ONEOK
ROCKIES MIDSTREAM
A SUBSIDIARY OF ONEOK PARTNERS

SUBMITTED VIA CERIS-ND

April 4, 2024

Mr. Jim Semerad
North Dakota Department of Environmental Quality
Division of Air Quality
4201 Normandy Street, 2nd Floor
Bismarck, ND 58503-1324

ONEOK ROCKIES MIDSTREAM, L.L.C.
ALAMO COMPRESSOR STATION
PERMIT TO CONSTRUCT APPLICATION

Dear Mr. Semerad:

ONEOK Rockies Midstream, L.L.C. (ORM) operates the Alamo Compressor Station, a permit exempt facility in Williams County. ORM submits this Permit to Construct application to authorize the addition of one (1) 2,500-hp Waukesha P9394GSI S5 compressor engine at the facility. ORM also requests the previous submitted Permit to Operate submitted on July 31, 2018 be used to incorporate all existing sources into this permit and the only change to the facility since the submittal in 2018 is that the 24-bbl methanol tank has been removed.

Enclosed with this letter are required application forms, emissions calculations, supporting documents and previously submitted application, as well as a check in the amount of $325.00 for the application fee. If you need additional information or have any questions, please contact me at 918-588-7862 or Joshua.Hills@oneok.com.

Sincerely,

Joshua Hills
Environmental Professional

Enclosures
xc: K. Rudningen/V. Danzeisen/L. Weltikol/D. Vande Bossche/G. Roe/K. Hanner/R. Brown (.pdf)
Tulsa Environmental Files – Alamo Compressor Station – Permit Actions - ACTS

Permit to Construct Application

Alamo Compressor Station

ONEOK Rockies Midstream, L.L.C.

ONEOK
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A SUBSIDIARY OF ONEOK PARTNERS

Submitted to NDDEQ Division of Air Quality
April 2024

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Introduction

ONEOK Rockies Midstream, L.L.C. (ORM) operates the Alamo Compressor Station, a permit exempt facility in Williams County. ORM plans to add one 2,500-hp Waukesha P9394GSI S5 compressor engine at the facility. ORM also requests the previous submitted Permit to Operate submitted on July 31, 2018 be used to incorporate all existing sources into this permit and the only change to the facility since the submittal in 2018 is that the 24-bbl methanol tank has been removed.

Facility Equipment

After construction, Alamo Compressor Station will consist of one (1) 2,500-hp Waukesha P9394GSI S5 compressor engine, six (6) electric-driven compressors, six (6) 400-bbl condensate storage tanks equipped with a vapor recovery unit (VRU), one (1) 200-bbl methanol tank, and one (1) emergency flare. Associated emission sources include condensate truck loading, fugitive emissions and miscellaneous vents and blowdowns.

Process Description

Alamo Compressor Station transports two-phase field gas from wells through an inlet separation vessel where free liquids (condensate and water) are removed. Natural gas then passes through a suction header that feeds the electric compressors, which boost gas pressure. The compressor units discharge natural gas into a pipeline for transmission. Condensate and water are stored in 400-bbl storage tanks until transported from the site. The condensate storage tanks are equipped with a vapor recovery unit (VRU) that vents to the suction header such that working, breathing and flashing emissions are comingled with the natural gas inlet stream and routed to the compressors. An emergency flare is utilized to combust compressor blowdowns and emergency upsets. Emissions from fugitive components and miscellaneous vents and blowdowns also occur at the facility.

Regulatory Applicability

The facility is a natural gas compressor station that falls under the North American Industrial Classification System (NAICS) code 211130 (formerly Standard Industrial Classification (SIC) 1311).

New Source Performance Standards 40 CFR Part 60 Subpart JJJJ, Stationary Spark Ignition Internal Combustion Engines (SI-ICE) promulgates emission standards for all new SI engines ordered after June 12, 2006, and all SI engines modified or reconstructed after June 12, 2006, regardless of size. The specific emission standards (either in g/hp-hr or as a concentration limit) vary based on engine class, engine power rating, lean-burn or rich-burn, fuel type, duty (emergency or non-emergency), and various manufacture dates. The compressor engine was manufactured after July 1, 2010; therefore, is subject to the Stage 2 emissions limitations of this subpart.

New Source Performance Standards 40 CFR Part 60 Subpart OOOO, Crude Oil and Natural Gas Facilities, establishes emission standards for the following equipment that commences construction, modification, or reconstruction after August 23, 2011 and on or before September 18, 2015 at crude oil and natural gas p facilities:

1. Each single gas well;
2. Single centrifugal compressors using wet seals located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment;
3. Single reciprocating compressors located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment;

6. The group of all equipment within a process unit at an onshore natural gas processing plant;
7. Sweetening units;
8. The group of all natural gas-driven pumps at a well site, centralized production facility, onshore natural gas processing plant, or compressor station;
9. The group of fugitive emissions equipment at a well site, centralized production facility or compressor station;

The six existing electric-driven compressors were constructed prior to December 6, 2022; therefore, they are not subject to this subpart. The six existing condensate tanks were constructed prior to December 6, 2022; therefore, they are not subject to this subpart. With the addition of the natural gas engine driven compressor, the facility will meet the definition of a modified compressor station under this subpart; however the facility was subject to OOOOa and is currently in compliance with the NSPS leak detection requirements. The additional natural gas engine driven compressor will also be subject to the OOOOb standards for reciprocating compressors.

National Emission Standards for Hazardous Air Pollutants 40 CFR Part 63 Subpart ZZZZ, Reciprocating Internal Combustion Engines (RICE), affects any existing, new or reconstructed stationary RICE located at a major or area source of HAP emissions. Owners and operators of new or reconstructed engines at area sources must meet the requirements of Subpart ZZZZ by complying with either 40 CFR Part 60 Subpart IIII (for CI engines) or 40 CFR Part 60 Subpart JJJJ (for SI engines). Based on emission calculations, this facility is a minor source of HAP. Since the compressor engine is subject to 40 CFR Part 60 Subpart JJJJ, they automatically satisfy the requirements of Subpart ZZZZ by complying with NSPS Subpart JJJJ. There are no further requirements under Subpart ZZZZ for this engine.

Application Forms

Form SFN 8516 – Permit Application for Air Contaminant Sources

Form SFN 59652 – Permit Application for Flares

Form SFN 8535 – Permit Application for Volatile Organic Compounds Storage Tank

PERMIT APPLICATION FOR AIR CONTAMINANT SOURCES

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 8516 (9-2021)

SECTION A - FACILITY INFORMATION

Name of Firm or Organization ONEOK Rockies Midstream, L.L.C.		
Applicant's Name Dick Vande Bossche		
Title Vice President, ONEOK Rockies Midstream Operations	Telephone Number (406) 433-8710	E-mail Address dick.vandebossche@oneok.com
Contact Person for Air Pollution Matters Joshua Hills		
Title Environmental Professional	Telephone Number (918) 588-7862	E-mail Address Joshua.Hills@oneok.com
Mailing Address (Street & No.) 100 W. Fifth St.		
City Tulsa	State OK	ZIP Code 74103
Facility Name Alamo Compressor Station		
Facility Address (Street & No.) 13393 74th St NW		
City Alamo	State ND	ZIP Code 58830

County Williams	Coordinates NAD 83 in Decimal Degrees (to forth decimal degree)	
	Latitude 49.49014300	Longitude -103.57943100

Legal Description of Facility Site

Quarter	Quarter	Section	Township	Range
SW	SW	23	158N	100W

Land Area at Facility Site 15 Acres (or) _____ Sq. Ft.	MSL Elevation at Facility 2126 ft

SECTION B – GENERAL NATURE OF BUSINESS

Describe Nature of Business	North American Industry Classification System Number	Standard Industrial Classification Number (SIC)
Natural Gas Gathering	211130	1311

SECTION C – GENERAL PERMIT INFORMATION

Type of Permit? ☒ Permit to Construct (PTC) ☐ Permit to Operate (PTO)

If application is for a Permit to Construct, please provide the following data:

Planned Start Construction Date	Planned End Construction Date
07/2024	08/2024

SECTION D – SOURCE IDENTIFICATION AND CATEGORY OF EACH SOURCE INCLUDED ON THIS PERMIT APPLICATION

		Permit to Construct				Minor Source Permit to Operate						
Your Source ID Number	Source or Unit (Equipment, Machines, Devices, Boilers, Processes, Incinerators, Etc.)	New Source	Existing Source Modification	Existing Source Expansion	Existing Source Change of Location	New Source	Existing Source Initial Application	Existing Source After Modification	Existing Source After Expansion	Existing Source After Change of Location	Existing Source After Change of Ownership	Other
C-1	2,500-hp Waukesha P9394 GSI S Engine	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Add additional pages if necessary

SECTION D2 – APPLICABLE REGULATIONS

Source ID No.	Applicable Regulations (NSPS/MACT/NESHAP/etc.)
Facility-wide	NSPS OOOOb (Fugitive Monitoring)
C-1	NSPS OOOOb (Compressor Rod Packing)
C-1	NSPS JJJJ/NESHAP ZZZZ

SECTION E – TOTAL POTENTIAL EMISSIONS

Pollutant	Amount (Tons Per Year)
NO_x	24.22
CO	48.44
PM	1.54

Pollutant	Amount (Tons Per Year)
PM_{10} (filterable and condensable)	1.54
$PM_{2.5}$ (filterable and condensable)	1.54
SO_2	0.28
VOC	74.23
GHG (as CO_2e)	12206.73
Largest Single HAP	1.20
Total HAPS	4.35

*If performance test results are available for the unit, submit a copy of test with this application. If manufacturer guarantee is used provide spec sheet.

SECTION F1 – ADDITIONAL FORMS

Indicate which of the following forms are attached and made part of the application

☒ Air Pollution Control Equipment (SFN 8532)	☐ Fuel Burning Equipment Used for Indirect Heating (SFN 8518)
☐ Construct/Operate Incinerators (SFN 8522)	☐ Hazardous Air Pollutant (HAP) Sources (SFN 8329)
☐ Natural Gas Processing Plants (SFN 11408)	☐ Manufacturing or Processing Equipment (SFN 8520)
☐ Glycol Dehydration Units (SFN 58923)	☐ Volatile Organic Compounds Storage Tank (SFN 8535)
☐ Flares (SFN 59652)	☒ Internal Combustion Engines and Turbines (SFN 8891)
☐ Grain, Feed, and Fertilizer Operations (SFN 8524)	☐ Oil/Gas Production Facility Registration (SFN 14334)

SECTION F2 – OTHER ATTACHMENTS INCLUDED AS PART OF THIS APPLICATION

1.	Process Description and Regulatory Applicability	4.	Emission Calculations
2.	Area Map	5.	Support Documentation
3.	Process Flow Diagram	6.	

I, the undersigned applicant, am fully aware that statements made in this application and the attached exhibits and statements constitute the application for Permit(s) to Construct and/or Operate Air Contaminant sources from the North Dakota Department of Environmental Quality and certify that the information in this application is true, correct and complete to the best of my knowledge and belief. Further, I agree to comply with the provisions of Chapter 23.1-06 of the North Dakota Century Code and all rules and regulations of the Department, or revisions thereof. I also understand the permit is nontransferable and, if granted a permit, I will promptly notify the Department upon sale or legal transfer of this permitted establishment.

Signature	Date
DocuSigned by: Dick Vande Bossche 67B797C4193640F...	4/4/2024

INSTRUCTIONS

SITE PLANS TO BE ATTACHED TO APPLICATION:

Prepare and attach a plot plan drawn to scale or properly dimensioned, showing at least the following:

a. The property involved and the outlines and heights of all buildings on the property. Identify property lines plainly. Also, indicate if there is a fence around the property that prevents public access.

b. Location and identification of all existing or proposed equipment, manufacturing processes, etc., and points of emission or discharge of air contaminants to the atmosphere.

c. Location of the facility or property with respect to the surrounding area, including residences, businesses and other permanent structures, streets and roadways. Identify all such structures and roadways. Indicate direction (**NORTH**) on the drawing and the prevailing wind direction.

EQUIPMENT PLANS AND SPECIFICATIONS FOR PERMIT TO CONSTRUCT:

Supply plans and specifications, including as a minimum an assembly drawing, dimensioned and to scale, in plan, elevation and as many sections as are needed to show clearly the design and operation of the equipment and the means by which air contaminants are controlled.

The following must be shown:

a. Size and shape of the equipment. Show exterior and interior dimensions and features.

b. Locations, sizes, and shape details of all features which may affect the production, collection, conveying, or control of air contaminants of any kind, location, size, and shape details concerning all material handling equipment.

c. All data and calculations used in selecting or designing the equipment.

d. Horsepower rating of all internal combustion engines driving the equipment.

NOTE: **STRUCTURAL DESIGN CALCULATIONS AND DETAILS ARE NOT REQUIRED.** WHEN STANDARD COMMERCIAL EQUIPMENT IS TO BE INSTALLED, THE MANUFACTURER'S CATALOG DESCRIBING THE EQUIPMENT MAY BE SUBMITTED IN LIEU OF ITEMS a, b, c, and d OF ABOVE, WHICH THE CATALOG COVERS. ALL INFORMATION REQUIRED ABOVE THAT THE CATALOG DOES NOT CONTAIN MUST BE SUBMITTED BY THE APPLICANT.

ADDITIONAL INFORMATION MAY BE REQUIRED:

If the application is signed by an authorized representative of the owner, a LETTER OF AUTHORIZATION must be attached to the application.

SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of Environmental Quality
Division of Air Quality
4201 Normandy Street, 2nd Floor
Bismarck, ND 58503-1324
(701) 328-5188

PERMIT APPLICATION FOR INTERNAL COMBUSTION ENGINES AND TURBINES

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 8891 (3-2019)

NOTE: READ INSTRUCTIONS BEFORE COMPLETING THIS FORM.
- Must include SFN 8516 or SFN 52858

SECTION A – GENERAL INFORMATION

Name of Firm or Organization	Facility Name
ONEOK Rockies Midstream, L.L.C.	Alamo Compressor Station

SECTION B – FACILITY AND UNIT INFORMATION

Source ID Number (From form SFN 8516): C-1

Type of Unit (check all that apply)		
	☒ Stationary Natural Gas-Fired Engine	☐ Emergency Use Only
	☐ Stationary Diesel and Dual Fuel Engine	☒ Non-Emergency Use
	☐ Stationary Gasoline Engine	☐ Peaking
	☐ Stationary Natural Gas-Fired Turbine	☐ Demand Response
	☐ Other – Specify:	

SECTION C – MANUFACTURER DATA

Make	Model	Date of Manufacture
Waukesha	P9394 GSI Series 5	2023

Reciprocating Internal Combustion Engine

☒ Spark Ignition ☐ Compression Ignition

☒ 4 Stroke ☐ 2 Stroke ☒ Rich Burn ☐ Lean Burn

Maximum Rating (BHP @ rpm)	Operating Capacity (BHP @ rpm)
2,500-HP	2,500-HP

Engine Subject to:
☐ 40 CFR 60, Subpart IIII ☒ 40 CFR 60, Subpart JJJJ ☒ 40 CFR 63, Subpart ZZZZ
☐ 40 CFR 60, Subpart OOOO ☐ 40 CFR 60, Subpart OOOOa

Turbine — Dry Low Emissions? ☐ Yes ☐ No

Heat Input (MMBtu/hr)	Maximum Rating (HP)	75% Rating (HP)	Efficiency

Turbine Subject to: ☐ 40 CFR 60, Subpart GG ☐ 40 CFR 60, Subpart KKKK

SECTION D – FUELS USED

Natural Gas (10^6 cu ft/year)	Percent Sulfur	Percent H_2S
154.7		
Oil (gal/year)	Percent Sulfur	Grade No.
LP Gas (gal/year)	Other – Specify:	

SECTION E – NORMAL OPERATING SCHEDULE

Hours Per Day	Days Per Week	Weeks Per Year	Hours Per Year	Peak Production Season (if any)
24	7	52	8760	

SECTION F – STACK PARAMETERS

Emission Point ID Number		Stack Height Above Ground Level (feet)	
		30	
Stack Diameter (feet at top)	**Gas Discharged (SCFM)**	**Exit Temp (°F)**	**Gas Velocity (FPS)**
4.5	10,512	1,117	11.02

SECTION G – EMISSION CONTROL EQUIPMENT

Is any emission control equipment installed on this unit?

☐ No ■ Yes – Complete and attach form SFN 8532

SECTION H – MAXIMUM AIR CONTAMINANTS EMITTED

Pollutant	Maximum Pounds Per Hour	Amount (Tons Per Year)	Basis of Estimate*
NO_x	5.50	24.09	NSPS JJJJ Limit
CO	11.00	48.18	NSPS JJJJ Limit
PM	0.35	1.53	AP-42 Table 3.2-2 (7/00)
PM_{10} (filterable and condensable)	0.35	1.53	AP-42 Table 3.2-2 (7/00)
$PM_{2.5}$ (filterable and condensable)	0.35	1.53	AP-42 Table 3.2-2 (7/00)
SO_2	0.01	0.05	AP-42 Table 3.2-2 (7/00)
VOC	3.85	16.86	NSPS JJJJ Limit
GHG (as CO_2e)	2609.18	11428.19	40 CFR Tables C-1 and C-2
Largest Single HAP	0.28	1.20	Formaldehyde: Manufacturer data
Total HAPS	0.38	1.67	AP-42 Table 3.2-2 (7/00)

* If performance test results are available for the unit, submit a copy of test with this application, if manufacture data used, submit manufacturers specification sheets.

IS THIS UNIT IN COMPLIANCE WITH ALL APPLICABLE AIR POLLUTION RULES AND REGULATIONS?

■ YES ☐ NO

If "NO" a Compliance Schedule (SFN 61008) must be completed and attached.

Attach and label separate sheet(s) if you need more space to explain any system or answers or to provide complete listings of Emissions, Contaminants, or other items.

SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of Environmental Quality
Division of Air Quality
918 E Divide Avenue, 2nd Floor
Bismarck, ND 58501-1947
(701) 328-5188

PERMIT APPLICATION FOR AIR POLLUTION CONTROL EQUIPMENT

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 8532 (3-2019)

NOTE: READ INSTRUCTIONS BEFORE COMPLETING THIS FORM.
- Must also include forms SFN 8516 or SFN 52858

SECTION A – GENERAL INFORMATION

Name of Firm or Organization	Facility Name
ONEOK Rockies Midstream, L.L.C.	Alamo Compressor Station
Source ID No. of Equipment being Controlled C-1	

SECTION B – EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ☐ Baghouse ☐ Electrostatic Precipitator
☐ Wet Scrubber ☐ Spray Dryer ☐ Flare/Combustor
☒ Other – Specify: NSCR

Name of Manufacturer	Model Number	Date to Be Installed
Miratech	MECB-OX-SB2700-2421-233-291	TBD

Application:
☐ Boiler ☐ Kiln ☒ Engine ☐ Other – Specify:

Pollutants Removed	NOx	CO	CH2O	VOC
Design Efficiency (%)				
Operating Efficiency (%)				

Describe method used to determine operating efficiency:
Data provided by manufacturer

SECTION CD – GAS CONDITIONS

Gas Conditions			Inlet	Outlet
Gas Volume (SCFM; 68°F; 14.7 psia)				
Gas Temperature (°F)				
Gas Pressure (in. H_2O)				
Gas Velocity (ft/sec)				
Pollutant Concentration (Specify Pollutant and Unit of Concentration)	Pollutant	Unit of Concentration		
	NOx	g/hp-hr	11.7	1.0
	CO	g/hp-hr	6.3	2.0
	CH2O	g/hp-hr	0.05	0.05
	VOC	g/hp-hr	1.00	1.00
Pressure Drop Through Gas Cleaning Device (in. H_2O)				

INSTRUCTIONS FOR PERMIT APPLICATION FOR AIR POLLUTION CONTROL EQUIPMENT

1. Complete this form for each piece of equipment or process, which has air pollution control equipment installed, described in the following Permit Applications: Hazardous Air Pollutant (HAP) Sources (SFN 8329), Fuel Burning Equipment for Indirect Heating (SFN 8518); Manufacturing or Processing Equipment (SFN 8520); Incinerators/Crematories (SFN 8522); Internal Combustion Engines and Turbines (SFN 8891); and Glycol Dehydration Units (SFN 58923). Print or type all information. If an item does not apply, place NA in the appropriate space.

2. Type of Equipment - If the type is not one of those listed; provide enough information so the operating principal of the equipment can be determined.

3. List each pollutant which the device is intended to control, the efficiency of removal intended by the designer, and the actual efficiency under operating conditions.

4. Please attach the following:

   - A brief description and sketch of the air pollution control device if it is of unusual design or used in conjunction with other control devices. Show any bypass of the device and specify the conditions under which the bypass is used.

   - A description of what is done with collected air contaminants from the time they are collected until they reach the final disposal point. Include a description of the transportation methods used.

   - If a stack test has been conducted, attach a copy of the results, date of the test, a description of the techniques used, and the name and address of the organization which performed the test.

5. If the control device is a combustor (e.g.: thermal oxidizer, vapor combustion unit, etc.), include an estimate of potential greenhouse gas emissions (CO_2e).

