainless Steel Shoe	None	
A15	08/15/1973	1970	1,470,000	35,000	543	Internal Floating Roof, primary Seal	Stainless Steel Shoe	None	
A16	09/16/1998	1991	1,470,000	37,000	545	Internal Floating Roof with primary and secondary seals	Galvanized Steel Shoe	Compression Plate - Wiper Tip	Kb, 6B, WW
A17	11/15/1995	1995	1,680,000	40,000	546	Internal Floating Roof, with primary and secondary seals	Stainless Steel Shoe	Compression Plate - Fixed Tip	Kb, 6B, WW
A18	4/25/1997	1961	155,000	4,000	522	Internal Floating Roof, with primary and secondary seals	Stainless Steel Shoe	Compression Plate - Wiper Tip	
A19	04/25/1997	1982	1,890,000	50,000	525	Fixed Roof	None	None	
A20	04/25/1997	1988	2,015,000	50,000	526	Fixed Roof	None	None	
A21	04/25/1997	1995	1,680,000	50,000	547	Internal Floating Roof with primary and secondary seals	Galvanized Steel Shoe	Compression Plate - Wiper Tip	Kb, 6B, WW
A22	11/15/1995	1995	2,100,000	50,000	512	Fixed Roof	None	None	
A23	08/15/1973	1961	1,680,000	40,000	510	External Floating Roof, Primary Seal	Stainless Steel Shoe	None	

EU	Application Date	Install Year	Capacity (gallons)	Capacity (barrels)	Facility ID	Control Requirements	Primary Seal Type	Secondary Seal Type	AR
A24	08/15/1973	1961	1,680,000	40,000	511	External Floating Roof, Primary Seal	Stainless Steel Shoe	None	
A27	4/25/1997	1961	1,680,000	40,000	501	Internal Floating Roof AST w/Primary and Secondary Seal	Stainless Steel Shoe	Compression Plate - Fabric Wiper	
A25	05/08/2001	2002	55	1.3	ASA Conductivity Improver	Fixed Roof	None	None	
A26	04/25/1997	1962	10,700	252	500 AIA	Fixed Roof	None	None	
A28	08/30/1990	1961	393,000	10,000	523	Internal Floating Roof with primary and secondary seals	Galvanized Steel Shoe	Compression Plate - Wiper Tip	6B, WW
A29	12/13/1978	1978	462,000	11,000	544	Internal Floating Roof with primary and secondary seals	Stainless Steel Shoe	Compression Plate - Wiper Tip	Ka, 6B, WW
A30	04/25/1997	1987	10,700	252	533 A	Fixed Roof	None	None	
A31	04/25/1997	1961	19,600	464	537 A	Fixed Roof	None	None	
A32	04/25/1997	1990	16,100	380	541 A	Fixed Roof	None	None	

EU	Application Date	Install Year	Capacity (gallons)	Capacity (barrels)	Facility ID	Control Requirements	Primary Seal Type	Secondary Seal Type	AR
A33	04/25/1997	1990	16,100	380	541 B	Fixed Roof	None	None	
A34	04/25/1997	1982	9,000	215	542D	Fixed Roof	None	None	
A35	04/25/1997	1994	6,000	142	542A	Fixed Roof	None	None	
A36	04/25/1997	1961	6,000	143	531A	Fixed Roof	None	None	
A37	04/25/1997	1988	500	12	542C	Fixed Roof	None	None	
A38	04/25/1997	1961	20,000	447	537 B	Fixed Roof	None	None	
A39	04/25/1997	1961	4,900	119	531B	Fixed Roof	None	None	
A45	09/16/1998	1961	541,400	12,890	548	Domed External Floating Roof with primary and secondary seals	Stainless Steel Shoe	Compression Plate - Wiper Tip	6B, WW
A46	09/16/1998	1961	541,000	12,890	549	Domed External Floating Roof with primary and secondary seals	Stainless Steel Shoe	Compression Plate - Fixed Tip	6B, WW
A47	09/16/1998	1971	840,000	20,000	550	Internal Floating Roof with primary and secondary seals	Stainless Steel Shoe	Compression Plate - Fixed Tip	6B, WW
A48	04/25/1997	1961	424,200	10,100	551	Internal Floating Roof with primary and secondary seals	Stainless Steel Shoe	Compression Plate - Fixed Tip	6B, WW