SUBMIT YOUR APPLICATION WITH ALL SUPPORTING DOCUMENTS, ALONG WITH THE FORMS SPECIFIED IN THE FIRST PARAGRAPH ABOVE, TO:

North Dakota Department of Environmental Quality
Division of Air Quality
918 E Divide Avenue, 2nd Floor
Bismarck, ND 58501-1947
(701) 328-5188

Appendix A - Maps and Drawings

Figure 1 – Area Map

Figure 2 – Process Flow Diagram

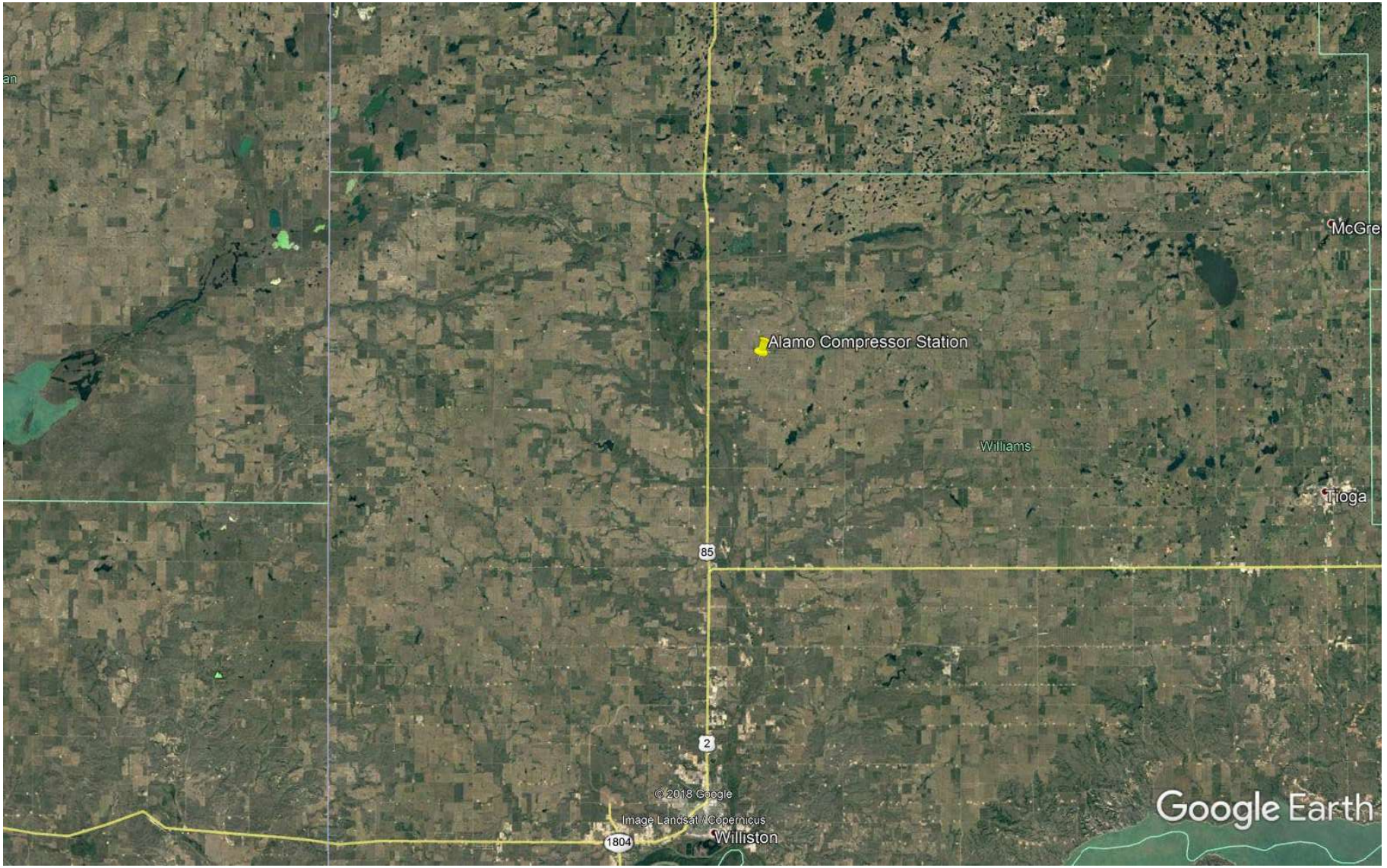

Figure Title: **Area Map**

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Figure 1.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Williams County, ND

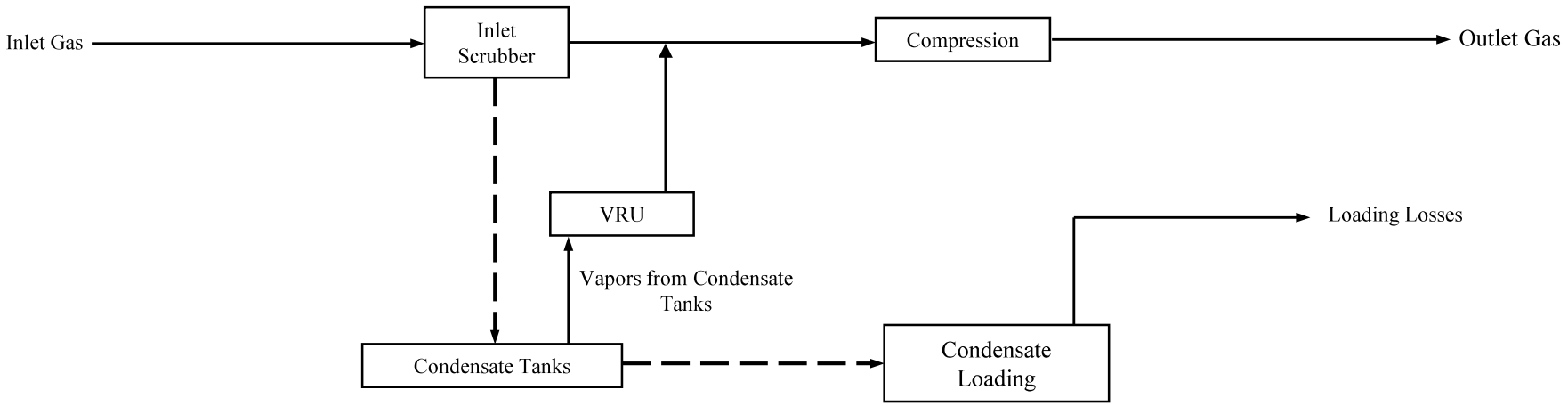

Figure Title: **Process Flow Diagram**

ONEOK ROCKIES MIDSTREAM
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Figure 2.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Williams County, ND

Appendix B – Emissions Calculations

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Facility Emissions Summary - Annual

Unit ID	Description	NOx	CO	VOC	SO_2	PM	HCHO	HAP	CO_2e
		TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY
C-1	2,500-hp Waukesha P9394 GSI Series 5	24.09	48.18	16.86	0.05	1.53	1.20	1.67	11,428.19
TK-1	400-bbl Condensate Tank	--	--	5.81	--	--	--	0.31	11.43
TK-2	400-bbl Condensate Tank	--	--	0.41	--	--	--	0.02	0.00
TK-3	400-bbl Condensate Tank	--	--	0.41	--	--	--	0.02	0.00
TK-6	400-bbl Condensate Tank	--	--	5.81	--	--	--	0.31	11.43
TK-7	400-bbl Condensate Tank	--	--	0.41	--	--	--	0.02	0.00
TK-8	400-bbl Condensate Tank	--	--	0.41	--	--	--	0.02	0.00
TL-1	Condensate Truck Loading	--	--	27.65	--	--	--	1.47	12.35
FL-1	Emergency Flare	0.13	0.26	0.17	0.24	0.01	<0.01	<0.01	181.33
TK-4	200-bbl Methanol Tank	--	--	0.17	--	--	--	0.17	--
FUG	Fugitive Emissions	--	--	11.82	--	--	--	0.32	398.00
BD	Miscellaneous Venting and Blowdowns to Atmosphere	--	--	4.30	--	--	--	0.02	163.99
	Total =	**24.22**	**48.44**	**74.23**	**0.28**	**1.54**	**1.20**	**4.35**	**12,206.73**

Note:
Miscellaneous venting and blowdowns to atmosphere include, but are not limited to, miscellaneous planned and unplanned venting to atmosphere from pressure relief valves, startup, shut-down, maintenance, compressor blowdowns, pigging actions, and/or pneumatic controllers.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Facility Emissions Summary - Hourly

Unit ID	Description	NOx	CO	VOC	SO_2	PM	HCHO	HAP	CO_2e
		lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
C-1	2,500-hp Waukesha P9394 GSI Series 5	5.50	11.00	3.85	0.01	0.35	0.28	0.38	2,609.18
TK-1	400-bbl Condensate Tank	--	--	1.33	--	--	--	0.07	2.61
TK-2	400-bbl Condensate Tank	--	--	0.09	--	--	--	0.01	0.00
TK-3	400-bbl Condensate Tank	--	--	0.09	--	--	--	0.01	0.00
TK-6	400-bbl Condensate Tank	--	--	1.33	--	--	--	0.07	2.61
TK-7	400-bbl Condensate Tank	--	--	0.09	--	--	--	0.01	0.00
TK-8	400-bbl Condensate Tank	--	--	0.09	--	--	--	0.01	0.00
TL-1	Condensate Truck Loading	--	--	6.31	--	--	--	0.33	2.82
FL-1	Emergency Flare	0.18	0.75	0.65	0.94	<0.01	<0.01	<0.01	328.36
TK-4	200-bbl Methanol Tank	--	--	--	--	--	--	--	--
FUG	Fugitive Emissions	--	--	2.70	--	--	--	0.07	90.87
BD	Miscellaneous Venting and Blowdowns to Atmosphere	--	--	--	--	--	--	--	--
	Total =	**5.68**	**11.75**	**16.54**	**0.95**	**0.35**	**0.28**	**0.95**	**3,036.44**

Note:
1) Hourly emissions from tanks and flares are estimates based on average values.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Facility Analyses

Component	Molecular Weight	Stream 1 Inlet Gas				Stream 2 Condensate				Stream 3 Flash Gas			
		Mole %	Equiv. Wt. Basis	Weight %	HC Weight %	Mole %	Equiv. Wt. Basis	Weight %	HC Weight %	Mole %	Equiv. Wt. Basis	Weight %	HC Weight %
Hydrogen Sulfide	34.081	0.3000%	0.10	0.43%	-	0.0000%	0.00	0.00%	-	0.0000%	0.00	0.00%	-
Carbon Dioxide	44.010	0.7310%	0.32	1.34%	-	0.0068%	0.00	0.00%	-	0.4020%	0.18	0.43%	-
Nitrogen	28.013	2.0350%	0.57	2.38%	-	0.0000%	0.00	0.00%	-	0.0000%	0.00	0.00%	-
Helium	4.003	0.0000%	0.00	0.00%	-	0.0000%	0.00	0.00%	-	0.0000%	0.00	0.00%	-
Oxygen	31.999	0.0000%	0.00	0.00%	-	0.0000%	0.00	0.00%	-	0.0000%	0.00	0.00%	-
Methane	16.043	61.9740%	9.94	41.46%	43.26%	0.0827%	0.01	0.01%	0.01%	15.6000%	2.50	6.13%	6.15%
Ethane	30.069	21.6850%	6.52	27.19%	28.37%	1.1200%	0.34	0.37%	0.37%	28.0000%	8.42	20.61%	20.70%
Propane	44.096	9.4690%	4.18	17.41%	18.17%	5.0700%	2.24	2.46%	2.46%	31.7000%	13.98	34.22%	34.37%
i-Butane	58.122	0.8550%	0.50	2.07%	2.16%	1.6500%	0.96	1.06%	1.06%	3.5900%	2.09	5.11%	5.13%
n-Butane	58.122	2.1890%	1.27	5.31%	5.54%	8.8200%	5.13	5.65%	5.65%	12.4000%	7.21	17.64%	17.72%
i-Pentane	72.149	0.2650%	0.19	0.80%	0.83%	4.5800%	3.30	3.64%	3.64%	2.3700%	1.71	4.19%	4.20%
n-Pentane	72.149	0.3370%	0.24	1.01%	1.06%	9.7900%	7.06	7.79%	7.79%	3.5900%	2.59	6.34%	6.37%
n-Hexane	86.175	0.0240%	0.02	0.09%	0.09%	16.0000%	13.79	15.20%	15.20%	1.4600%	1.26	3.08%	3.09%
Other Hexanes	86.175	0.1022%	0.09	0.37%	0.38%	0.0000%	0.00	0.00%	0.00%	0.0000%	0.00	0.00%	0.00%
Heptanes	100.202	0.0110%	0.01	0.05%	0.05%	24.9000%	24.95	27.51%	27.51%	0.6340%	0.64	1.56%	1.56%
Benzene	78.114	0.0053%	0.00	0.02%	0.02%	0.4440%	0.35	0.38%	0.38%	0.0405%	0.03	0.08%	0.08%
Toluene	92.141	0.0046%	0.00	0.02%	0.02%	1.1000%	1.01	1.12%	1.12%	0.0257%	0.02	0.06%	0.06%
Ethylbenzene	106.167	0.0002%	0.00	0.00%	0.00%	0.4270%	0.45	0.50%	0.50%	0.0029%	0.00	0.01%	0.01%
Xylenes	106.167	0.0012%	0.00	0.01%	0.01%	1.3700%	1.45	1.60%	1.60%	0.0074%	0.01	0.02%	0.02%
Octanes	114.229	0.0077%	0.01	0.04%	0.04%	16.2000%	18.51	20.40%	20.40%	0.1130%	0.13	0.32%	0.32%
2,2,4-Trimethylpentane	114.231	0.0043%	0.00	0.02%	0.02%	0.0000%	0.00	0.00%	0.00%	0.0000%	0.00	0.00%	0.00%
Nonanes	128.255	0.0000%	0.00	0.00%	0.00%	6.0800%	7.80	8.60%	8.60%	0.0112%	0.01	0.04%	0.04%
Decanes	142.282	0.0000%	0.00	0.00%	0.00%	2.3595%	3.36	3.70%	3.70%	0.0533%	0.08	0.19%	0.19%
Totals =		100.0005%	23.98	100.00%	100.00%	100.0000%	90.71	100.00%	100.00%	100.0000%	40.85	100.00%	100.00%
		Total HC =	**22.98**	**Total VOC =**	**28.38%**	**Total HC =**	**90.71**	**Total VOC =**	**99.61%**	**Total HC =**	**40.67**	**Total VOC =**	**73.15%**
				Total HAP =	**0.15%**			**Total HAP =**	**18.80%**			**Total HAP =**	**3.26%**

Notes:
1) Representative gas analysis. Condensate and flash gas compositions calculated with ProMax process simulation.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Engine Information and Manufacturer Emission Factors

Equipment Information	
	C-1
Make	Waukesha
Model	P9394 GSI Series 5
Design Rating (hp)	2,500
Fuel Consumption (Btu/hp-hr)	7,205
Fuel Consumption (scfh)	17,659
Fuel Consumption (mmBtu/hr)	18.01
Fuel Consumption (scf/yr)	154,695,588
Fuel Heating Value (Btu/scf)	1,020
Design Class	4S-RB
Controls	NSCR
Operating Hours	8,760
Stack Height (ft)	30.0
Stack Diameter (ft)	4.5
Exhaust Temperature (°F)	1,117
Exhaust Flow (acfm)	10,512
Exhaust Flow (scfh)	211,173
Exit Velocity (ft/s)	11.02

Uncontrolled Emission Factors	
	C-1
NOx (g/hp-hr)	12.70
CO (g/hp-hr)	6.30
VOC (g/hp-hr)	0.20
Formaldehyde (g/hp-hr)	0.05
CO_2 (g/hp-hr)	474.00

Control Efficiency	
	C-1
NOx	95.00%
CO	90.00%
VOC	50.00%
Formaldehyde	40.00%

Post-Control Emission Factors	
	C-1
NOx (g/hp-hr)	1.00
CO (g/hp-hr)	2.00
VOC (g/hp-hr)	0.70
Formaldehyde (g/hp-hr)	0.05
CO_2 (g/hp-hr)	474.00

Notes:

1) Nox, CO, VOC based on NSPS JJJJ Limits

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Engine AP-42/EPA Emission Factors

Emission Factors	
	4S-RB
NOx (lb/mmBtu)	2.21E+00
CO (lb/mmBtu)	3.72E+00
VOC (lb/mmBtu)	2.96E-02
SO_2 (lb/mmBtu)	5.88E-04
$PM_{10/2.5}$ (lb/mmBtu)	9.50E-03
PM_{COND} (lb/mmBtu)	9.91E-03
PM_{TOT} (lb/mmBtu)	1.94E-02
Acetaldehyde (lb/mmBtu)	2.79E-03
Acrolein (lb/mmBtu)	2.63E-03
Benzene (lb/mmBtu)	1.58E-03
Ethylbenzene (lb/mmBtu)	2.48E-05
Formaldehyde (lb/mmBtu)	2.05E-02
Methanol (lb/mmBtu)	3.06E-03
n-Hexane (lb/mmBtu)	NA
Toluene (lb/mmBtu)	5.58E-04
Xylenes (lb/mmBtu)	1.95E-04
Other HAP (lb/mmBtu)	1.08E-03
Carbon Dioxide (CO_2) (kg/mmBtu)	5.31E+01
Methane (CH_4) (kg/mmBtu)	1.00E-03
Nitrous Oxide (N_2O) (kg/mmBtu)	1.00E-04

Control Efficiency	
	4S-RB
HAP	50.00%

Post-Control Emission Factors	
	4S-RB
NOx (lb/mmBtu)	2.21E+00
CO (lb/mmBtu)	3.72E-01
VOC (lb/mmBtu)	1.48E-02
SO_2 (lb/mmBtu)	5.88E-04
$PM_{10/2.5}$ (lb/mmBtu)	9.50E-03
PM_{COND} (lb/mmBtu)	9.91E-03
PM_{TOT} (lb/mmBtu)	1.94E-02
Acetaldehyde (lb/mmBtu)	1.40E-03
Acrolein (lb/mmBtu)	1.32E-03
Benzene (lb/mmBtu)	7.90E-04
Ethylbenzene (lb/mmBtu)	1.24E-05
Formaldehyde (lb/mmBtu)	1.03E-02
Methanol (lb/mmBtu)	1.53E-03
n-Hexane (lb/mmBtu)	NA
Toluene (lb/mmBtu)	2.79E-04
Xylenes (lb/mmBtu)	9.75E-05
Other HAP (lb/mmBtu)	5.40E-04
Carbon Dioxide (CO_2) (kg/mmBtu)	5.31E+01
Methane (CH_4) (kg/mmBtu)	1.00E-03
Nitrous Oxide (N_2O) (kg/mmBtu)	1.00E-04

Notes:
1) Criteria pollutant and hazardous air pollutant emission factors are from AP-42 Table 3.2-2 (7/00). Greenhouse

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Engine Emissions Calculations

Unit ID: C-1

Pollutant	Emission Factor			Capacity			Conversion			Hourly Emissions			Operating Hours		Conversion			Annual Emissions	
NOx	1.00E+00	g/hp-hr	X	2,500	hp	X	0.0022	lb/gr	=	**5.50**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**24.09**	**TPY**
CO	2.00E+00	g/hp-hr	X	2,500	hp	X	0.0022	lb/gr	=	**11.00**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**48.18**	**TPY**
VOC	7.00E-01	g/hp-hr	X	2,500	hp	X	0.0022	lb/gr	=	**3.85**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**16.86**	**TPY**
SO_2	5.88E-04	lb/mmBtu	X	18.01	mmBtu/hr	X	-	-	=	**0.01**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**0.05**	**TPY**
$PM_{10/2.5}$	9.50E-03	lb/mmBtu	X	18.01	mmBtu/hr	X	-	-	=	**0.17**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**0.75**	**TPY**
PM_{COND}	9.91E-03	lb/mmBtu	X	18.01	mmBtu/hr	X	-	-	=	**0.18**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**0.78**	**TPY**
PM_{TOT}	1.94E-02	lb/mmBtu	X	18.01	mmBtu/hr	X	-	-	=	**0.35**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**1.53**	**TPY**
Acetaldehyde	1.40E-03	lb/mmBtu	X	18.01	mmBtu/hr	X	-	-	=	**0.03**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**0.11**	**TPY**
Acrolein	1.32E-03	lb/mmBtu	X	18.01	mmBtu/hr	X	-	-	=	**0.02**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**0.10**	**TPY**
Benzene	7.90E-04	lb/mmBtu	X	18.01	mmBtu/hr	X	-	-	=	**0.01**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**0.06**	**TPY**
Ethylbenzene	1.24E-05	lb/mmBtu	X	18.01	mmBtu/hr	X	-	-	=	**<0.01**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**<0.01**	**TPY**
Formaldehyde	5.00E-02	g/hp-hr	X	2,500	hp	X	0.0022	lb/gr	=	**0.28**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**1.20**	**TPY**
Methanol	1.53E-03	lb/mmBtu	X	18.01	mmBtu/hr	X	-	-	=	**0.03**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**0.12**	**TPY**
n-Hexane	NA	lb/mmBtu	X	18.01	mmBtu/hr	X	-	-	=	**0.00**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**0.00**	**TPY**
Toluene	2.79E-04	lb/mmBtu	X	18.01	mmBtu/hr	X	-	-	=	**0.01**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**0.02**	**TPY**
Xylenes	9.75E-05	lb/mmBtu	X	18.01	mmBtu/hr	X	-	-	=	**<0.01**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**0.01**	**TPY**
Other HAP	5.40E-04	lb/mmBtu	X	18.01	mmBtu/hr	X	-	-	=	**0.01**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**0.04**	**TPY**
CO_2	4.74E+02	g/hp-hr	X	2,500	hp	X	0.0022	lb/gr	=	**2,607.00**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**11,418.66**	**TPY**
CH_4	1.00E-03	kg/mmBtu	X	18.01	mmBtu/hr	X	2.20462	lb/kg	=	**0.04**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**0.17**	**TPY**
N_2O	1.00E-04	kg/mmBtu	X	18.01	mmBtu/hr	X	2.20462	lb/kg	=	**<0.01**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**0.02**	**TPY**

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Tank Information

Equipment Information		
	TK-1 - TK-3	**TK-6 - TK-8**
Contents	Condensate	Condensate
Number of Tanks	3	3
Capacity (bbl)	400	400
Capacity (gal)	16,800	16,800
Total Throughput (bbl/yr)	95,000	95,000
Total Throughput (gal/yr)	3,990,000	3,990,000
Total Throughput (bbl/d)	161	600
Per Tank Throughput (bbl/yr)[1]	95,000	95,000
Per Tank Throughput (gal/yr)[1]	3,990,000	3,990,000
Per Tank Throughput (bbl/d)	161	200
TANKS 4.0.9d Working Losses (lb/yr)[2]	12,750.58	12,750.58
TANKS 4.0.9d Breathing Losses (lb/yr)[2]	3,782.58	3,782.58
Flash Calculation Method	Process Simulation	Process Simulation
VOC Tank Flashing Emission Factor (lb VOC/bbl)[2]	2.271	2.271
CO_2 Tank Flashing Emission Factor (lb CO_2/bbl)[2]	0.014	0.014
CH_4 Tank Flashing Emission Factor (lb CH_4/bbl)[2]	0.192	0.192
Control Type	Vapor Recovery Unit	Vapor Recovery Unit
Capture/Control Efficiency[3]	95%	95%

Notes:
1) The six tanks are connected in two series of three tanks; therefore, half of station total condensate throughput flows through each tank in each series and only flashes at the inlet to the first tank in each series (TK-1 and TK-6).
2) Working and breathing calculated using EPA TANKS 4.0.9d. Flashing calculated wiith site specific ProMax process simulation. See attached reports and following tables.
3) Capture/control efficiency is based on the VRU controlling 100% of captured vapors when operating, plus 5% downtime.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Condensate Tank Emissions Calculations

Unit ID: **TK-1**

Uncontrolled Emissions

Pollutant	Working Losses			Breathing Losses			Flashing Losses			Annual Emissions			Operating Hours			Conversion			Hourly Emissions[1]	
VOC[2]	6.38	TPY	+	1.89	TPY	+	107.87	TPY	=	**116.14**	**TPY**	/	8,760	X		2,000	lb/ton	=	**26.52**	**lb/hr**
n-Hexane	0.10	TPY	+	0.03	TPY	+	1.73	TPY	=	**1.86**	**TPY**	/	8,760	X		2,000	lb/ton	=	**0.42**	**lb/hr**
Benzene	0.06	TPY	+	0.02	TPY	+	0.97	TPY	=	**1.05**	**TPY**	/	8,760	X		2,000	lb/ton	=	**0.24**	**lb/hr**
Toluene	0.08	TPY	+	0.02	TPY	+	1.40	TPY	=	**1.51**	**TPY**	/	8,760	X		2,000	lb/ton	=	**0.34**	**lb/hr**
Ethylbenzene	0.01	TPY	+	<0.01	TPY	+	0.11	TPY	=	**0.12**	**TPY**	/	8,760	X		2,000	lb/ton	=	**0.03**	**lb/hr**
Xylenes	0.03	TPY	+	0.01	TPY	+	0.54	TPY	=	**0.58**	**TPY**	/	8,760	X		2,000	lb/ton	=	**0.13**	**lb/hr**
Other HAP	0.06	TPY	+	0.02	TPY	+	0.97	TPY	=	**1.05**	**TPY**	/	8,760	X		2,000	lb/ton	=	**0.24**	**lb/hr**
CO_2[3]	-	TPY	+	-	TPY	+	0.67	TPY	=	**0.67**	**TPY**	/	8,760	X		2,000	lb/ton	=	**0.15**	**lb/hr**
CH_4[3]	-	TPY	+	-	TPY	+	9.12	TPY	=	**9.12**	**TPY**	/	8,760	X		2,000	lb/ton	=	**2.08**	**lb/hr**

Controlled Emissions[4]

Pollutant	Working Losses			Breathing Losses			Flashing Losses			Annual Emissions			Operating Hours			Conversion			Hourly Emissions	
VOC	0.32	TPY	+	0.09	TPY	+	5.39	TPY	=	**5.81**	**TPY**	/	8,760	X		2,000	lb/ton	=	**1.33**	**lb/hr**
n-Hexane	0.01	TPY	+	<0.01	TPY	+	0.09	TPY	=	**0.09**	**TPY**	/	8,760	X		2,000	lb/ton	=	**0.02**	**lb/hr**
Benzene	<0.01	TPY	+	<0.01	TPY	+	0.05	TPY	=	**0.05**	**TPY**	/	8,760	X		2,000	lb/ton	=	**0.01**	**lb/hr**
Toluene	<0.01	TPY	+	<0.01	TPY	+	0.07	TPY	=	**0.08**	**TPY**	/	8,760	X		2,000	lb/ton	=	**0.02**	**lb/hr**
Ethylbenzene	<0.01	TPY	+	<0.01	TPY	+	0.01	TPY	=	**0.01**	**TPY**	/	8,760	X		2,000	lb/ton	=	**<0.01**	**lb/hr**
Xylenes	<0.01	TPY	+	<0.01	TPY	+	0.03	TPY	=	**0.03**	**TPY**	/	8,760	X		2,000	lb/ton	=	**0.01**	**lb/hr**
Other HAP	<0.01	TPY	+	<0.01	TPY	+	0.05	TPY	=	**0.05**	**TPY**	/	8,760	X		2000	lb/ton	=	**0.01**	**lb/hr**
CO_2	-	TPY	+	-	TPY	+	0.03	TPY	=	**0.03**	**TPY**	/	8,760	X		2000	lb/ton	=	**0.01**	**lb/hr**
CH_4	-	TPY	+	-	TPY	+	0.46	TPY	=	**0.46**	**TPY**	/	8,760	X		2000	lb/ton	=	**0.10**	**lb/hr**

Estimated HAP Composition (% by Weight)[5]

Pollutant	Wt%
n-Hexane	1.600%
Benzene	0.900%
Toluene	1.300%
Ethylbenzene	0.100%
Xylenes	0.500%
Other HAP	0.900%
Total HAP =	**5.300%**

Notes:
1) Due to variable short-term emission rates, average lb/hr based on annual emissions shown for reference only.
2) VOC TPY working and breathing losses calculated from lb/yr TANKS 4.0.9d results as follows: lb/yr * 1/2000 = TPY. VOC, CO_2 and CH_4 TPY flashing losses calculated with ProMax flash emission factor as follows: lb/bbl factor * annual bbl throughput * 1/2000 = TPY.
3) Per API Chapter 5: CH_4 and CO_2 emissions from crude storage tanks occur mainly as a result of flashing; working and breathing loss emissions of these gases are very small in production and virtually non-existent in downstream segments. Unless site-specific data indicate otherwise, working and breathing losses are presumed to contain no CH_4 or CO_2 .
4) Capture/control efficiency is based on the VRU controlling 100% of captured vapors when operating, plus 5% downtime.
5) Table 11.3-2, "HAP Percent of VOC Emissions," Gasoline Marketing (Stage I and Stage II), EPA Document Revised Final 1/2001.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Condensate Tank Emissions Calculations

Unit ID: TK-2

Uncontrolled Emissions

Pollutant	Working Losses			Breathing Losses			Flashing Losses[1]			Annual Emissions			Operating Hours			Conversion			Hourly Emissions[2]	
VOC[3]	6.38	TPY	+	1.89	TPY	+	0.00	TPY	=	**8.27**	**TPY**	/	8,760	X	2,000	lb/ton	=	**1.89**	**lb/hr**
n-Hexane	0.10	TPY	+	0.03	TPY	+	0.00	TPY	=	**0.13**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.03**	**lb/hr**
Benzene	0.06	TPY	+	0.02	TPY	+	0.00	TPY	=	**0.07**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
Toluene	0.08	TPY	+	0.02	TPY	+	0.00	TPY	=	**0.11**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
Ethylbenzene	0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Xylenes	0.03	TPY	+	0.01	TPY	+	0.00	TPY	=	**0.04**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.01**	**lb/hr**
Other HAP	0.06	TPY	+	0.02	TPY	+	0.00	TPY	=	**0.07**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
CO_2[3]	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.00**	**lb/hr**
CH_4[3]	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.00**	**lb/hr**

Controlled Emissions[4]

Pollutant	Working Losses			Breathing Losses			Flashing Losses			Annual Emissions			Operating Hours			Conversion			Hourly Emissions	
VOC	0.32	TPY	+	0.09	TPY	+	0.00	TPY	=	**0.41**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.09**	**lb/hr**
n-Hexane	0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Benzene	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Toluene	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Ethylbenzene	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Xylenes	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Other HAP	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2000	lb/ton	=	**<0.01**	**lb/hr**
CO_2	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2000	lb/ton	=	**0.00**	**lb/hr**
CH_4	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2000	lb/ton	=	**0.00**	**lb/hr**

Estimated HAP Composition (% by Weight)[5]

Pollutant	Wt%
n-Hexane	1.600%
Benzene	0.900%
Toluene	1.300%
Ethylbenzene	0.100%
Xylenes	0.500%
Other HAP	0.900%
Total HAP =	**5.300%**

Notes:
1) Tanks are connected in series; therefore, station total condensate throughput flows through each tank and only flashes at the inlet to the first tank.
2) Due to variable short-term emission rates, average lb/hr based on annual emissions shown for reference only.
3) VOC TPY working and breathing losses calculated from lb/yr TANKS 4.0.9d results as follows: lb/yr * 1/2000 = TPY. VOC, CO_2 and CH_4 TPY flashing losses calculated with ProMax flash emission factor as follows: lb/bbl factor * annual bbl throughput * 1/2000 = TPY.
4) Capture/control efficiency is based on the VRU controlling 100% of captured vapors when operating, plus 5% downtime.
5) Table 11.3-2, "HAP Percent of VOC Emissions," Gasoline Marketing (Stage I and Stage II), EPA Document Revised Final 1/2001.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Condensate Tank Emissions Calculations

Unit ID: TK-3

Uncontrolled Emissions

Pollutant	Working Losses			Breathing Losses			Flashing Losses[1]			Annual Emissions			Operating Hours			Conversion			Hourly Emissions[2]	
VOC[3]	6.38	TPY	+	1.89	TPY	+	0.00	TPY	=	**8.27**	**TPY**	/	8,760	X	2,000	lb/ton	=	**1.89**	**lb/hr**
n-Hexane	0.10	TPY	+	0.03	TPY	+	0.00	TPY	=	**0.13**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.03**	**lb/hr**
Benzene	0.06	TPY	+	0.02	TPY	+	0.00	TPY	=	**0.07**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
Toluene	0.08	TPY	+	0.02	TPY	+	0.00	TPY	=	**0.11**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
Ethylbenzene	0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Xylenes	0.03	TPY	+	0.01	TPY	+	0.00	TPY	=	**0.04**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.01**	**lb/hr**
Other HAP	0.06	TPY	+	0.02	TPY	+	0.00	TPY	=	**0.07**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
CO_2[3]	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.00**	**lb/hr**
CH_4[3]	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.00**	**lb/hr**

Controlled Emissions[4]

Pollutant	Working Losses			Breathing Losses			Flashing Losses			Annual Emissions			Operating Hours			Conversion			Hourly Emissions	
VOC	0.32	TPY	+	0.09	TPY	+	0.00	TPY	=	**0.41**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.09**	**lb/hr**
n-Hexane	0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Benzene	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Toluene	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Ethylbenzene	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Xylenes	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Other HAP	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2000	lb/ton	=	**<0.01**	**lb/hr**
CO_2	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2000	lb/ton	=	**0.00**	**lb/hr**
CH_4	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2000	lb/ton	=	**0.00**	**lb/hr**

Estimated HAP Composition (% by Weight)[5]

Pollutant	Wt%
n-Hexane	1.600%
Benzene	0.900%
Toluene	1.300%
Ethylbenzene	0.100%
Xylenes	0.500%
Other HAP	0.900%
Total HAP =	**5.300%**

Notes:
1) Tanks are connected in series; therefore, station total condensate throughput flows through each tank and only flashes at the inlet to the first tank.
2) Due to variable short-term emission rates, average lb/hr based on annual emissions shown for reference only.
3) VOC TPY working and breathing losses calculated from lb/yr TANKS 4.0.9d results as follows: lb/yr * 1/2000 = TPY. VOC, CO_2 and CH_4 TPY flashing losses calculated with ProMax flash emission factor as follows: lb/bbl factor * annual bbl throughput * 1/2000 = TPY.
4) Capture/control efficiency is based on the VRU controlling 100% of captured vapors when operating, plus 5% downtime.
5) Table 11.3-2, "HAP Percent of VOC Emissions," Gasoline Marketing (Stage I and Stage II), EPA Document Revised Final 1/2001.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Condensate Tank Emissions Calculations

Unit ID: **TK-6**

Uncontrolled Emissions

Pollutant	Working Losses			Breathing Losses			Flashing Losses			Annual Emissions			Operating Hours			Conversion			Hourly Emissions[1]	
VOC[2]	6.38	TPY	+	1.89	TPY	+	107.87	TPY	=	**116.14**	**TPY**	/	8,760	X		2,000	lb/ton	=	**26.52**	**lb/hr**
n-Hexane	0.10	TPY	+	0.03	TPY	+	1.73	TPY	=	**1.86**	**TPY**	/	8,760	X		2,000	lb/ton	=	**0.42**	**lb/hr**
Benzene	0.06	TPY	+	0.02	TPY	+	0.97	TPY	=	**1.05**	**TPY**	/	8,760	X		2,000	lb/ton	=	**0.24**	**lb/hr**
Toluene	0.08	TPY	+	0.02	TPY	+	1.40	TPY	=	**1.51**	**TPY**	/	8,760	X		2,000	lb/ton	=	**0.34**	**lb/hr**
Ethylbenzene	0.01	TPY	+	<0.01	TPY	+	0.11	TPY	=	**0.12**	**TPY**	/	8,760	X		2,000	lb/ton	=	**0.03**	**lb/hr**
Xylenes	0.03	TPY	+	0.01	TPY	+	0.54	TPY	=	**0.58**	**TPY**	/	8,760	X		2,000	lb/ton	=	**0.13**	**lb/hr**
Other HAP	0.06	TPY	+	0.02	TPY	+	0.97	TPY	=	**1.05**	**TPY**	/	8,760	X		2,000	lb/ton	=	**0.24**	**lb/hr**
CO_2[3]	-	TPY	+	-	TPY	+	0.67	TPY	=	**0.67**	**TPY**	/	8,760	X		2,000	lb/ton	=	**0.15**	**lb/hr**
CH_4[3]	-	TPY	+	-	TPY	+	9.12	TPY	=	**9.12**	**TPY**	/	8,760	X		2,000	lb/ton	=	**2.08**	**lb/hr**

Controlled Emissions[4]

Pollutant	Working Losses			Breathing Losses			Flashing Losses			Annual Emissions			Operating Hours			Conversion			Hourly Emissions	
VOC	0.32	TPY	+	0.09	TPY	+	5.39	TPY	=	**5.81**	**TPY**	/	8,760	X		2,000	lb/ton	=	**1.33**	**lb/hr**
n-Hexane	0.01	TPY	+	<0.01	TPY	+	0.09	TPY	=	**0.09**	**TPY**	/	8,760	X		2,000	lb/ton	=	**0.02**	**lb/hr**
Benzene	<0.01	TPY	+	<0.01	TPY	+	0.05	TPY	=	**0.05**	**TPY**	/	8,760	X		2,000	lb/ton	=	**0.01**	**lb/hr**
Toluene	<0.01	TPY	+	<0.01	TPY	+	0.07	TPY	=	**0.08**	**TPY**	/	8,760	X		2,000	lb/ton	=	**0.02**	**lb/hr**
Ethylbenzene	<0.01	TPY	+	<0.01	TPY	+	0.01	TPY	=	**0.01**	**TPY**	/	8,760	X		2,000	lb/ton	=	**<0.01**	**lb/hr**
Xylenes	<0.01	TPY	+	<0.01	TPY	+	0.03	TPY	=	**0.03**	**TPY**	/	8,760	X		2,000	lb/ton	=	**0.01**	**lb/hr**
Other HAP	<0.01	TPY	+	<0.01	TPY	+	0.05	TPY	=	**0.05**	**TPY**	/	8,760	X		2000	lb/ton	=	**0.01**	**lb/hr**
CO_2	-	TPY	+	-	TPY	+	0.03	TPY	=	**0.03**	**TPY**	/	8,760	X		2000	lb/ton	=	**0.01**	**lb/hr**
CH_4	-	TPY	+	-	TPY	+	0.46	TPY	=	**0.46**	**TPY**	/	8,760	X		2000	lb/ton	=	**0.10**	**lb/hr**

Estimated HAP Composition (% by Weight)[5]

Pollutant	Wt%
n-Hexane	1.600%
Benzene	0.900%
Toluene	1.300%
Ethylbenzene	0.100%
Xylenes	0.500%
Other HAP	0.900%
Total HAP =	**5.300%**

Notes:
1) Due to variable short-term emission rates, average lb/hr based on annual emissions shown for reference only.
2) VOC TPY working and breathing losses calculated from lb/yr TANKS 4.0.9d results as follows: lb/yr * 1/2000 = TPY. VOC, CO_2 and CH_4 TPY flashing losses calculated with ProMax flash emission factor as follows: lb/bbl factor * annual bbl throughput * 1/2000 = TPY.
3) Per API Chapter 5: CH_4 and CO_2 emissions from crude storage tanks occur mainly as a result of flashing; working and breathing loss emissions of these gases are very small in production and virtually non-existent in downstream segments. Unless site-specific data indicate otherwise, working and breathing losses are presumed to contain no CH_4 or CO_2 .
4) Capture/control efficiency is based on the VRU controlling 100% of captured vapors when operating, plus 5% downtime.
5) Table 11.3-2, "HAP Percent of VOC Emissions," Gasoline Marketing (Stage I and Stage II), EPA Document Revised Final 1/2001.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Condensate Tank Emissions Calculations

Unit ID: TK-7

Uncontrolled Emissions

Pollutant	Working Losses			Breathing Losses			Flashing Losses[1]			Annual Emissions			Operating Hours			Conversion			Hourly Emissions[2]	
VOC[3]	6.38	TPY	+	1.89	TPY	+	0.00	TPY	=	**8.27**	**TPY**	/	8,760	X	2,000	lb/ton	=	**1.89**	**lb/hr**
n-Hexane	0.10	TPY	+	0.03	TPY	+	0.00	TPY	=	**0.13**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.03**	**lb/hr**
Benzene	0.06	TPY	+	0.02	TPY	+	0.00	TPY	=	**0.07**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
Toluene	0.08	TPY	+	0.02	TPY	+	0.00	TPY	=	**0.11**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
Ethylbenzene	0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Xylenes	0.03	TPY	+	0.01	TPY	+	0.00	TPY	=	**0.04**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.01**	**lb/hr**
Other HAP	0.06	TPY	+	0.02	TPY	+	0.00	TPY	=	**0.07**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
CO_2[3]	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.00**	**lb/hr**
CH_4[3]	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.00**	**lb/hr**

Controlled Emissions[4]

Pollutant	Working Losses			Breathing Losses			Flashing Losses			Annual Emissions			Operating Hours			Conversion			Hourly Emissions	
VOC	0.32	TPY	+	0.09	TPY	+	0.00	TPY	=	**0.41**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.09**	**lb/hr**
n-Hexane	0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Benzene	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Toluene	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Ethylbenzene	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Xylenes	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Other HAP	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2000	lb/ton	=	**<0.01**	**lb/hr**
CO_2	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2000	lb/ton	=	**0.00**	**lb/hr**
CH_4	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2000	lb/ton	=	**0.00**	**lb/hr**

Estimated HAP Composition (% by Weight)[5]

Pollutant	Wt%
n-Hexane	1.600%
Benzene	0.900%
Toluene	1.300%
Ethylbenzene	0.100%
Xylenes	0.500%
Other HAP	0.900%
Total HAP =	**5.300%**

Notes:
1) Tanks are connected in series; therefore, station total condensate throughput flows through each tank and only flashes at the inlet to the first tank.
2) Due to variable short-term emission rates, average lb/hr based on annual emissions shown for reference only.
3) VOC TPY working and breathing losses calculated from lb/yr TANKS 4.0.9d results as follows: lb/yr * 1/2000 = TPY. VOC, CO_2 and CH_4 TPY flashing losses calculated with ProMax flash emission factor as follows: lb/bbl factor * annual bbl throughput * 1/2000 = TPY.
4) Capture/control efficiency is based on the VRU controlling 100% of captured vapors when operating, plus 5% downtime.
5) Table 11.3-2, "HAP Percent of VOC Emissions," Gasoline Marketing (Stage I and Stage II), EPA Document Revised Final 1/2001.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Condensate Tank Emissions Calculations