EU	Application Date	Install Year	Capacity (gallons)	Capacity (barrels)	Facility ID	Control Requirements	Primary Seal Type	Secondary Seal Type	AR
A49 (inactive)	09/16/1998	1988	1000 (600 per inspection form)	14	542B	Fixed Roof	None	None	
A53	07/15/1998	1991	11,300	238	548B	Fixed Roof	None	None	
A54	07/15/1998	1991	10,000	238	548A	Fixed Roof	None	None	
A56	09/16/1998	2002	2,100,000	50,000	513	Internal Floating Roof with primary and secondary seals	Stainless Steel Shoe	Compression Plate - Wiper Tip	
A57	09/16/1998	2002	2,100,000	50,000	514	Internal Floating Roof, with primary and secondary seals	Stainless Steel Shoe	Compression Plate - Wiper Tip	
A58	02/05/2003	2002	3,360,000	80,000	553	Internal Floating Roof with primary and secondary seals	Stainless Steel Shoe	Compression Plate - Fixed Tip	Kb, 6B, WW
A59	02/05/2003	2006	3,360,000	80,000	554	Internal Floating Roof with primary and secondary seals	Galvanized Steel Shoe	Compression Plate - Fixed Tip	Kb, 6B, WW
A60	02/05/2003	2006	3,360,000	80,000	555	Internal Floating Roof with primary and secondary seals	Galvanized Steel Shoe	Compression Plate - Fixed Tip	Kb, 6B, WW
A61	02/05/2003	2002	1,680,000	40,000	552	Internal Floating Roof with primary and secondary seals	Stainless Steel Shoe	Compression Plate - Fixed Tip	Kb, 6B, WW
B04	08/22/1988	1961	126,000	3,000	500	Internal Floating Roof with primary and secondary seals	Stainless Steel Shoe	Rubber Wiper	Kb, 6B, WW
B05	02/23/1988	1961	212,000	5,000	521	Internal Floating Roof with primary and secondary seals	Stainless Steel Shoe	Compression Plate - Fabric Wiper	Kb, 6B, WW

EU	Application Date	Install Year	Capacity (gallons)	Capacity (barrels)	Facility ID	Control Requirements	Primary Seal Type	Secondary Seal Type	AR
D01	4/25/1997	1961	250	6	DG	Fixed Roof	None	None	
H02	08/31/2010	Unsure	1,000	24	Mainline sump	Fixed roof UST with vent	NA	NA	
H03	08/31/2010	Unsure	3,000	71	Rack sump	Fixed roof UST with vent	NA	NA	
H04	08/31/2010	Unsure	4,200	100	New Mainline sump	Fixed roof UST with vent	NA	NA	
H06	08/31/2010	2006	2,000	48	Nellis sump	Fixed roof UST with vent	NA	NA	
H07	08/31/2010	Unsure	1,000	24	Rack sump	Fixed roof UST with vent	NA	NA	
H08	08/31/2010	Unsure	100	2	QC sump	Fixed roof UST with vent	NA	NA	
H10	08/31/2010	1961	10,000	238	Tank 500B	AST VFR tank	None	None	
H11	08/31/2010	Unsure	0	0	OWS tank	AST Tank with P/V valves and Carbon adsorption unit with 95% control efficiency			
H12	08/31/2010	Unsure	1,000	24	OST-1200-DW	Dual wall HFR AST. Tank with P/V valves and Carbon adsorption unit with 95% control efficiency			
H14	6/20/2013	2002	350	8	ASA Tote	Rectangular AST, fixed roof	None	None	

EU	Application Date	Install Year	Capacity (gallons)	Capacity (barrels)	Facility ID	Control Requirements	Primary Seal Type	Secondary Seal Type	AR
H15	6/20/2013	2002	350	8	CI Tote	Rectangular AST, fixed roof	None	None	
H16	6/20/2013	2002	350	8	Lane 7 Red Dye Tote	Rectangular AST, fixed roof	None	None	
H17	2/28/2019	2002	350	8	Lane 12 Red Dye Tote	Rectangular AST, fixed roof	None	None	