Unit ID: TK-8

Uncontrolled Emissions

Pollutant	Working Losses			Breathing Losses			Flashing Losses[1]			Annual Emissions			Operating Hours			Conversion			Hourly Emissions[2]	
VOC[3]	6.38	TPY	+	1.89	TPY	+	0.00	TPY	=	**8.27**	**TPY**	/	8,760	X	2,000	lb/ton	=	**1.89**	**lb/hr**
n-Hexane	0.10	TPY	+	0.03	TPY	+	0.00	TPY	=	**0.13**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.03**	**lb/hr**
Benzene	0.06	TPY	+	0.02	TPY	+	0.00	TPY	=	**0.07**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
Toluene	0.08	TPY	+	0.02	TPY	+	0.00	TPY	=	**0.11**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
Ethylbenzene	0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Xylenes	0.03	TPY	+	0.01	TPY	+	0.00	TPY	=	**0.04**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.01**	**lb/hr**
Other HAP	0.06	TPY	+	0.02	TPY	+	0.00	TPY	=	**0.07**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
CO_2[3]	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.00**	**lb/hr**
CH_4[3]	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.00**	**lb/hr**

Controlled Emissions[4]

Pollutant	Working Losses			Breathing Losses			Flashing Losses			Annual Emissions			Operating Hours			Conversion			Hourly Emissions	
VOC	0.32	TPY	+	0.09	TPY	+	0.00	TPY	=	**0.41**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.09**	**lb/hr**
n-Hexane	0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Benzene	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Toluene	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Ethylbenzene	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Xylenes	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Other HAP	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2000	lb/ton	=	**<0.01**	**lb/hr**
CO_2	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2000	lb/ton	=	**0.00**	**lb/hr**
CH_4	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2000	lb/ton	=	**0.00**	**lb/hr**

Estimated HAP Composition (% by Weight)[5]

Pollutant	Wt%
n-Hexane	1.600%
Benzene	0.900%
Toluene	1.300%
Ethylbenzene	0.100%
Xylenes	0.500%
Other HAP	0.900%
Total HAP =	**5.300%**

Notes:
1) Tanks are connected in series; therefore, station total condensate throughput flows through each tank and only flashes at the inlet to the first tank.
2) Due to variable short-term emission rates, average lb/hr based on annual emissions shown for reference only.
3) VOC TPY working and breathing losses calculated from lb/yr TANKS 4.0.9d results as follows: lb/yr * 1/2000 = TPY. VOC, CO_2 and CH_4 TPY flashing losses calculated with ProMax flash emission factor as follows: lb/bbl factor * annual bbl throughput * 1/2000 = TPY.
4) Capture/control efficiency is based on the VRU controlling 100% of captured vapors when operating, plus 5% downtime.
5) Table 11.3-2, "HAP Percent of VOC Emissions," Gasoline Marketing (Stage I and Stage II), EPA Document Revised Final 1/2001.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Truck Loading Information

Equipment Information	
	TL-1
Contents Loaded	Condensate
Fill Method	Submerged
Type of Service	Dedicated
Mode of Operation	Normal
Saturation Factor	0.6
Throughput (1000 gal/yr)	7,980
Throughput (10^6 gal/yr)	7.980
Maximum Loading Rate (gal/hr)	7,500
P=True Vapor Pressure of Liquid Loaded (max. psia)	11.0526
P = True Vapor Pressure of Liquid Loaded (avg. psia)[1]	8.7119
M = Molecular Weight of Vapor (lb/lb-mol)[1]	53.5810
T = Temperature of Bulk Liquid Loaded (average °F)[1]	43.67
T = Temperature of bulk liquid loaded (°F + 460 = °R)	503.67
Short Term Emission Factor (lb/1000 gal)[1]	8.79
Annual Emission Factor (lb/1000 gal)[2]	6.93
TOC Emission Factor (tonne/10^6 gal)[3]	0.91
TOC Emission Factor (ton/10^6 gal)[3]	1.00
Flash Gas CH_4 wt%	6.153%
Flash Gas CO_2 wt%	0.433%
Control Type	None

Notes:
1) Properties based on EPA TANKS 4.0.9d for conservative ONEOK composition.
2) AP-42 5.2-4 Eq.1: Loading Loss (lb/1000 gal) = 12.46 *S*P*M/T.
3) API Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Gas Industry, Table 5-12. Emission factor converted as follows: tonne/10^6 gal * 1.10231131 ton/tonne.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Condensate Truck Loading Emissions Calculations

Unit ID: TL-1

Uncontrolled Emissions

Pollutant	Emission Factor			Throughput			Conversion			Annual Emissions			Operating Hours		Conversion			Average Hourly Emissions[1]	
VOC	6.93	lb/1000 gal	X	7,980	1000 gal/yr	X	0.0005	ton/lb	=	**27.65**	**TPY**	/	8,760	X	2,000	lb/ton	=	**6.31**	**lb/hr**
n-Hexane	-	-	-	-	-	-	-	-	=	**0.44**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.10**	**lb/hr**
Benzene	-	-	-	-	-	-	-	-	=	**0.25**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.06**	**lb/hr**
Toluene	-	-	-	-	-	-	-	-	=	**0.36**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.08**	**lb/hr**
Ethylbenzene	-	-	-	-	-	-	-	-	=	**0.03**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.01**	**lb/hr**
Xylenes	-	-	-	-	-	-	-	-	=	**0.14**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.03**	**lb/hr**
Other HAP	-	-	-	-	-	-	-	-	=	**0.25**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.06**	**lb/hr**
CO_2	1.00	ton/10^6 gal	X	7.980	10^6 gal/yr	X	0.433%	Wt%	=	**0.03**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.01**	**lb/hr**
CH_4	1.00	ton/10^6 gal	X	7.980	10^6 gal/yr	X	6.153%	Wt%	=	**0.49**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.11**	**lb/hr**

Estimated HAP Composition (% by Weight)[2]

Pollutant	Wt%
n-Hexane	1.600%
Benzene	0.900%
Toluene	1.300%
Ethylbenzene	0.100%
Xylenes	0.500%
Other HAP	0.900%
Total HAP =	**5.300%**

Notes:
1) Due to variable short-term emission rates, average lb/hr rate shown for reference only.
2) Table 11.3-2, "HAP Percent of VOC Emissions," Gasoline Marketing (Stage I and Stage II), EPA Document Revised Final 1/2001.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Flare Information and Emission Factors

Equipment Information	
	FL-1
Description	Emergency Flare
VOC to Flare (lb/hr)	32.47
Stream Heat Content (Btu/scf)	1,257
Stream Net Btu Value (Btu/hr)	2,373,886
Operating Hours	500
Control Efficiency	98%
Pilot Stream Heat Content (Btu/scf)	1,026
Pilot Gas Flow Rate (scfh)	200
Pilot Gas Capacity (mmBtu/hr)	0.21
Pilot Operating Hours	8,760

AP-42/EPA Emission Factors[1]			
	Flare Stream		**Pilot Gas**
NOx (lb/mmBtu)	0.068	**NOx (lb/mmscf)**	100.0
CO (lb/mmBtu)	0.31	**CO (lb/mmscf)**	84.0
VOC	Mass Balance	**VOC (lb/mmscf)**	5.5
SO_2	Stoichiometric	**SO_2 (lb/mmscf)**	0.6
$PM_{10/2.5}$	--	**$PM_{10/2.5}$ (lb/mmscf)**	1.9
PM_{COND}	--	**PM_{COND} (lb/mmscf)**	5.7
PM_{TOT}	--	**PM_{TOT} (lb/mmscf)**	7.6
Formaldehyde	--	**Formaldehyde (lb/mmscf)**	7.50E-02
n-Hexane	Mass Balance	**n-Hexane (lb/mmscf)**	1.80E+00
Benzene	Mass Balance	**Benzene (lb/mmscf)**	2.10E-03
Toluene	Mass Balance	**Toluene (lb/mmscf)**	3.40E-03
Ethylbenzene	Mass Balance	**Ethylbenzene**	--
Xylenes	Mass Balance	**Xylenes**	--
Other HAP	Mass Balance	**Other HAP (lb/mmscf)**	1.90E-03
Carbon Dioxide (CO_2) (kg/mmBtu)	53.06/Mass Balance	**Carbon Dioxide (CO_2) (kg/mmBtu)**	53.06
Methane (CH_4) (kg/mmBtu)	0.001/Mass Balance	**Methane (CH_4) (kg/mmBtu)**	1.00E-03
Nitrous Oxide (N_2O) (kg/mmBtu)	0.0001/Mass Balance	**Nitrous Oxide (N_2O) (kg/mmBtu)**	1.00E-04

Notes:
1) NOx and CO emission factors (lb/mmBtu), flare stream: AP-42, Table 13.5-1 (12/2016). Pilot criteria and HAP emission factors (lb/mmscf): AP-42, Table 1.4-1, -2 (7/98). GHG emission factors (kg/mmBtu): 40 CFR 98.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Flare Emissions Calculations

Unit ID: FL-1

Total: Stream + Pilot

Pollutant	Hourly Emissions		Annual Emissions	
NOx	0.18	lb/hr	0.13	TPY
CO	0.75	lb/hr	0.26	TPY
VOC	0.65	lb/hr	0.17	TPY
SO_2	0.94	lb/hr	0.24	TPY
$PM_{10/2.5}$	<0.01	lb/hr	<0.01	TPY
PM_{COND}	<0.01	lb/hr	<0.01	TPY
PM_{TOT}	<0.01	lb/hr	0.01	TPY
Formaldehyde	<0.01	lb/hr	<0.01	TPY
n-Hexane	<0.01	lb/hr	<0.01	TPY
Benzene	<0.01	lb/hr	<0.01	TPY
Toluene	<0.01	lb/hr	<0.01	TPY
Ethylbenzene	<0.01	lb/hr	<0.01	TPY
Xylenes	<0.01	lb/hr	<0.01	TPY
Other HAP	<0.01	lb/hr	<0.01	TPY
CO_2	303.30	lb/hr	174.96	TPY
CH_4	1.00	lb/hr	0.25	TPY
N_2O	<0.01	lb/hr	<0.01	TPY

Stream Emissions

Pollutant	Emission Factor			Capacity			Conversion			Hourly Emissions		Operating Hours		Conversion			Annual Emissions	
NOx	6.80E-02	lb/mmBtu	X	2.37E+00	mmBtu/hr	X	-	-	=	**0.16**	**lb/hr**	X	500	X	0.0005	ton/lb	=	**0.04** **TPY**
CO	3.10E-01	lb/mmBtu	X	2.37E+00	mmBtu/hr	X	-	-	=	**0.74**	**lb/hr**	X	500	X	0.0005	ton/lb	=	**0.18** **TPY**
VOC	-	-	-	-	-	-	-	-	=	**0.65**	**lb/hr**	X	500	X	0.0005	ton/lb	=	**0.16** **TPY**
SO_2	-	-	-	-	-	-	-	-	=	**0.94**	**lb/hr**	X	500	X	0.0005	ton/lb	=	**0.23** **TPY**
n-Hexane	-	-	-	-	-	-	-	-	=	**<0.01**	**lb/hr**	X	500	X	0.0005	ton/lb	=	**<0.01** **TPY**
Benzene	-	-	-	-	-	-	-	-	=	**<0.01**	**lb/hr**	X	500	X	0.0005	ton/lb	=	**<0.01** **TPY**
Toluene	-	-	-	-	-	-	-	-	=	**<0.01**	**lb/hr**	X	500	X	0.0005	ton/lb	=	**<0.01** **TPY**
Ethylbenzene	-	-	-	-	-	-	-	-	=	**<0.01**	**lb/hr**	X	300	X	0.0005	ton/lb	=	**<0.01** **TPY**
Xylenes	-	-	-	-	-	-	-	-	=	**<0.01**	**lb/hr**	X	300	X	0.0005	ton/lb	=	**<0.01** **TPY**
Other HAP	-	-	-	-	-	-	-	-	=	**<0.01**	**lb/hr**	X	500	X	0.0005	ton/lb	=	**<0.01** **TPY**
CO_2	5.31E+01	kg/mmBtu	X	2.37E+00	mmBtu/hr	X	2.20462	lb/kg	=	**277.69**	**lb/hr**	X	500	X	0.0005	ton/lb	=	**69.42** **TPY**
CO_2	-	-	-	-	-	-	-	-	=	**1.60**	**lb/hr**	X	500	X	0.0005	ton/lb	=	**0.40** **TPY**
CH_4	1.00E-03	kg/mmBtu	X	2.37E+00	mmBtu/hr	X	2.20462	lb/kg	=	**0.01**	**lb/hr**	X	500	X	0.0005	ton/lb	=	**<0.01** **TPY**
CH_4	-	-	-	-	-	-	-	-	=	**0.99**	**lb/hr**	X	500	X	0.0005	ton/lb	=	**0.25** **TPY**
N_2O	1.00E-04	kg/mmBtu	X	2.37E+00	mmBtu/hr	X	2.20462	lb/kg	=	**<0.01**	**lb/hr**	X	500	X	0.0005	ton/lb	=	**<0.01** **TPY**

Flare Emissions Calculations (Continued)

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station

Pilot Emissions

Pollutant	Emission Factor			Capacity			Conversion			Hourly Emissions		Operating Hours		Conversion			Annual Emissions	
NOx	1.00E+02	lb/mmscf	X	2.00E-04	mmscf/hr	X	-	-	=	**0.02**	**lb/hr**	X 8,760	X	0.0005	ton/lb	=	**0.09**	**TPY**
CO	8.40E+01	lb/mmscf	X	2.00E-04	mmscf/hr	X	-	-	=	**0.02**	**lb/hr**	X 8,760	X	0.0005	ton/lb	=	**0.07**	**TPY**
VOC	5.50E+00	lb/mmscf	X	2.00E-04	mmscf/hr	X	-	-	=	**<0.01**	**lb/hr**	X 8,760	X	0.0005	ton/lb	=	**<0.01**	**TPY**
SO_2	6.00E-01	lb/mmscf	X	2.00E-04	mmscf/hr	X	-	-	=	**<0.01**	**lb/hr**	X 8,760	X	0.0005	ton/lb	=	**<0.01**	**TPY**
$PM_{10/2.5}$	1.90E+00	lb/mmscf	X	2.00E-04	mmscf/hr	X	-	-	=	**<0.01**	**lb/hr**	X 8,760	X	0.0005	ton/lb	=	**<0.01**	**TPY**
PM_{COND}	5.70E+00	lb/mmscf	X	2.00E-04	mmscf/hr	X	-	-	=	**<0.01**	**lb/hr**	X 8,760	X	0.0005	ton/lb	=	**<0.01**	**TPY**
PM_{TOT}	7.60E+00	lb/mmscf	X	2.00E-04	mmscf/hr	X	-	-	=	**<0.01**	**lb/hr**	X 8,760	X	0.0005	ton/lb	=	**0.01**	**TPY**
Formaldehyde	7.50E-02	lb/mmscf	X	2.00E-04	mmscf/hr	X	-	-	=	**<0.01**	**lb/hr**	X 8,760	X	0.0005	ton/lb	=	**<0.01**	**TPY**
n-Hexane	1.80E+00	lb/mmscf	X	2.00E-04	mmscf/hr	X	-	-	=	**<0.01**	**lb/hr**	X 8,760	X	0.0005	ton/lb	=	**<0.01**	**TPY**
Benzene	2.10E-03	lb/mmscf	X	2.00E-04	mmscf/hr	X	-	-	=	**<0.01**	**lb/hr**	X 8,760	X	0.0005	ton/lb	=	**<0.01**	**TPY**
Toluene	3.40E-03	lb/mmscf	X	2.00E-04	mmscf/hr	X	-	-	=	**<0.01**	**lb/hr**	X 8,760	X	0.0005	ton/lb	=	**<0.01**	**TPY**
Other HAP	1.90E-03	lb/mmscf	X	2.00E-04	mmscf/hr	X	-	-	=	**<0.01**	**lb/hr**	X 8,760	X	0.0005	ton/lb	=	**<0.01**	**TPY**
CO_2	5.31E+01	kg/mmBtu	X	2.05E-01	mmBtu/hr	X	2.20462	lb/kg	=	**24.00**	**lb/hr**	X 8,760	X	0.0005	ton/lb	=	**105.14**	**TPY**
CH_4	1.00E-03	kg/mmBtu	X	2.05E-01	mmBtu/hr	X	2.20462	lb/kg	=	**<0.01**	**lb/hr**	X 8,760	X	0.0005	ton/lb	=	**<0.01**	**TPY**
N_2O	1.00E-04	kg/mmBtu	X	2.05E-01	mmBtu/hr	X	2.20462	lb/kg	=	**<0.01**	**lb/hr**	X 8,760	X	0.0005	ton/lb	=	**<0.01**	**TPY**

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Flare Emissions Calculations - Flare Stream Analysis

Unit ID: **FL-1**

Component	Molecular Weight	Stream 1 Compressor Blowdowns		Total Streams Burned in Flare					Net Heating Value	Net Btu Rate
		1.89E+03	scfh	Uncontrolled		scfd	Controlled			
		Mole %	lb/hr	lb/hr	TPY		lb/hr	TPY	Btu/scf	Btu/hr
Water	18.0153	0.000%	0.00	0.00	0.00	0	0.00	0.00	0.00	0
Hydrogen Sulfide	34.081	0.300%	0.51	0.51	0.13	136	0.01	<0.01	586.80	3,325
Carbon Dioxide	44.010	0.731%	1.60	1.60	0.40	331	1.60	0.40	0.00	0
Nitrogen	28.013	2.035%	2.84	2.84	0.71	923	2.84	0.71	0.00	0
Helium	4.003	0.000%	0.00	0.00	0.00	0	0.00	0.00	0.00	0
Oxygen	31.999	0.000%	0.00	0.00	0.00	0	0.00	0.00	0.00	0
Methane	16.043	61.974%	49.50	49.50	12.38	28,097	0.99	0.25	909.40	1,064,624
Ethane	30.069	21.685%	32.46	32.46	8.12	9,831	0.65	0.16	1,618.70	663,068
Propane	44.096	9.469%	20.79	20.79	5.20	4,293	0.42	0.10	2,314.90	414,065
i-Butane	58.122	0.855%	2.47	2.47	0.62	388	0.05	0.01	3,000.40	48,459
n-Butane	58.122	2.189%	6.33	6.33	1.58	992	0.13	0.03	3,010.80	124,497
i-Pentane	72.149	0.265%	0.95	0.95	0.24	120	0.02	<0.01	3,699.00	18,517
n-Pentane	72.149	0.337%	1.21	1.21	0.30	153	0.02	0.01	3,706.90	23,598
n-Hexane	86.175	0.024%	0.10	0.10	0.03	11	<0.01	<0.01	4,403.80	1,997
Other Hexanes	86.175	0.102%	0.44	0.44	0.11	46	0.01	<0.01	4,403.80	8,502
Heptanes	100.202	0.011%	0.05	0.05	0.01	5	<0.01	<0.01	5,100.00	1,060
Benzene	78.114	0.005%	0.02	0.02	0.01	2	<0.01	<0.01	3,590.90	360
Toluene	92.141	0.005%	0.02	0.02	0.01	2	<0.01	<0.01	4,273.60	371
Ethylbenzene	106.167	0.000%	<0.01	<0.01	<0.01	0	<0.01	<0.01	4,970.50	19
Xylenes	106.167	0.001%	0.01	0.01	<0.01	1	<0.01	<0.01	4,957.10	112
Octanes	114.229	0.008%	0.04	0.04	0.01	3	<0.01	<0.01	5,796.00	843
2,2,4-Trimethylpentane	114.231	0.004%	0.02	0.02	0.01	2	<0.01	<0.01	5,778.80	469
Nonanes	128.255	0.000%	0.00	0.00	0.00	0	0.00	0.00	6,493.20	0
Decanes	142.282	0.000%	0.00	0.00	0.00	0	0.00	0.00	7,189.60	0
Totals =		**100.001%**	**119.39**	**119.39**	**29.85**	**45,336**	**--**	**--**	**--**	**2,373,886**
Total VOC =		**13.276%**	**32.47**	**32.47**	**8.12**	**--**	**0.65**	**0.16**	**Heat Value (Btu/scf)**	**1,257**
Total HAP =				**0.18**	**0.04**	**--**	**<0.01**	**<0.01**		
Total H_2S=				**0.51**	**0.13**	**--**	**0.01**	**<0.01**		
MW of Stream =						**23.98**				

Notes:
1) Stream composition assumed to be inlet gas. Estimated 500 compressor blowdowns at 1.889 MCF and one hour each.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Methanol Tank Information

Equipment Information	
	TK-4
Contents	Methanol
Number of Tanks	1
Capacity (bbl)	200
Capacity (gal)	8,400
Total Throughput (bbl/yr)	10,400
Total Throughput (gal/yr)	436,800
Total Throughput (gal/d)	1,197
Per Tank Throughput (bbl/yr)	10,400
Per Tank Throughput (gal/yr)	436,800
Per Tank Throughput (gal/d)	1,197
TANKS 4.0.9d Working Losses (lb/yr)[1]	223.78
TANKS 4.0.9d Breathing Losses (lb/yr)[1]	108.24
Control Type	None

Notes:
1) Working and breathing calculated using EPA TANKS 4.0.9d. See attached

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Methanol Tank Emissions Calculations

Unit ID: TK-4

Uncontrolled Emissions

Pollutant	Working Losses			Breathing Losses			Annual Emissions			Operating Hours			Conversion			Hourly Emissions[1]	
VOC/Methanol [2]	0.11	TPY	+	0.05	TPY	=	**0.17**	**TPY**	/	8,760	X		2,000	lb/ton	=	**0.04**	**lb/hr**

Notes:
1) Due to variable short-term emission rates, average lb/hr based on annual emissions shown for reference only.
2) VOC TPY working and breathing losses calculated from lb/yr TANKS 4.0.9d results as follows: lb/yr * 1/2000 = TPY.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Fugitive Equipment Data and Emission Factors

Equipment Information - Gas Service							TOC Emissions										
Component	Count[1]		Emission Factor[2]		Control Efficiency			Hourly Emissions		Operating Hours		Conversion			Annual Emissions	
Valves - Gas	576	X	9.92E-03	lb/hr/source	X	0.00%	=	5.71	lb/hr	X	8,760	X	0.0005	ton/lb	=	25.03	TPY
Flanges - Gas	1,158	X	8.60E-04	lb/hr/source	X	0.00%	=	1.00	lb/hr	X	8,760	X	0.0005	ton/lb	=	4.36	TPY
Relief Valves - Gas	36	X	1.94E-02	lb/hr/source	X	0.00%	=	0.70	lb/hr	X	8,760	X	0.0005	ton/lb	=	3.06	TPY
Open-Ended Lines - Gas	12	X	4.41E-03	lb/hr/source	X	0.00%	=	0.05	lb/hr	X	8,760	X	0.0005	ton/lb	=	0.23	TPY
Compressor Seals - Gas	24	X	1.94E-02	lb/hr/source	X	0.00%	=	0.47	lb/hr	X	8,760	X	0.0005	ton/lb	=	2.04	TPY
Other - Gas	24	X	1.94E-02	lb/hr/source	X	0.00%	=	0.47	lb/hr	X	8,760	X	0.0005	ton/lb	=	2.04	TPY

Equipment Information - Liquid Service							TOC Emissions										
Component	Count[1]		Emission Factor[2]		Control Efficiency			Hourly Emissions		Operating Hours		Conversion			Annual Emissions	
Valves - Light Oil	25	X	5.51E-03	lb/hr/source	X	0.00%	=	0.14	lb/hr	X	8,760	X	0.0005	ton/lb	=	0.60	TPY
Flanges - Light Oil	50	X	2.43E-04	lb/hr/source	X	0.00%	=	0.01	lb/hr	X	8,760	X	0.0005	ton/lb	=	0.05	TPY
Open-Ended Lines - Light Oil	2	X	3.09E-03	lb/hr/source	X	0.00%	=	0.01	lb/hr	X	8,760	X	0.0005	ton/lb	=	0.03	TPY
Connectors - Light Oil	50	X	4.63E-04	lb/hr/source	X	0.00%	=	0.02	lb/hr	X	8,760	X	0.0005	ton/lb	=	0.10	TPY
Pump Seals - Light Oil	2	X	2.87E-02	lb/hr/source	X	0.00%	=	0.06	lb/hr	X	8,760	X	0.0005	ton/lb	=	0.25	TPY
Other - Light Oil	5	X	1.65E-02	lb/hr/source	X	0.00%	=	0.08	lb/hr	X	8,760	X	0.0005	ton/lb	=	0.36	TPY

Notes:
1) Component counts estimated based on similar facility.
2) Emission Factor Source: EPA-453/R-95-017. TOC multiplied by pollutant content of streams (weight %) to obtain pollutant emissions.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Fugitive Emissions Calculations

Component	VOC Emissions				CO_2 Emissions				CH_4 Emissions				H_2S Emissions			
Valves - Gas	1.62	lb/hr	7.10	TPY	0.08	lb/hr	0.34	TPY	2.47	lb/hr	10.83	TPY	0.02	lb/hr	0.11	TPY
Flanges - Gas	0.28	lb/hr	1.24	TPY	0.01	lb/hr	0.06	TPY	0.43	lb/hr	1.89	TPY	<0.01	lb/hr	0.02	TPY
Relief Valves - Gas	0.20	lb/hr	0.87	TPY	0.01	lb/hr	0.04	TPY	0.30	lb/hr	1.32	TPY	<0.01	lb/hr	0.01	TPY
Open-Ended Lines - Gas	0.02	lb/hr	0.07	TPY	<0.01	lb/hr	<0.01	TPY	0.02	lb/hr	0.10	TPY	<0.01	lb/hr	<0.01	TPY
Compressor Seals - Gas	0.13	lb/hr	0.58	TPY	0.01	lb/hr	0.03	TPY	0.20	lb/hr	0.88	TPY	<0.01	lb/hr	0.01	TPY
Other - Gas	0.13	lb/hr	0.58	TPY	0.01	lb/hr	0.03	TPY	0.20	lb/hr	0.88	TPY	<0.01	lb/hr	0.01	TPY
Valves - Light Oil	0.14	lb/hr	0.60	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	0.00	lb/hr	0.00	TPY
Flanges - Light Oil	0.01	lb/hr	0.05	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	0.00	lb/hr	0.00	TPY
Open-Ended Lines - Light Oil	0.01	lb/hr	0.03	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	0.00	lb/hr	0.00	TPY
Connectors - Light Oil	0.02	lb/hr	0.10	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	0.00	lb/hr	0.00	TPY
Pump Seals - Light Oil	0.06	lb/hr	0.25	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	0.00	lb/hr	0.00	TPY
Other - Light Oil	0.08	lb/hr	0.36	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	0.00	lb/hr	0.00	TPY
Total	**2.70**	**lb/hr**	**11.82**	**TPY**	**0.11**	**lb/hr**	**0.49**	**TPY**	**3.63**	**lb/hr**	**15.90**	**TPY**	**0.04**	**lb/hr**	**0.16**	**TPY**

Component	n-Hexane Emissions				Benzene Emissions				Toluene Emissions				Ethylbenzene Emissions				Xylene Emissions				2,2,4-Trimethylpentane Emissions			
Valves - Gas	0.01	lb/hr	0.02	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	0.01	TPY
Flanges - Gas	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY
Relief Valves - Gas	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY
Open-Ended Lines - Gas	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY
Compressor Seals - Gas	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY
Other - Gas	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY
Valves - Light Oil	0.02	lb/hr	0.09	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	0.01	TPY	0.00	lb/hr	0.00	TPY
Flanges - Light Oil	<0.01	lb/hr	0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	0.00	lb/hr	0.00	TPY
Open-Ended Lines - Light Oil	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	0.00	lb/hr	0.00	TPY
Connectors - Light Oil	<0.01	lb/hr	0.02	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	0.00	lb/hr	0.00	TPY
Pump Seals - Light Oil	0.01	lb/hr	0.04	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	0.00	lb/hr	0.00	TPY
Other - Light Oil	0.01	lb/hr	0.06	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	0.01	TPY	<0.01	lb/hr	0.01	TPY	0.00	lb/hr	0.00	TPY
Total	**0.06**	**lb/hr**	**0.25**	**TPY**	**<0.01**	**lb/hr**	**0.01**	**TPY**	**0.01**	**lb/hr**	**0.02**	**TPY**	**<0.01**	**lb/hr**	**0.01**	**TPY**	**0.01**	**lb/hr**	**0.02**	**TPY**	**<0.01**	**lb/hr**	**0.01**	**TPY**

Notes:
1) TOC from previous table multiplied by pollutant content of streams (weight%) to obtain pollutant emissions. See attached analyses table.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Miscellaneous Venting and Blowdown Emissions Calculations

Component	Molecular Weight	Stream 1 Inlet Gas	Emissions	
		Mole %	scf/yr[1]	TPY[2]
Hydrogen Sulfide	34.081	0.300%	1,500	0.07
Carbon Dioxide	44.010	0.731%	3,655	0.21
Nitrogen	28.013	2.035%	10,175	0.38
Helium	4.003	0.000%	0	0.00
Oxygen	31.999	0.000%	0	0.00
Methane	16.043	61.974%	309,870	6.55
Ethane	30.069	21.685%	108,425	4.30
Propane	44.096	9.469%	47,345	2.75
i-Butane	58.122	0.855%	4,275	0.33
n-Butane	58.122	2.189%	10,945	0.84
i-Pentane	72.149	0.265%	1,325	0.13
n-Pentane	72.149	0.337%	1,685	0.16
n-Hexane	86.175	0.024%	120	0.01
Other Hexanes	86.175	0.102%	511	0.06
Heptanes	100.202	0.011%	55	0.01
Benzene	78.114	0.005%	27	<0.01
Toluene	92.141	0.005%	23	<0.01
Ethylbenzene	106.167	0.000%	1	<0.01
Xylenes	106.167	0.001%	6	<0.01
Octanes	114.229	0.008%	39	0.01
2,2,4-Trimethylpentane	114.231	0.004%	22	<0.01
Nonanes	128.255	0.000%	0	0.00
Decanes	142.282	0.000%	0	0.00
	Totals =	100.001%	**500,003**	**15.80**
		Total VOC =	**66,378**	**4.30**
		Total HAP =	**198**	**0.02**

Estimated Annual Volume 500,000 scf/yr
Molar volume conversion @60° F and 1 atm: 1 lb/mole = 379.4 scf

Notes:
1) Calculated as follows: Total Losses scf/yr * mol% of component.
2) Calculated as follows: component scf/yr / 379.4 molar volume conversion * MW component / 2000 lb/ton.

Appendix C – Support Documents

Engine Specification Sheet

Application & Performance Warranty Data

Project Information

Site Location:	US
Project Name:	W217580 - Vertical Silencer/Housing & Piping
Application:	Gas Compression
Number Of Engines:	5
Operating Hours per Year:	8760

Engine Specifications

Engine Manufacturer:	Waukesha
Model Number:	P9394GSI S5
Rated Speed:	1200 RPM
Type of Fuel:	Natural Gas
Type of Lube Oil:	1 wt% sulfated ash or less
Lube Oil Consumption:	0.1 % Fuel Consumption
Number of Exhaust Manifolds:	1

Engine Cycle Data

Load	Speed	Power	Exhaust Flow	Exhaust Temp.	Fuel Cons.	NO_x	CO	NMNEHC	CH_2O	O_2	H_2O
%		*bhp*	*acfm (cfm)*	*° F*	*gal/hr*	*g/bhp-hr*	*g/bhp-hr*	*g/bhp-hr*	*g/bhp-hr*	*%*	*%*
100	Rated	2,492	10,797	1,095	38.3	11.7	6.3	0.1	0.05	0.3	17

Emission Data (100% Load)

Emission	Raw Engine Emissions						Target Outlet Emissions						Calculated Reduction
	g/bhp-hr	*tons/yr*	*ppmvd @ 15% O_2*	*ppmvd*	*g/kW-hr*	*lb/MW-hr*	*g/bhp-hr*	*tons/yr*	*ppmvd @ 15% O_2*	*ppmvd*	*g/kW-hr*	*lb/MW-hr*	
NO_x*	11.7	281.54	844	2,948	15.69	34.59	0.8	19.25	58	202	1.073	2.37	93.2%
CO	6.3	151.6	747	2,607	8.448	18.63	0.63	15.16	75	261	0.845	1.86	90%
NMNEHC**	0.1	2.41	21	72	0.134	0.3							
CH_2O	0.05	1.2	6	19	0.067	0.15	0.02	0.36	2	6	0.02	0.04	70%

System Specifications

Oxidation System Specifications (GAH42CZ-3G2424-2-22100119)

Design Exhaust Flow Rate:	10,797 acfm
Design Exhaust Temperature:	1,095°F
Housing Model Number:	GAH42CZ-3G2424-2-22100119-HSG-0
Element Model Number:	MECB-TW-SH2875-2400-2400-291, MEC-BK-SH2875-2400-2400-291
Number of Catalyst Elements:	2
Number of Spare Catalyst Tracks:	1
Maximum Wind Loading:	100 mph
System Pressure Loss:	9.0 inches of WC (Clean) (22.44 mBar)
Exhaust Temperature Limits***:	750° F – 1250° F (catalyst inlet); 1350° F (catalyst outlet)

* MW referenced as NO_2

** MW referenced as CH_4. Propane in the exhaust shall not exceed 15% by volume of the NMHC compounds in the exhaust, excluding aldehydes. The 15% (vol.) shall be established on a wet basis, reported on a methane molecular weight basis. The measurement of exhaust NMHC composition shall be based upon EPA method 320 (FTIR), and shall exclude formaldehyde.

*** General catalyst temperature operating range. Performance is based on the Design Exhaust Temperature.

Appendix D – Previous Permit Application

ONEOK
ROCKIES MIDSTREAM
A SUBSIDIARY OF ONEOK PARTNERS

CERTIFIED MAIL 7014 1200 0000 2235 6939
RETURN RECEIPT REQUESTED

July 31, 2018

Mr. Terry L. O'Clair, P.E.
North Dakota Department of Health
Division of Air Quality
918 E. Divide Ave, 2nd Floor
Bismark, ND 58501-1947

ONEOK ROCKIES MIDSTREAM, L.L.C.
ALAMO COMPRESSOR STATION
PERMIT TO CONSTRUCT APPLICATION

Dear Mr. O'Clair:

ONEOK Rockies Midstream, L.L.C. (ORM) operates the Alamo Compressor Station, a permit exempt facility in Williams County. ORM plans to add additional electric compression and three (3) additional 400-bbl condensate tanks to the facility. With the capacity for increased liquids handling, potential VOC emissions will exceed 40 tons per year (TPY); therefore, ORM submits this Permit to Construct application to authorize the changes. Potential emissions for all other criteria pollutants will remain below 25 TPY, and potential combined HAP emissions will remain below 5 TPY.

Enclosed with this letter are required application forms, emissions calculations and supporting documents, as well as a check in the amount of $325.00 for the application fee. If you need additional information or have any questions, please contact me at 918-732-1477 or Kale.Hanner@oneok.com.

Sincerely,

Hanna Bentley
for

Kale Hanner
Supervisor, Environmental Compliance

Enclosures

xc: K. Rudningen/C. Forsander/R. Brown (.pdf)
Tulsa Environmental Files – Alamo CS – Permit Actions
EIMS

ND DEQ
Air Quality
Date Received: 8-2-18
Amount Received: $ 325.00
Cash MO or CK # 190221

Permit to Construct Application

Alamo Compressor Station

ONEOK Rockies Midstream, L.L.C.

ONEOK
ROCKIES MIDSTREAM
A SUBSIDIARY OF ONEOK PARTNERS

Submitted to NDDH Division of Air Quality
July 2018

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ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
July 2018

Introduction

ONEOK Rockies Midstream, L.L.C. (ORM) operates the Alamo Compressor Station, a permit exempt facility in Williams County. ORM plans to add additional electric compression and three (3) additional 400-bbl condensate tanks to the facility. With the capacity for increased liquids handling, potential VOC emissions will exceed 40 tons per year (TPY); therefore, ORM submits this Permit to Construct application to authorize the changes.

Facility Equipment

After construction, Alamo Compressor Station will consist of up to six (6) electric-driven compressors, six (6) 400-bbl condensate storage tanks equipped with a vapor recovery unit (VRU), one (1) 200-bbl methanol tank, one (1) 24-bbl methanol tank, and one (1) emergency flare. Associated emission sources include condensate truck loading, fugitive emissions and miscellaneous vents and blowdowns.

Process Description

Alamo Compressor Station transports two-phase field gas from wells through an inlet separation vessel where free liquids (condensate and water) are removed. Natural gas then passes through a suction header that feeds the electric compressors, which boost gas pressure. The compressor units discharge natural gas into a pipeline for transmission. Condensate and water are stored in 400-bbl storage tanks until transported from the site. The condensate storage tanks are equipped with a vapor recovery unit (VRU) that vents to the suction header such that working, breathing and flashing emissions are comingled with the natural gas inlet stream and routed to the compressors. An emergency flare is utilized to combust compressor blowdowns and emergency upsets. Emissions from fugitive components and miscellaneous vents and blowdowns also occur at the facility.

Regulatory Applicability

The facility is a natural gas compressor station that falls under the North American Industrial Classification System (NAICS) code 211130 (formerly Standard Industrial Classification (SIC) 1311).

New Source Performance Standards 40 CFR Part 60 Subpart OOOO, Crude Oil and Natural Gas Production, Transmission and Distribution, establishes emission standards for the following equipment that commences construction, modification, or reconstruction after August 23, 2011 and on or before September 18, 2015 at crude oil and natural gas production, transmission or distribution facilities:

1. Each single gas well;
2. Single centrifugal compressors using wet seals located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment;
3. Single reciprocating compressors located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment;
4. Single continuous bleed natural gas driven pneumatic controllers with a natural gas bleed rate greater than 6 SCFH, located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment and not located at a natural gas processing plant;
5. Single continuous bleed natural gas driven pneumatic controllers located at a natural gas processing plant;
6. Single storage vessels located in the oil and natural gas production segment, natural gas processing segment, or natural gas transmission and storage segment with the potential for VOC emissions equal to or greater than 6 tons per year;

7. All equipment, except compressors, within a process unit at an onshore natural gas processing plant;
8. Sweetening units located at onshore natural gas processing plants.

The three existing electric-driven compressors were constructed after August 23, 2011 and prior to September 18, 2015; therefore, they are subject to this subpart. The three existing condensate tanks (TK-1 – TK-3) were constructed after August 23, 2011 and prior to September 18, 2015, but ORM has established a federally enforceable limit of less than 6 TPY VOC per tank; therefore, they are not subject to this subpart.

New Source Performance Standards 40 CFR Part 60 Subpart OOOOa, Crude Oil and Natural Gas Facilities, establishes emission standards for the following equipment that commences construction, modification or reconstruction after September 18, 2015 at crude oil and natural gas production, transmission or distribution facilities:

1. Each single oil or gas well that conducts a completion following hydraulic fracturing or refracturing;
2. Single centrifugal compressors using wet seals that are not located at a well site;
3. Single reciprocating compressors not located at a well site;
4. Single continuous bleed natural gas driven pneumatic controllers with a natural gas bleed rate greater than 6 SCFH, not located at a natural gas processing plant;
5. Single continuous bleed natural gas driven pneumatic controllers located at a natural gas processing plant;
6. Single storage vessels with the potential for VOC emissions equal to or greater than 6 tons per year;
7. The group of all equipment within a process unit;
8. The group of fugitive emissions equipment at a compressor station;
9. The group of fugitive emissions equipment at a well site;
10. Sweetening units located at onshore natural gas processing plants;
11. Pneumatic pumps at natural gas processing plants and well sites.

The proposed electric-driven compressors will be constructed after September 18, 2015; therefore, they will be subject to this subpart. The three proposed condensate tanks (TK-6 – TK-8) will be constructed after September 18, 2015, but ORM will establish a federally enforceable limit of less than 6 TPY VOC per tank; therefore, they will not be subject to this subpart. With the addition of three (3) electric-driven compressors, the facility will meet the definition of a modified compressor station and will therefore be subject to the leak detection requirements of this subpart.

Application Forms

Form SFN 8516 – Permit Application for Air Contaminant Sources

Form SFN 59652 – Permit Application for Flares

Form SFN 8535 – Permit Application for Volatile Organic Compounds Storage Tank

PERMIT APPLICATION FOR AIR CONTAMINANT SOURCES

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8516 (06-13)

SECTION A - FACILITY INFORMATION

Name of Firm or Organization ONEOK Rockies Midstream, L.L.C. - Alamo Compressor Station		
Contact Person for Air Pollution Matters Kale Hanner		
Title Supervisor, Environmental Compliance	Telephone Number 918-732-1477	E-mail Address Kale.Hanner@oneok.com
Applicant's Name Craig Forsander		
Title Vice President, Rockies Midstream Operations	Telephone Number 406-433-8749	E-mail Address Craig.Forsander@oneok.com
Mailing Address (Street & No.) P.O. Box 871		
City Tulsa	State OK	ZIP Code 74102-0871
Facility Address (Street & No.)		
City	State North Dakota	ZIP Code

County Williams	Latitude (Nearest Second) 48.4941	Longitude (Nearest Second) -103.5701
Legal Description of Facility Site SW ¼ SW ¼, 23 Section 158N Twp. 100W Range	Land Area at Facility Site ~15 Acres Acres (or) Sq. Ft.	MSL Elevation at Facility ~2,126 ft

SECTION B – GENERAL NATURE OF BUSINESS

Describe Nature of Business	North American Industry Classification System Number	Standard Industrial Classification Number (SIC)
Natural Gas Compressor Station	211130	1311

SECTION C – GENERAL PERMIT INFORMATION

Type of Permit? Permit to Construct (PTC) ☑ Permit to Operate (PTO) ☐

If application is for a Permit to Construct, please provide the following data:

Planned Start Construction Date	Planned End Construction Date
Upon permit issuance	TBD

SECTION D – SOURCE IDENTIFICATION AND CATEGORY OF EACH SOURCE INCLUDED ON THIS PERMIT APPLICATION

		Permit to Construct				Minor Source Permit to Operate						
Your Source ID Number	Source or Unit (Equipment, Machines, Devices, Boilers, Processes, Incinerators, Etc.)	New Source	Existing Source Modification	Existing Source Expansion	Existing Source Change of Location	New Source	Existing Source Initial Application	Existing Source After Modification	Existing Source After Expansion	Existing Source After Change of Location	Existing Source After Change of Ownership	Other
TK-1 - TK-3	Three (3) 400-bbl Condensate Tanks	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐
TK-6 - TK-8	Three (3) 400-bbl Condensate Tanks	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
TL-1	Condensate Truck Loading	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐
FL-1	Emergency Flare	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐
TK-4 -~~TK-5~~	Methanol Tanks	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐
FUG	Fugitive Emissions	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐
BD	Misc. Venting and Blowodwns	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐

Add additional pages if necessary

SECTION E – IDENTIFICATION OF AIR CONTAMINANTS

Check all which are emitted in measurable quantities into the atmosphere from any operation at facility

☐ Arsenic	☐ Chlorine Compounds	☑ Sulfur Compounds	☐ Radioisotopes
☐ Asbestos	☐ Chromium Compounds	☐ Hydrogen Sulfide	☐ Visible Emissions
☐ Beryllium	☐ Fluoride Compounds	☐ Odors	☑ Particulates (specify)
☐ Cadmium	☑ Volatile Organic Compounds	☑ Carbon Monoxide	☐ Dust
☐ Lead	☐ Other Organic Compounds	☑ Nitrogen Compounds	☐ Silica
☐ Mercury	☑ Greenhouse Gases (CO_2e)	☐ Pesticides	☑ Other (specify)

List Specific Compounds
HAP - BTEX, n-Hexane

Has Source Testing Been Done at the Facility?	Last Date when a Testing Program was Completed	If Program is Continuous, Give Approximate Testing Frequency
☐ Yes ☑ No		

SECTION F1 – ADDITIONAL FORMS

Indicate which of the following forms are attached and made part of the application

☐ Air Pollution Control Equipment (SFN 8532)	☐ Fuel Burning Equipment Used for Indirect Heating (SFN 8518)
☐ Construct/Operate Incinerators (SFN 8522)	☐ Hazardous Air Pollutant (HAP) Sources (SFN 8329)
☐ Natural Gas Processing Plants (SFN 11408)	☐ Manufacturing or Processing Equipment (SFN 8520)
☐ Glycol Dehydration Units (SFN 58923)	☑ Volatile Organic Compounds Storage Tank (SFN 8535)
☑ Flares (SFN 59652)	☐ Internal Combustion Engines and Turbines (SFN 8891)
☐ Rock, Sand, and Gravel Plants (SFN 8530)	☐ Oil/Gas Production Facility Registration (SFN 14334)
☐ Asphalt Concrete Plants (SFN 8526)	☐ Grain, Feed, and Fertilizer Operations (SFN 8524)

SECTION F2 – OTHER ATTACHMENTS INCLUDED AS PART OF THIS APPLICATION

1.	Process Description	4.	Emissions Calculations
2.	Regulatory Applicability	5.	Support Documents
3.	Area Map, PFD	6.	

I, the undersigned applicant, am fully aware that statements made in this application and the attached exhibits and statements constitute the application for Permit(s) to Construct and/or Operate Air Contaminant sources from the North Dakota Department of Health and certify that the information in this application is true, correct and complete to the best of my knowledge and belief. Further, I agree to comply with the provisions of Chapter 23-25 of the North Dakota Century Code and all rules and regulations of the Department, or revisions thereof. I also understand the permit is nontransferable and, if granted a permit, I will promptly notify the Department upon sale or legal transfer of this permitted establishment.

Signature of Applicant	Date
Cory Fong	7-31-18

PERMIT APPLICATION FOR FLARES

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 59652 (09-12)

SECTION A – GENERAL INFORMATION

Name of Firm or Organization ONEOK Rockies Midstream, L.L.C. - Alamo Compressor Station		
Applicant's Name Craig Forsander		
Title Vice President, Rockies Midstream Operations	Telephone Number 406-433-8749	E-mail Address Craig.Forsander@oneok.com
Mailing Address (Street & No.) P.O. Box 871		
City Tulsa	State OK	ZIP Code 74102-0871

SECTION B - FACILITY INFORMATION

Facility Name Alamo Compressor Station		
ND Air Pollution Control Permit No. (If Applicable) N/A		
Contact Person for Air Pollution Matters Kale Hanner		
Title Supervisor, Environmental Compliance	Telephone Number 918-732-1477	E-mail Address Kale.Hanner@oneok.com
Facility Address (Street & No.)		
City	State ND	ZIP Code
County Williams	Latitude (Nearest Second) 48.4941	Longitude (Nearest Second) -103.5701
Legal Description of Facility Site SW ¼ SW ¼, 23 Section 158N Twp. 100W Range	MSL Elevation at Facility ~2,126 ft	Source ID FL-1

SECTION C – FLARE INFORMATION

Use: ■ Emergency ☐ Process ☐ Both	Subject to NSPS (40 CFR 60.18) ○ Yes ✓ No	
Emission Point ID FL-1	Height Above Ground Level (ft.) 55	Diameter at Top (ft.) 0.667
Flame Monitor: ■ Thermocouple ☐ Infrared ☐ Ultraviolet ☐ Acoustic ☐ Other:		
Ignition: ■ Automatic ■ Continuous Burning Pilot ■ Other: Electric spark igniter		
Average Btu/1000 scf 1,257 Btu/scf	Percent H_2S 0.3	Maximum Hourly Flow Rate to Flare Max of 1.889 MCF per blowdown event

SECTION D – AIR CONTAMINANTS EMITTED

Pollutant	Quantity		Basis of Estimate
	Pounds/Hr	Tons/Yr	
SO_2	0.94	0.24	Flare Stream: Stoichiometric; Pilot: AP-42
VOC	0.65	0.17	Flare Stream: Mass Balance; Pilot: AP-42
GHG (as CO_2e)	328.36	181.33	Flare Stream: 40 CFR 98 and Mass Balance; Pilot: 40 CFR 98
Total HAPS	<0.01	<0.01	Flare Stream: Mass Balance; Pilot: AP-42

Will flaring of gas comply with applicable Ambient Air Quality Standards? ✓ Yes ○ No

IS THIS UNIT IN COMPLIANCE WITH ALL APPLICABLE AIR POLLUTION RULES AND REGULATIONS?

✓ YES ○ NO

If "NO" a Compliance Schedule must be completed and attached.

Signature of Applicant	Date
Cory Forrand	7-31-18

Attach and label separate sheet(s) if you need more space to explain any system or answers or to provide complete listings of Emissions, Contaminants, or other items.

SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of Health
Division of Air Quality
918 E Divide Ave., 2nd Floor
Bismarck, ND 58501-1947
(701) 328-5188

PERMIT APPLICATION FOR VOLATILE ORGANIC COMPOUNDS STORAGE TANK

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8535 (10-13)

SECTION A – GENERAL INFORMATION

Name of Firm or Organization ONEOK Rockies Midstream, L.L.C. - Alamo Compressor Station		
Applicant's Name Craig Forsander		
Title Vice President, Rockies Midstream Operations	Telephone Number 406-433-8749	E-mail Address Craig.Forsander@oneok.com
Mailing Address (Street & No.) P.O. Box 871		
City Tulsa	State OK	ZIP Code 74102-0871
Contact Person for Air Pollution Matters Kale Hanner		
Title Supervisor, Environmental Compliance	Telephone Number 918-732-1477	E-mail Address Kale.Hanner@oneok.com

SECTION B – TANK DATA

Legal Description of Facility Site SW ¼ SW ¼ 23 Section 158N Twp. 100W Range				
County Williams		Source ID Number TK-1, TK-6 (Each)		
Capacity	Barrels 400		Gallons 16,800	
Dimensions	Diameter 12	Height 20	Length	Width
Shape	■ Cylindrical	☐ Spherical	☐ Other – Specify:	
Materials of Construction	(i.e., steel) Steel			
Construction	☐ Riveted	■ Welded	☐ Other – Specify:	
Color	Tan			
Condition	■ Good	☐ Fair	☐ Poor	
Status	■ New Construction	☐ Alteration	■ Existing (Give Date Constructed): TK-1: After 8/23/2011; TK-6: After 9/18/2015	
Type of Tank	■ Fixed Roof ☐ Variable Vapor Space ☐ Pressure (low or high)		☐ External Floating ☐ Internal Floating ☐ Other – Specify:	
Type of Roof	☐ Pan	☐ Double Deck	☐ Pontoon	■ Other – Specify: Cone
Type of Seal	Metallic Shoe Seal	Liquid Mounted Resilient Seal	Vapor Mounted Resilient Seal	
	☐ Primary Seal Only ☐ With Rim Mounted Seal ☐ With Shoe Mounted Secondary Seal	☐ Primary Seal Only ☐ With Rim Mounted Seal ☐ With Weather Shield	☐ Primary Seal Only ☐ With Rim Mounted Seal ☐ With Weather Shield	

SECTION C – TANK CONTENTS

Name all liquids, vapors, gases, or mixtures of such materials to be stored in the tank.
Give density (lbs per gal) or A.P.I.

Natural gas condensate

SECTION D – VAPOR DISPOSAL

☐ Atmosphere ■ Vapor Recovery Unit ☐ Flare ☐ Other – Specify:

SECTION E – VAPOR PRESSURE DATA

psia	
Maximum True Vapor Pressure 10.3223	Maximum Reid Vapor Pressure

SECTION F – OPERATIONAL DATA

Maximum Filling Rate (barrels per hour or gallons per hour) 200 bbl/hr	Vapor Space Outage (See AP-42, 7.1-92, Equation 1-15)
Average Throughput (barrels per day or gallons per day) 260 bbl/day (each)	Tank Turnovers per Year 248.22 (each)

SECTION G – SOLUTION STORAGE

If material stored is a solution, supply the following information:	
Name of Solvent	Name of Material Dissolved
Concentration of Material Dissolved (% by weight or % by volume or lbs/gal)	

SECTION H – AIR CONTAMINANTS EMITTED

Pollutant*	Maximum Pounds Per Hour	Tons Per Year	Basis and Calculations for Quantities (Attach separate sheet if needed)
VOC	1.33 (each)	5.81 (each)	ProMax Process Simulation + TANKS 4.0.9d
CO2e	2.61 (each)	11.43 (each)	ProMax Process Simulation

* Include an estimate of greenhouse gas emissions (CO_2e)

SECTION I – STANDARDS OF PERFORMANCE

Tank subject to: ☐ 40 CFR 60, Subpart K ☐ 40 CFR 60, Subpart Ka ☐ 40 CFR 60, Subpart Kb

Are the standards of performance for new stationary sources; petroleum liquid storage vessels, 40 CFR Part 60, Subparts K, Ka, and Kb being adhered to, where applicable? ○ Yes ◉ No – Explain:

Tank capacities are less than threshold; therefore, NSPS Subparts K, Ka and Kb not applicable.

Signature of Applicant	Date
Cory Forsend	7-31-18

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North Dakota Department of Health
Division of Air Quality
918 E Divide Ave., 2nd Floor
Bismarck, ND 58501-1947
(701) 328-5188

PERMIT APPLICATION FOR VOLATILE ORGANIC COMPOUNDS STORAGE TANK

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8535 (10-13)

SECTION A – GENERAL INFORMATION

Name of Firm or Organization ONEOK Rockies Midstream, L.L.C. - Alamo Compressor Station		
Applicant's Name Craig Forsander		
Title Vice President, Rockies Midstream Operations	Telephone Number 406-433-8749	E-mail Address Craig.Forsander@oneok.com
Mailing Address (Street & No.) P.O. Box 871		
City Tulsa	State OK	ZIP Code 74102-0871
Contact Person for Air Pollution Matters Kale Hanner		
Title Supervisor, Environmental Compliance	Telephone Number 918-732-1477	E-mail Address Kale.Hanner@oneok.com

SECTION B – TANK DATA

Legal Description of Facility Site SW ¼ SW ¼ 23 Section 158N Twp. 100W Range				
County Williams		Source ID Number TK-2, TK-3, TK-7, TK-8 (Each)		
Capacity	Barrels 400		Gallons 16,800	
Dimensions	Diameter 12	Height 20	Length	Width
Shape	■ Cylindrical	☐ Spherical	☐ Other – Specify:	
Materials of Construction	(i.e., steel) Steel			
Construction	☐ Riveted	■ Welded	☐ Other – Specify:	
Color	Tan			
Condition	■ Good	☐ Fair	☐ Poor	
Status	■ New Construction	☐ Alteration	■ Existing (Give Date Constructed): TK-2, -3: After 8/23/2011; TK-7, -8: After 9/18/2015	
Type of Tank	■ Fixed Roof ☐ Variable Vapor Space ☐ Pressure (low or high)		☐ External Floating ☐ Internal Floating ☐ Other – Specify:	
Type of Roof	☐ Pan	☐ Double Deck	☐ Pontoon	■ Other – Specify: Cone

Type of Seal	Metallic Shoe Seal	Liquid Mounted Resilient Seal	Vapor Mounted Resilient Seal
	☐ Primary Seal Only ☐ With Rim Mounted Seal ☐ With Shoe Mounted Secondary Seal	☐ Primary Seal Only ☐ With Rim Mounted Seal ☐ With Weather Shield	☐ Primary Seal Only ☐ With Rim Mounted Seal ☐ With Weather Shield

SECTION C – TANK CONTENTS

Name all liquids, vapors, gases, or mixtures of such materials to be stored in the tank.
Give density (lbs per gal) or A.P.I.

Natural gas condensate

SECTION D – VAPOR DISPOSAL

☐ Atmosphere ■ Vapor Recovery Unit ☐ Flare ☐ Other – Specify:

SECTION E – VAPOR PRESSURE DATA

psia	
Maximum True Vapor Pressure 10.3223	Maximum Reid Vapor Pressure

SECTION F – OPERATIONAL DATA

Maximum Filling Rate (barrels per hour or gallons per hour) 200 bbl/hr	Vapor Space Outage (See AP-42, 7.1-92, Equation 1-15)
Average Throughput (barrels per day or gallons per day) 260 bbl/day (each)	Tank Turnovers per Year 248.22 (each)

SECTION G – SOLUTION STORAGE

If material stored is a solution, supply the following information:	
Name of Solvent	Name of Material Dissolved
Concentration of Material Dissolved (% by weight or % by volume or lbs/gal)	

SECTION H – AIR CONTAMINANTS EMITTED

Pollutant*	Maximum Pounds Per Hour	Tons Per Year	Basis and Calculations for Quantities (Attach separate sheet if needed)
VOC	0.09 (each)	0.41 (each)	TANKS 4.0.9d

* Include an estimate of greenhouse gas emissions (CO_2e)

SECTION I – STANDARDS OF PERFORMANCE

Tank subject to: ☐ 40 CFR 60, Subpart K ☐ 40 CFR 60, Subpart Ka ☐ 40 CFR 60, Subpart Kb

Are the standards of performance for new stationary sources; petroleum liquid storage vessels, 40 CFR Part 60, Subparts K, Ka, and Kb being adhered to, where applicable? ○ Yes ◉ No – Explain:

Tank capacities are less than threshold; therefore, NSPS Subparts K, Ka and Kb not applicable.

Signature of Applicant	Date
Craig Fornuke	7-31-18

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DIVISION OF AIR QUALITY
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SECTION A – GENERAL INFORMATION

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Applicant's Name Craig Forsander		
Title Vice President, Rockies Midstream Operations	Telephone Number 406-433-8749	E-mail Address Craig.Forsander@oneok.com
Mailing Address (Street & No.) P.O. Box 871		
City Tulsa	State OK	ZIP Code 74102-0871
Contact Person for Air Pollution Matters Kale Hanner		
Title Supervisor, Environmental Compliance	Telephone Number 918-732-1477	E-mail Address Kale.Hanner@oneok.com

SECTION B – TANK DATA

Legal Description of Facility Site SW ¼ SW ¼ 23 Section 128N Twp. 100W Range				
County Williams		Source ID Number TK-4		
Capacity	Barrels 200		Gallons 8,400	
Dimensions	Diameter 12	Height 10	Length	Width
Shape	■ Cylindrical	☐ Spherical	☐ Other – Specify:	
Materials of Construction	(i.e., steel) Steel			
Construction	☐ Riveted	■ Welded	☐ Other – Specify:	
Color	Tan			
Condition	■ Good	☐ Fair	☐ Poor	
Status	☐ New Construction	☐ Alteration	■ Existing (Give Date Constructed):	
Type of Tank	■ Fixed Roof ☐ Variable Vapor Space ☐ Pressure (low or high)		☐ External Floating ☐ Internal Floating ☐ Other – Specify:	
Type of Roof	☐ Pan	☐ Double Deck	☐ Pontoon	■ Other – Specify: Cone

Type of Seal	Metallic Shoe Seal	Liquid Mounted Resilient Seal	Vapor Mounted Resilient Seal
	☐ Primary Seal Only ☐ With Rim Mounted Seal ☐ With Shoe Mounted Secondary Seal	☐ Primary Seal Only ☐ With Rim Mounted Seal ☐ With Weather Shield	☐ Primary Seal Only ☐ With Rim Mounted Seal ☐ With Weather Shield

SECTION C – TANK CONTENTS

Name all liquids, vapors, gases, or mixtures of such materials to be stored in the tank.
Give density (lbs per gal) or A.P.I.

Methanol

SECTION D – VAPOR DISPOSAL

☒ Atmosphere ☐ Vapor Recovery Unit ☐ Flare ☐ Other – Specify:

SECTION E – VAPOR PRESSURE DATA

psia	
Maximum True Vapor Pressure 1.3087	Maximum Reid Vapor Pressure

SECTION F – OPERATIONAL DATA

Maximum Filling Rate (barrels per hour or gallons per hour) 200 bbl/hr	Vapor Space Outage (See AP-42, 7.1-92, Equation 1-15)
Average Throughput (barrels per day or gallons per day) 1,197 gal/day	Tank Turnovers per Year 52

SECTION G – SOLUTION STORAGE

If material stored is a solution, supply the following information:	
Name of Solvent	Name of Material Dissolved
Concentration of Material Dissolved (% by weight or % by volume or lbs/gal)	

SECTION H – AIR CONTAMINANTS EMITTED

Pollutant*	Maximum Pounds Per Hour	Tons Per Year	Basis and Calculations for Quantities (Attach separate sheet if needed)
VOC	0.04	0.17	TANKS 4.0.9d

* Include an estimate of greenhouse gas emissions (CO_2e)

SECTION I – STANDARDS OF PERFORMANCE

Tank subject to: ☐ 40 CFR 60, Subpart K ☐ 40 CFR 60, Subpart Ka ☐ 40 CFR 60, Subpart Kb

Are the standards of performance for new stationary sources; petroleum liquid storage vessels, 40 CFR Part 60, Subparts K, Ka, and Kb being adhered to, where applicable? ○ Yes ◉ No – Explain:

Tank capacity is less than threshold; therefore, NSPS Subparts K, Ka and Kb not applicable.

Signature of Applicant	Date
Casey Forsyth	7.31.18

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Appendix A - Maps and Drawings

Figure 1 – Area Map

Figure 2 – Process Flow Diagram

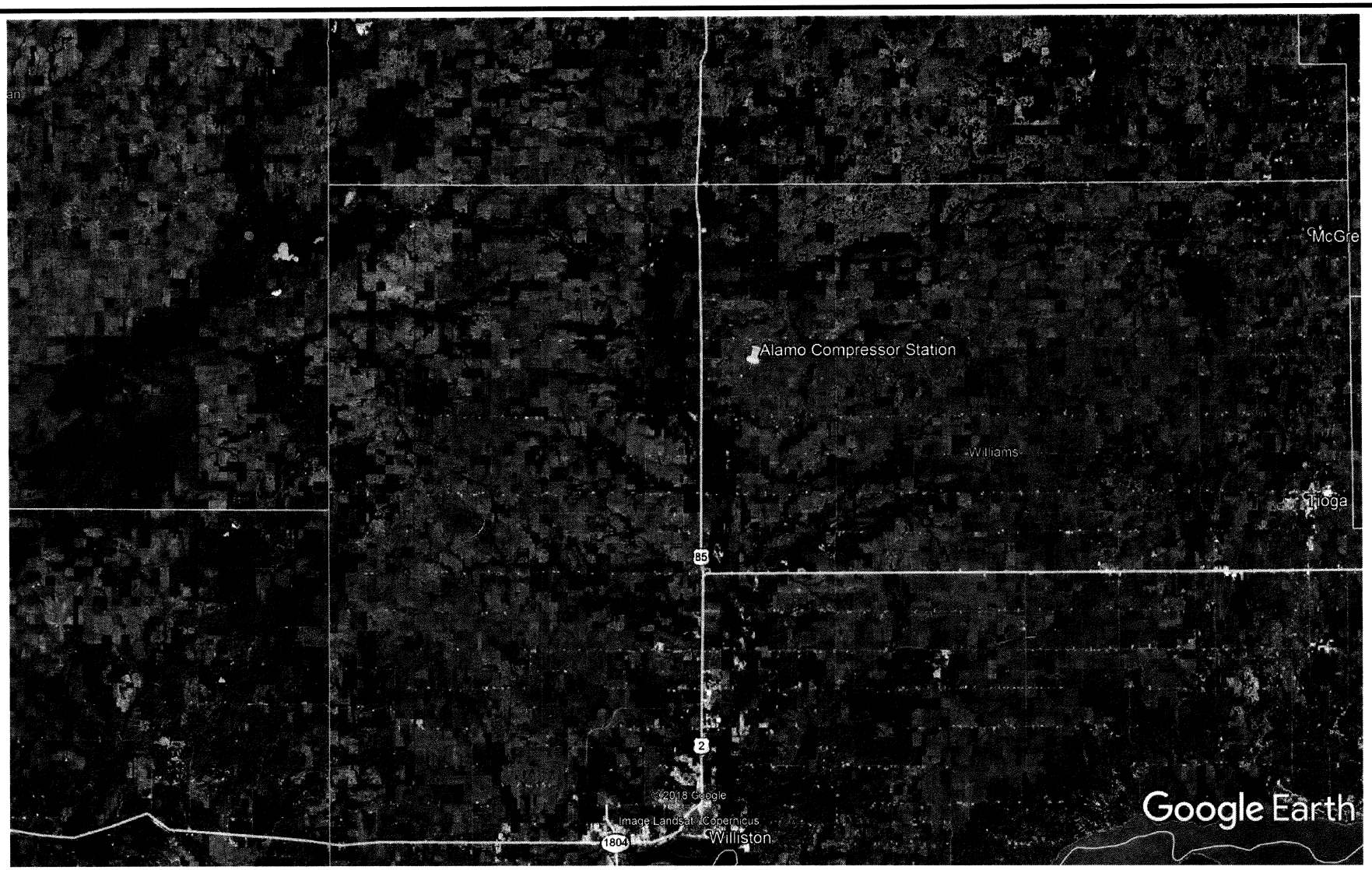


Figure Title: **Area Map**	ONEOK ROCKIES MIDSTREAM A SUBSIDIARY OF ONEOK PARTNERS	**Figure 1.** ONEOK Rockies Midstream, L.L.C. Alamo Compressor Station Williams County, ND

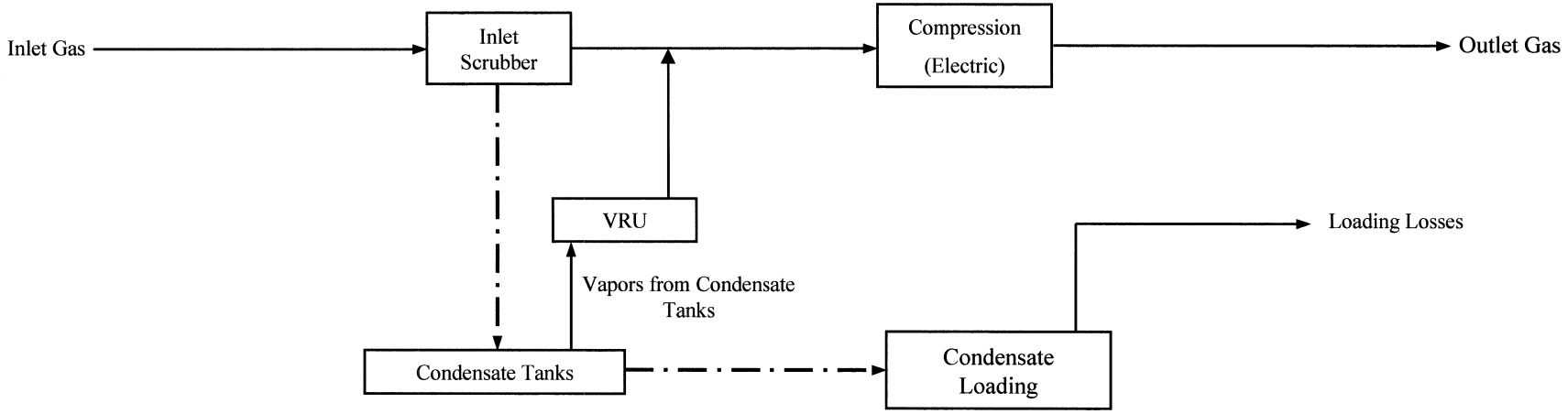


Figure Title: **Process Flow Diagram**

ONEOK ROCKIES MIDSTREAM
A SUBSIDIARY OF ONEOK PARTNERS

Figure 2.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Williams County, ND

Appendix B – Emissions Calculations

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Facility Emissions Summary - Annual

Unit ID	Description	NOx	CO	VOC	SO_2	PM	HCHO	HAP	CO_2e
		TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY
TK-1	400-bbl Condensate Tank	--	--	5.81	--	--	--	0.31	11.43
TK-2	400-bbl Condensate Tank	--	--	0.41	--	--	--	0.02	0.00
TK-3	400-bbl Condensate Tank	--	--	0.41	--	--	--	0.02	0.00
TK-6	400-bbl Condensate Tank	--	--	5.81	--	--	--	0.31	11.43
TK-7	400-bbl Condensate Tank	--	--	0.41	--	--	--	0.02	0.00
TK-8	400-bbl Condensate Tank	--	--	0.41	--	--	--	0.02	0.00
TL-1	Condensate Truck Loading	--	--	27.65	--	--	--	1.47	12.35
FL-1	Emergency Flare	0.13	0.26	0.17	0.24	0.01	<0.01	<0.01	181.33
TK-4	200-bbl Methanol Tank	--	--	0.17	--	--	--	0.17	--
TK-5	24-bbl Methanol Tank	--	--	0.02	--	--	--	0.02	--
FUG	Fugitive Emissions	--	--	11.82	--	--	--	0.32	398.00
BD	Miscellaneous Venting and Blowdowns to Atmosphere	--	--	4.30	--	--	--	0.02	163.99
	Total =	**0.13**	**0.26**	**57.38**	**0.24**	**0.01**	**<0.01**	**2.69**	**778.54**

Note:
Miscellaneous venting and blowdowns to atmosphere include, but are not limited to, miscellaneous planned and unplanned venting to atmosphere from pressure relief valves, startup, shut-down, maintenance, compressor blowdowns, pigging actions, and/or pneumatic controllers.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Facility Emissions Summary - Hourly

Unit ID	Description	NOx	CO	VOC	SO_2	PM	HCHO	HAP	CO_2e
		lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
TK-1	400-bbl Condensate Tank	--	--	1.33	--	--	--	0.07	2.61
TK-2	400-bbl Condensate Tank	--	--	0.09	--	--	--	0.01	0.00
TK-3	400-bbl Condensate Tank	--	--	0.09	--	--	--	0.01	0.00
TK-6	400-bbl Condensate Tank	--	--	1.33	--	--	--	0.07	2.61
TK-7	400-bbl Condensate Tank	--	--	0.09	--	--	--	0.01	0.00
TK-8	400-bbl Condensate Tank	--	--	0.09	--	--	--	0.01	0.00
TL-1	Condensate Truck Loading	--	--	6.31	--	--	--	0.33	2.82
FL-1	Emergency Flare	0.18	0.75	0.65	0.94	<0.01	<0.01	<0.01	328.36
TK-4	200-bbl Methanol Tank	--	--	--	--	--	--	--	--
TK-5	24-bbl Methanol Tank	--	--	--	--	--	--	--	--
FUG	Fugitive Emissions	--	--	2.70	--	--	--	0.07	90.87
BD	Miscellaneous Venting and Blowdowns to Atmosphere	--	--	--	--	--	--	--	--
	Total =	**0.18**	**0.75**	**12.69**	**0.94**	**<0.01**	**<0.01**	**0.57**	**427.27**

Note:
1) Hourly emissions from tanks and flares are estimates based on average values.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Facility Analyses

Component	Molecular Weight	Stream 1 Inlet Gas				Stream 2 Condensate				Stream 3 Flash Gas			
		Mole %	Equiv. Wt. Basis	Weight %	HC Weight %	Mole %	Equiv. Wt. Basis	Weight %	HC Weight %	Mole %	Equiv. Wt. Basis	Weight %	HC Weight %
Hydrogen Sulfide	34.081	0.3000%	0.10	0.43%	-	0.0000%	0.00	0.00%	-	0.0000%	0.00	0.00%	-
Carbon Dioxide	44.010	0.7310%	0.32	1.34%	-	0.0068%	0.00	0.00%	-	0.4020%	0.18	0.43%	-
Nitrogen	28.013	2.0350%	0.57	2.38%	-	0.0000%	0.00	0.00%	-	0.0000%	0.00	0.00%	-
Helium	4.003	0.0000%	0.00	0.00%	-	0.0000%	0.00	0.00%	-	0.0000%	0.00	0.00%	-
Oxygen	31.999	0.0000%	0.00	0.00%	-	0.0000%	0.00	0.00%	-	0.0000%	0.00	0.00%	-
Methane	16.043	61.9740%	9.94	41.46%	43.26%	0.0827%	0.01	0.01%	0.01%	15.6000%	2.50	6.13%	6.15%
Ethane	30.069	21.6850%	6.52	27.19%	28.37%	1.1200%	0.34	0.37%	0.37%	28.0000%	8.42	20.61%	20.70%
Propane	44.096	9.4690%	4.18	17.41%	18.17%	5.0700%	2.24	2.46%	2.46%	31.7000%	13.98	34.22%	34.37%
i-Butane	58.122	0.8550%	0.50	2.07%	2.16%	1.6500%	0.96	1.06%	1.06%	3.5900%	2.09	5.11%	5.13%
n-Butane	58.122	2.1890%	1.27	5.31%	5.54%	8.8200%	5.13	5.65%	5.65%	12.4000%	7.21	17.64%	17.72%
i-Pentane	72.149	0.2650%	0.19	0.80%	0.83%	4.5800%	3.30	3.64%	3.64%	2.3700%	1.71	4.19%	4.20%
n-Pentane	72.149	0.3370%	0.24	1.01%	1.06%	9.7900%	7.06	7.79%	7.79%	3.5900%	2.59	6.34%	6.37%
n-Hexane	86.175	0.0240%	0.02	0.09%	0.09%	16.0000%	13.79	15.20%	15.20%	1.4600%	1.26	3.08%	3.09%
Other Hexanes	86.175	0.1022%	0.09	0.37%	0.38%	0.0000%	0.00	0.00%	0.00%	0.0000%	0.00	0.00%	0.00%
Heptanes	100.202	0.0110%	0.01	0.05%	0.05%	24.9000%	24.95	27.51%	27.51%	0.6340%	0.64	1.56%	1.56%
Benzene	78.114	0.0053%	0.00	0.02%	0.02%	0.4440%	0.35	0.38%	0.38%	0.0405%	0.03	0.08%	0.08%
Toluene	92.141	0.0046%	0.00	0.02%	0.02%	1.1000%	1.01	1.12%	1.12%	0.0257%	0.02	0.06%	0.06%
Ethylbenzene	106.167	0.0002%	0.00	0.00%	0.00%	0.4270%	0.45	0.50%	0.50%	0.0029%	0.00	0.01%	0.01%
Xylenes	106.167	0.0012%	0.00	0.01%	0.01%	1.3700%	1.45	1.60%	1.60%	0.0074%	0.01	0.02%	0.02%
Octanes	114.229	0.0077%	0.01	0.04%	0.04%	16.2000%	18.51	20.40%	20.40%	0.1130%	0.13	0.32%	0.32%
2,2,4-Trimethylpentane	114.231	0.0043%	0.00	0.02%	0.02%	0.0000%	0.00	0.00%	0.00%	0.0000%	0.00	0.00%	0.00%
Nonanes	128.255	0.0000%	0.00	0.00%	0.00%	6.0800%	7.80	8.60%	8.60%	0.0112%	0.01	0.04%	0.04%
Decanes	142.282	0.0000%	0.00	0.00%	0.00%	2.3595%	3.36	3.70%	3.70%	0.0533%	0.08	0.19%	0.19%
Totals =		100.0005%	23.98	100.00%	100.00%	100.0000%	90.71	100.00%	100.00%	100.0000%	40.85	100.00%	100.00%
		Total HC =	22.98	Total VOC =	28.38%	Total HC =	90.71	Total VOC =	99.61%	Total HC =	40.67	Total VOC =	73.15%
				Total HAP =	0.15%			Total HAP =	18.80%			Total HAP =	3.26%

Notes:
1) Representative gas analysis. Condensate and flash gas compositions calculated with ProMax process simulation.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Tank Information

Equipment Information		
	TK-1 - TK-3	**TK-6 - TK-8**
Contents	Condensate	Condensate
Number of Tanks	3	3
Capacity (bbl)	400	400
Capacity (gal)	16,800	16,800
Total Throughput (bbl/yr)	95,000	95,000
Total Throughput (gal/yr)	3,990,000	3,990,000
Per Tank Throughput (bbl/yr)[1]	95,000	95,000
Per Tank Throughput (gal/yr)[1]	3,990,000	3,990,000
TANKS 4.0.9d Working Losses (lb/yr)[2]	12,750.58	12,750.58
TANKS 4.0.9d Breathing Losses (lb/yr)[2]	3,782.58	3,782.58
Flash Calculation Method	Process Simulation	Process Simulation
VOC Tank Flashing Emission Factor (lb VOC/bbl)[2]	2.271	2.271
CO_2 Tank Flashing Emission Factor (lb CO_2/bbl)[2]	0.014	0.014
CH_4 Tank Flashing Emission Factor (lb CH_4/bbl)[2]	0.192	0.192
Control Type	Vapor Recovery Unit	Vapor Recovery Unit
Capture/Control Efficiency[3]	95%	95%

Notes:
1) The six tanks are connected in two series of three tanks; therefore, half of station total condensate throughput flows through each tank in each series and only flashes at the inlet to the first tank in each series (TK-1 and TK-6).
2) Working and breathing calculated using EPA TANKS 4.0.9d. Flashing calculated wiith site specific ProMax process simulation. See attached reports and following tables.
3) Capture/control efficiency is based on the VRU controlling 100% of captured vapors when operating, plus 5% downtime.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Condensate Tank Emissions Calculations

Unit ID: **TK-1**

Uncontrolled Emissions

Pollutant	Working Losses			Breathing Losses			Flashing Losses			Annual Emissions			Operating Hours			Conversion			Hourly Emissions[1]	
VOC[2]	6.38	TPY	+	1.89	TPY	+	107.87	TPY	=	**116.14**	**TPY**	/	8,760	X	2,000	lb/ton	=	**26.52**	**lb/hr**
n-Hexane	0.10	TPY	+	0.03	TPY	+	1.73	TPY	=	**1.86**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.42**	**lb/hr**
Benzene	0.06	TPY	+	0.02	TPY	+	0.97	TPY	=	**1.05**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.24**	**lb/hr**
Toluene	0.08	TPY	+	0.02	TPY	+	1.40	TPY	=	**1.51**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.34**	**lb/hr**
Ethylbenzene	0.01	TPY	+	<0.01	TPY	+	0.11	TPY	=	**0.12**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.03**	**lb/hr**
Xylenes	0.03	TPY	+	0.01	TPY	+	0.54	TPY	=	**0.58**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.13**	**lb/hr**
Other HAP	0.06	TPY	+	0.02	TPY	+	0.97	TPY	=	**1.05**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.24**	**lb/hr**
CO_2[3]	-	TPY	+	-	TPY	+	0.67	TPY	=	**0.67**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.15**	**lb/hr**
CH_4[3]	-	TPY	+	-	TPY	+	9.12	TPY	=	**9.12**	**TPY**	/	8,760	X	2,000	lb/ton	=	**2.08**	**lb/hr**

Controlled Emissions[4]

Pollutant	Working Losses			Breathing Losses			Flashing Losses			Annual Emissions			Operating Hours			Conversion			Hourly Emissions	
VOC	0.32	TPY	+	0.09	TPY	+	5.39	TPY	=	**5.81**	**TPY**	/	8,760	X	2,000	lb/ton	=	**1.33**	**lb/hr**
n-Hexane	0.01	TPY	+	<0.01	TPY	+	0.09	TPY	=	**0.09**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
Benzene	<0.01	TPY	+	<0.01	TPY	+	0.05	TPY	=	**0.05**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.01**	**lb/hr**
Toluene	<0.01	TPY	+	<0.01	TPY	+	0.07	TPY	=	**0.08**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
Ethylbenzene	<0.01	TPY	+	<0.01	TPY	+	0.01	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Xylenes	<0.01	TPY	+	<0.01	TPY	+	0.03	TPY	=	**0.03**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.01**	**lb/hr**
Other HAP	<0.01	TPY	+	<0.01	TPY	+	0.05	TPY	=	**0.05**	**TPY**	/	8,760	X	2000	lb/ton	=	**0.01**	**lb/hr**
CO_2	-	TPY	+	-	TPY	+	0.03	TPY	=	**0.03**	**TPY**	/	8,760	X	2000	lb/ton	=	**0.01**	**lb/hr**
CH_4	-	TPY	+	-	TPY	+	0.46	TPY	=	**0.46**	**TPY**	/	8,760	X	2000	lb/ton	=	**0.10**	**lb/hr**

Estimated HAP Composition (% by Weight)[5]

Pollutant	Wt%
n-Hexane	1.600%
Benzene	0.900%
Toluene	1.300%
Ethylbenzene	0.100%
Xylenes	0.500%
Other HAP	0.900%
Total HAP =	**5.300%**

Notes:
1) Due to variable short-term emission rates, average lb/hr based on annual emissions shown for reference only.
2) VOC TPY working and breathing losses calculated from lb/yr TANKS 4.0.9d results as follows: lb/yr * 1/2000 = TPY. VOC, CO_2 and CH_4 TPY flashing losses calculated with ProMax flash emission factor as follows: lb/bbl factor * annual bbl throughput * 1/2000 = TPY.
3) Per API Chapter 5: CH_4 and CO_2 emissions from crude storage tanks occur mainly as a result of flashing; working and breathing loss emissions of these gases are very small in production and virtually non-existent in downstream segments. Unless site-specific data indicate otherwise, working and breathing losses are presumed to contain no CH_4 or CO_2 .
4) Capture/control efficiency is based on the VRU controlling 100% of captured vapors when operating, plus 5% downtime.
5) Table 11.3-2, "HAP Percent of VOC Emissions," Gasoline Marketing (Stage I and Stage II), EPA Document Revised Final 1/2001.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Condensate Tank Emissions Calculations

Unit ID: TK-2

Uncontrolled Emissions

Pollutant	Working Losses			Breathing Losses			Flashing Losses[1]			Annual Emissions			Operating Hours			Conversion			Hourly Emissions[2]	
VOC[3]	6.38	TPY	+	1.89	TPY	+	0.00	TPY	=	**8.27**	**TPY**	/	8,760	X	2,000	lb/ton	=	**1.89**	**lb/hr**
n-Hexane	0.10	TPY	+	0.03	TPY	+	0.00	TPY	=	**0.13**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.03**	**lb/hr**
Benzene	0.06	TPY	+	0.02	TPY	+	0.00	TPY	=	**0.07**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
Toluene	0.08	TPY	+	0.02	TPY	+	0.00	TPY	=	**0.11**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
Ethylbenzene	0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Xylenes	0.03	TPY	+	0.01	TPY	+	0.00	TPY	=	**0.04**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.01**	**lb/hr**
Other HAP	0.06	TPY	+	0.02	TPY	+	0.00	TPY	=	**0.07**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
CO_2[3]	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.00**	**lb/hr**
CH_4[3]	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.00**	**lb/hr**

Controlled Emissions[4]

Pollutant	Working Losses			Breathing Losses			Flashing Losses			Annual Emissions			Operating Hours			Conversion			Hourly Emissions	
VOC	0.32	TPY	+	0.09	TPY	+	0.00	TPY	=	**0.41**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.09**	**lb/hr**
n-Hexane	0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Benzene	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Toluene	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Ethylbenzene	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Xylenes	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Other HAP	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2000	lb/ton	=	**<0.01**	**lb/hr**
CO_2	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2000	lb/ton	=	**0.00**	**lb/hr**
CH_4	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2000	lb/ton	=	**0.00**	**lb/hr**

Estimated HAP Composition (% by Weight)[5]

Pollutant	Wt%
n-Hexane	1.600%
Benzene	0.900%
Toluene	1.300%
Ethylbenzene	0.100%
Xylenes	0.500%
Other HAP	0.900%
Total HAP =	**5.300%**

Notes:
1) Tanks are connected in series; therefore, station total condensate throughput flows through each tank and only flashes at the inlet to the first tank.
2) Due to variable short-term emission rates, average lb/hr based on annual emissions shown for reference only.
3) VOC TPY working and breathing losses calculated from lb/yr TANKS 4.0.9d results as follows: lb/yr * 1/2000 = TPY. VOC, CO_2 and CH_4 TPY flashing losses calculated with ProMax flash emission factor as follows: lb/bbl factor * annual bbl throughput * 1/2000 = TPY.
4) Capture/control efficiency is based on the VRU controlling 100% of captured vapors when operating, plus 5% downtime.
5) Table 11.3-2, "HAP Percent of VOC Emissions," Gasoline Marketing (Stage I and Stage II), EPA Document Revised Final 1/2001.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Condensate Tank Emissions Calculations

Unit ID: TK-3

Uncontrolled Emissions

Pollutant	Working Losses			Breathing Losses			Flashing Losses[1]			Annual Emissions			Operating Hours			Conversion			Hourly Emissions[2]	
VOC[3]	6.38	TPY	+	1.89	TPY	+	0.00	TPY	=	**8.27**	**TPY**	/	8,760	X	2,000	lb/ton	=	**1.89**	**lb/hr**
n-Hexane	0.10	TPY	+	0.03	TPY	+	0.00	TPY	=	**0.13**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.03**	**lb/hr**
Benzene	0.06	TPY	+	0.02	TPY	+	0.00	TPY	=	**0.07**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
Toluene	0.08	TPY	+	0.02	TPY	+	0.00	TPY	=	**0.11**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
Ethylbenzene	0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Xylenes	0.03	TPY	+	0.01	TPY	+	0.00	TPY	=	**0.04**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.01**	**lb/hr**
Other HAP	0.06	TPY	+	0.02	TPY	+	0.00	TPY	=	**0.07**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
CO_2[3]	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.00**	**lb/hr**
CH_4[3]	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.00**	**lb/hr**

Controlled Emissions[4]

Pollutant	Working Losses			Breathing Losses			Flashing Losses			Annual Emissions			Operating Hours			Conversion			Hourly Emissions	
VOC	0.32	TPY	+	0.09	TPY	+	0.00	TPY	=	**0.41**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.09**	**lb/hr**
n-Hexane	0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Benzene	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Toluene	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Ethylbenzene	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Xylenes	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Other HAP	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2000	lb/ton	=	**<0.01**	**lb/hr**
CO_2	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2000	lb/ton	=	**0.00**	**lb/hr**
CH_4	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2000	lb/ton	=	**0.00**	**lb/hr**

Estimated HAP Composition (% by Weight)[5]

Pollutant	Wt%
n-Hexane	1.600%
Benzene	0.900%
Toluene	1.300%
Ethylbenzene	0.100%
Xylenes	0.500%
Other HAP	0.900%
Total HAP =	**5.300%**

Notes:
1) Tanks are connected in series; therefore, station total condensate throughput flows through each tank and only flashes at the inlet to the first tank.
2) Due to variable short-term emission rates, average lb/hr based on annual emissions shown for reference only.
3) VOC TPY working and breathing losses calculated from lb/yr TANKS 4.0.9d results as follows: lb/yr * 1/2000 = TPY. VOC, CO_2 and CH_4 TPY flashing losses calculated with ProMax flash emission factor as follows: lb/bbl factor * annual bbl throughput * 1/2000 = TPY.
4) Capture/control efficiency is based on the VRU controlling 100% of captured vapors when operating, plus 5% downtime.
5) Table 11.3-2, "HAP Percent of VOC Emissions," Gasoline Marketing (Stage I and Stage II), EPA Document Revised Final 1/2001.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Condensate Tank Emissions Calculations

Unit ID: **TK-6**

Uncontrolled Emissions

Pollutant	Working Losses			Breathing Losses			Flashing Losses			Annual Emissions			Operating Hours			Conversion			Hourly Emissions[1]	
VOC[2]	6.38	TPY	+	1.89	TPY	+	107.87	TPY	=	**116.14**	**TPY**	/	8,760	X	2,000	lb/ton	=	**26.52**	**lb/hr**
n-Hexane	0.10	TPY	+	0.03	TPY	+	1.73	TPY	=	**1.86**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.42**	**lb/hr**
Benzene	0.06	TPY	+	0.02	TPY	+	0.97	TPY	=	**1.05**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.24**	**lb/hr**
Toluene	0.08	TPY	+	0.02	TPY	+	1.40	TPY	=	**1.51**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.34**	**lb/hr**
Ethylbenzene	0.01	TPY	+	<0.01	TPY	+	0.11	TPY	=	**0.12**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.03**	**lb/hr**
Xylenes	0.03	TPY	+	0.01	TPY	+	0.54	TPY	=	**0.58**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.13**	**lb/hr**
Other HAP	0.06	TPY	+	0.02	TPY	+	0.97	TPY	=	**1.05**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.24**	**lb/hr**
CO_2[3]	-	TPY	+	-	TPY	+	0.67	TPY	=	**0.67**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.15**	**lb/hr**
CH_4[3]	-	TPY	+	-	TPY	+	9.12	TPY	=	**9.12**	**TPY**	/	8,760	X	2,000	lb/ton	=	**2.08**	**lb/hr**

Controlled Emissions[4]

Pollutant	Working Losses			Breathing Losses			Flashing Losses			Annual Emissions			Operating Hours			Conversion			Hourly Emissions	
VOC	0.32	TPY	+	0.09	TPY	+	5.39	TPY	=	**5.81**	**TPY**	/	8,760	X	2,000	lb/ton	=	**1.33**	**lb/hr**
n-Hexane	0.01	TPY	+	<0.01	TPY	+	0.09	TPY	=	**0.09**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
Benzene	<0.01	TPY	+	<0.01	TPY	+	0.05	TPY	=	**0.05**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.01**	**lb/hr**
Toluene	<0.01	TPY	+	<0.01	TPY	+	0.07	TPY	=	**0.08**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
Ethylbenzene	<0.01	TPY	+	<0.01	TPY	+	0.01	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Xylenes	<0.01	TPY	+	<0.01	TPY	+	0.03	TPY	=	**0.03**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.01**	**lb/hr**
Other HAP	<0.01	TPY	+	<0.01	TPY	+	0.05	TPY	=	**0.05**	**TPY**	/	8,760	X	2000	lb/ton	=	**0.01**	**lb/hr**
CO_2	-	TPY	+	-	TPY	+	0.03	TPY	=	**0.03**	**TPY**	/	8,760	X	2000	lb/ton	=	**0.01**	**lb/hr**
CH_4	-	TPY	+	-	TPY	+	0.46	TPY	=	**0.46**	**TPY**	/	8,760	X	2000	lb/ton	=	**0.10**	**lb/hr**

Estimated HAP Composition (% by Weight)[5]

Pollutant	Wt%
n-Hexane	1.600%
Benzene	0.900%
Toluene	1.300%
Ethylbenzene	0.100%
Xylenes	0.500%
Other HAP	0.900%
Total HAP =	**5.300%**

Notes:
1) Due to variable short-term emission rates, average lb/hr based on annual emissions shown for reference only.
2) VOC TPY working and breathing losses calculated from lb/yr TANKS 4.0.9d results as follows: lb/yr * 1/2000 = TPY. VOC, CO_2 and CH_4 TPY flashing losses calculated with ProMax flash emission factor as follows: lb/bbl factor * annual bbl throughput * 1/2000 = TPY.
3) Per API Chapter 5: CH_4 and CO_2 emissions from crude storage tanks occur mainly as a result of flashing; working and breathing loss emissions of these gases are very small in production and virtually non-existent in downstream segments. Unless site-specific data indicate otherwise, working and breathing losses are presumed to contain no CH_4 or CO_2 .
4) Capture/control efficiency is based on the VRU controlling 100% of captured vapors when operating, plus 5% downtime.
5) Table 11.3-2, "HAP Percent of VOC Emissions," Gasoline Marketing (Stage I and Stage II), EPA Document Revised Final 1/2001.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Condensate Tank Emissions Calculations

Unit ID: TK-7

Uncontrolled Emissions

Pollutant	Working Losses			Breathing Losses			Flashing Losses[1]			Annual Emissions			Operating Hours			Conversion			Hourly Emissions[2]	
VOC[3]	6.38	TPY	+	1.89	TPY	+	0.00	TPY	=	**8.27**	**TPY**	/	8,760	X	2,000	lb/ton	=	**1.89**	**lb/hr**
n-Hexane	0.10	TPY	+	0.03	TPY	+	0.00	TPY	=	**0.13**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.03**	**lb/hr**
Benzene	0.06	TPY	+	0.02	TPY	+	0.00	TPY	=	**0.07**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
Toluene	0.08	TPY	+	0.02	TPY	+	0.00	TPY	=	**0.11**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
Ethylbenzene	0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Xylenes	0.03	TPY	+	0.01	TPY	+	0.00	TPY	=	**0.04**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.01**	**lb/hr**
Other HAP	0.06	TPY	+	0.02	TPY	+	0.00	TPY	=	**0.07**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
CO_2[3]	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.00**	**lb/hr**
CH_4[3]	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.00**	**lb/hr**

Controlled Emissions[4]

Pollutant	Working Losses			Breathing Losses			Flashing Losses			Annual Emissions			Operating Hours			Conversion			Hourly Emissions	
VOC	0.32	TPY	+	0.09	TPY	+	0.00	TPY	=	**0.41**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.09**	**lb/hr**
n-Hexane	0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Benzene	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Toluene	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Ethylbenzene	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Xylenes	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Other HAP	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2000	lb/ton	=	**<0.01**	**lb/hr**
CO_2	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2000	lb/ton	=	**0.00**	**lb/hr**
CH_4	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2000	lb/ton	=	**0.00**	**lb/hr**

Estimated HAP Composition (% by Weight)[5]

Pollutant	Wt%
n-Hexane	1.600%
Benzene	0.900%
Toluene	1.300%
Ethylbenzene	0.100%
Xylenes	0.500%
Other HAP	0.900%
Total HAP =	**5.300%**

Notes:
1) Tanks are connected in series; therefore, station total condensate throughput flows through each tank and only flashes at the inlet to the first tank.
2) Due to variable short-term emission rates, average lb/hr based on annual emissions shown for reference only.
3) VOC TPY working and breathing losses calculated from lb/yr TANKS 4.0.9d results as follows: lb/yr * 1/2000 = TPY. VOC, CO_2 and CH_4 TPY flashing losses calculated with ProMax flash emission factor as follows: lb/bbl factor * annual bbl throughput * 1/2000 = TPY.
4) Capture/control efficiency is based on the VRU controlling 100% of captured vapors when operating, plus 5% downtime.
5) Table 11.3-2, "HAP Percent of VOC Emissions," Gasoline Marketing (Stage I and Stage II), EPA Document Revised Final 1/2001.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Condensate Tank Emissions Calculations

Unit ID: TK-8

Uncontrolled Emissions

Pollutant	Working Losses			Breathing Losses			Flashing Losses[1]			Annual Emissions			Operating Hours			Conversion			Hourly Emissions[2]	
VOC[3]	6.38	TPY	+	1.89	TPY	+	0.00	TPY	=	**8.27**	**TPY**	/	8,760	X	2,000	lb/ton	=	**1.89**	**lb/hr**
n-Hexane	0.10	TPY	+	0.03	TPY	+	0.00	TPY	=	**0.13**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.03**	**lb/hr**
Benzene	0.06	TPY	+	0.02	TPY	+	0.00	TPY	=	**0.07**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
Toluene	0.08	TPY	+	0.02	TPY	+	0.00	TPY	=	**0.11**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
Ethylbenzene	0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Xylenes	0.03	TPY	+	0.01	TPY	+	0.00	TPY	=	**0.04**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.01**	**lb/hr**
Other HAP	0.06	TPY	+	0.02	TPY	+	0.00	TPY	=	**0.07**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.02**	**lb/hr**
CO_2[3]	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.00**	**lb/hr**
CH_4[3]	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.00**	**lb/hr**

Controlled Emissions[4]

Pollutant	Working Losses			Breathing Losses			Flashing Losses			Annual Emissions			Operating Hours			Conversion			Hourly Emissions	
VOC	0.32	TPY	+	0.09	TPY	+	0.00	TPY	=	**0.41**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.09**	**lb/hr**
n-Hexane	0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Benzene	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Toluene	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Ethylbenzene	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Xylenes	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2,000	lb/ton	=	**<0.01**	**lb/hr**
Other HAP	<0.01	TPY	+	<0.01	TPY	+	0.00	TPY	=	**<0.01**	**TPY**	/	8,760	X	2000	lb/ton	=	**<0.01**	**lb/hr**
CO_2	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2000	lb/ton	=	**0.00**	**lb/hr**
CH_4	-	TPY	+	-	TPY	+	0.00	TPY	=	**0.00**	**TPY**	/	8,760	X	2000	lb/ton	=	**0.00**	**lb/hr**

Estimated HAP Composition (% by Weight)[5]

Pollutant	Wt%
n-Hexane	1.600%
Benzene	0.900%
Toluene	1.300%
Ethylbenzene	0.100%
Xylenes	0.500%
Other HAP	0.900%
Total HAP =	**5.300%**

Notes:
1) Tanks are connected in series; therefore, station total condensate throughput flows through each tank and only flashes at the inlet to the first tank.
2) Due to variable short-term emission rates, average lb/hr based on annual emissions shown for reference only.
3) VOC TPY working and breathing losses calculated from lb/yr TANKS 4.0.9d results as follows: lb/yr * 1/2000 = TPY. VOC, CO_2 and CH_4 TPY flashing losses calculated with ProMax flash emission factor as follows: lb/bbl factor * annual bbl throughput * 1/2000 = TPY.
4) Capture/control efficiency is based on the VRU controlling 100% of captured vapors when operating, plus 5% downtime.
5) Table 11.3-2, "HAP Percent of VOC Emissions," Gasoline Marketing (Stage I and Stage II), EPA Document Revised Final 1/2001.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Truck Loading Information

Equipment Information	
	TL-1
Contents Loaded	Condensate
Fill Method	Submerged
Type of Service	Dedicated
Mode of Operation	Normal
Saturation Factor	0.6
Throughput (1000 gal/yr)	7,980
Throughput (10^6 gal/yr)	7.980
Maximum Loading Rate (gal/hr)	7,500
P = True Vapor Pressure of Liquid Loaded (avg. psia)[1]	8.7119
M = Molecular Weight of Vapor (lb/lb-mol)[1]	53.5810
T = Temperature of Bulk Liquid Loaded (average °F)[1]	43.67
T = Temperature of bulk liquid loaded (°F + 460 = °R)	503.67
Annual Emission Factor (lb/1000 gal)[2]	6.93
TOC Emission Factor (tonne/10^6 gal)[3]	0.91
TOC Emission Factor (ton/10^6 gal)[3]	1.00
Flash Gas CH_4 wt%	6.153%
Flash Gas CO_2 wt%	0.433%
Control Type	None

Notes:
1) Properties based on EPA TANKS 4.0.9d for conservative ONEOK composition.
2) AP-42 5.2-4 Eq.1: Loading Loss (lb/1000 gal) = 12.46 *S*P*M/T.
3) API Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Gas Industry, Table 5-12. Emission factor converted as follows: tonne/10^6 gal * 1.10231131 ton/tonne.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Condensate Truck Loading Emissions Calculations

Unit ID: TL-1

Uncontrolled Emissions

Pollutant	Emission Factor			Throughput			Conversion			Annual Emissions			Operating Hours		Conversion			Average Hourly Emissions[1]	
VOC	6.93	lb/1000 gal	X	7,980	1000 gal/yr	X	0.0005	ton/lb	=	**27.65**	TPY	/	8,760	X	2,000	lb/ton	=	**6.31**	lb/hr
n-Hexane	-	-	-	-	-	-	-	-	=	**0.44**	TPY	/	8,760	X	2,000	lb/ton	=	**0.10**	lb/hr
Benzene	-	-	-	-	-	-	-	-	=	**0.25**	TPY	/	8,760	X	2,000	lb/ton	=	**0.06**	lb/hr
Toluene	-	-	-	-	-	-	-	-	=	**0.36**	TPY	/	8,760	X	2,000	lb/ton	=	**0.08**	lb/hr
Ethylbenzene	-	-	-	-	-	-	-	-	=	**0.03**	TPY	/	8,760	X	2,000	lb/ton	=	**0.01**	lb/hr
Xylenes	-	-	-	-	-	-	-	-	=	**0.14**	TPY	/	8,760	X	2,000	lb/ton	=	**0.03**	lb/hr
Other HAP	-	-	-	-	-	-	-	-	=	**0.25**	TPY	/	8,760	X	2,000	lb/ton	=	**0.06**	lb/hr
CO_2	1.00	ton/10^6 gal	X	7.980	10^6 gal/yr	X	0.433%	Wt%	=	**0.03**	TPY	/	8,760	X	2,000	lb/ton	=	**0.01**	lb/hr
CH_4	1.00	ton/10^6 gal	X	7.980	10^6 gal/yr	X	6.153%	Wt%	=	**0.49**	TPY	/	8,760	X	2,000	lb/ton	=	**0.11**	lb/hr

Estimated HAP Composition (% by Weight)[2]

Pollutant	Wt%
n-Hexane	1.600%
Benzene	0.900%
Toluene	1.300%
Ethylbenzene	0.100%
Xylenes	0.500%
Other HAP	0.900%
Total HAP =	**5.300%**

Notes:
1) Due to variable short-term emission rates, average lb/hr rate shown for reference only.
2) Table 11.3-2, "HAP Percent of VOC Emissions," Gasoline Marketing (Stage I and Stage II), EPA Document Revised Final 1/2001.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Flare Information and Emission Factors

Equipment Information	
	FL-1
Description	Emergency Flare
VOC to Flare (lb/hr)	32.47
Stream Heat Content (Btu/scf)	1,257
Stream Net Btu Value (Btu/hr)	2,373,886
Operating Hours	500
Control Efficiency	98%
Pilot Stream Heat Content (Btu/scf)	1,026
Pilot Gas Flow Rate (scfh)	200
Pilot Gas Capacity (mmBtu/hr)	0.21
Pilot Operating Hours	8,760

AP-42/EPA Emission Factors[1]			
	Flare Stream		Pilot Gas
NOx (lb/mmBtu)	0.068	NOx (lb/mmscf)	100.0
CO (lb/mmBtu)	0.31	CO (lb/mmscf)	84.0
VOC	Mass Balance	VOC (lb/mmscf)	5.5
SO_2	Stoichiometric	SO_2 (lb/mmscf)	0.6
$PM_{10/2.5}$	--	$PM_{10/2.5}$ (lb/mmscf)	1.9
PM_{COND}	--	PM_{COND} (lb/mmscf)	5.7
PM_{TOT}	--	PM_{TOT} (lb/mmscf)	7.6
Formaldehyde	--	Formaldehyde (lb/mmscf)	7.50E-02
n-Hexane	Mass Balance	n-Hexane (lb/mmscf)	1.80E+00
Benzene	Mass Balance	Benzene (lb/mmscf)	2.10E-03
Toluene	Mass Balance	Toluene (lb/mmscf)	3.40E-03
Ethylbenzene	Mass Balance	Ethylbenzene	--
Xylenes	Mass Balance	Xylenes	--
Other HAP	Mass Balance	Other HAP (lb/mmscf)	1.90E-03
Carbon Dioxide (CO_2) (kg/mmBtu)	53.06/Mass Balance	Carbon Dioxide (CO_2) (kg/mmBtu)	53.06
Methane (CH_4) (kg/mmBtu)	0.001/Mass Balance	Methane (CH_4) (kg/mmBtu)	1.00E-03
Nitrous Oxide (N_2O) (kg/mmBtu)	0.0001/Mass Balance	Nitrous Oxide (N_2O) (kg/mmBtu)	1.00E-04

Notes:
1) NOx and CO emission factors (lb/mmBtu), flare stream: AP-42, Table 13.5-1 (12/2016). Pilot criteria and HAP emission factors (lb/mmscf): AP-42, Table 1.4-1, -2 (7/98). GHG emission factors (kg/mmBtu): 40 CFR 98.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Flare Emissions Calculations

Unit ID: **FL-1**

Total: Stream + Pilot

Pollutant	Hourly Emissions		Annual Emissions	
NOx	0.18	lb/hr	0.13	TPY
CO	0.75	lb/hr	0.26	TPY
VOC	0.65	lb/hr	0.17	TPY
SO_2	0.94	lb/hr	0.24	TPY
$PM_{10/2.5}$	<0.01	lb/hr	<0.01	TPY
PM_{COND}	<0.01	lb/hr	<0.01	TPY
PM_{TOT}	<0.01	lb/hr	0.01	TPY
Formaldehyde	<0.01	lb/hr	<0.01	TPY
n-Hexane	<0.01	lb/hr	<0.01	TPY
Benzene	<0.01	lb/hr	<0.01	TPY
Toluene	<0.01	lb/hr	<0.01	TPY
Ethylbenzene	<0.01	lb/hr	<0.01	TPY
Xylenes	<0.01	lb/hr	<0.01	TPY
Other HAP	<0.01	lb/hr	<0.01	TPY
CO_2	303.30	lb/hr	174.96	TPY
CH_4	1.00	lb/hr	0.25	TPY
N_2O	<0.01	lb/hr	<0.01	TPY

Stream Emissions

Pollutant	Emission Factor			Capacity			Conversion			Hourly Emissions			Operating Hours		Conversion			Annual Emissions	
NOx	6.80E-02	lb/mmBtu	X	2.37E+00	mmBtu/hr	X	-	-	=	0.16	lb/hr	X	500	X	0.0005	ton/lb	=	0.04	TPY
CO	3.10E-01	lb/mmBtu	X	2.37E+00	mmBtu/hr	X	-	-	=	0.74	lb/hr	X	500	X	0.0005	ton/lb	=	0.18	TPY
VOC	-	-	-	-	-	-	-	-	=	0.65	lb/hr	X	500	X	0.0005	ton/lb	=	0.16	TPY
SO_2	-	-	-	-	-	-	-	-	=	0.94	lb/hr	X	500	X	0.0005	ton/lb	=	0.23	TPY
n-Hexane	-	-	-	-	-	-	-	-	=	<0.01	lb/hr	X	500	X	0.0005	ton/lb	=	<0.01	TPY
Benzene	-	-	-	-	-	-	-	-	=	<0.01	lb/hr	X	500	X	0.0005	ton/lb	=	<0.01	TPY
Toluene	-	-	-	-	-	-	-	-	=	<0.01	lb/hr	X	500	X	0.0005	ton/lb	=	<0.01	TPY
Ethylbenzene	-	-	-	-	-	-	-	-	=	<0.01	lb/hr	X	300	X	0.0005	ton/lb	=	<0.01	TPY
Xylenes	-	-	-	-	-	-	-	-	=	<0.01	lb/hr	X	300	X	0.0005	ton/lb	=	<0.01	TPY
Other HAP	-	-	-	-	-	-	-	-	=	<0.01	lb/hr	X	500	X	0.0005	ton/lb	=	<0.01	TPY
CO_2	5.31E+01	kg/mmBtu	X	2.37E+00	mmBtu/hr	X	2.20462	lb/kg	=	277.69	lb/hr	X	500	X	0.0005	ton/lb	=	69.42	TPY
CO_2	-	-	-	-	-	-	-	-	=	1.60	lb/hr	X	500	X	0.0005	ton/lb	=	0.40	TPY
CH_4	1.00E-03	kg/mmBtu	X	2.37E+00	mmBtu/hr	X	2.20462	lb/kg	=	0.01	lb/hr	X	500	X	0.0005	ton/lb	=	<0.01	TPY
CH_4	-	-	-	-	-	-	-	-	=	0.99	lb/hr	X	500	X	0.0005	ton/lb	=	0.25	TPY
N_2O	1.00E-04	kg/mmBtu	X	2.37E+00	mmBtu/hr	X	2.20462	lb/kg	=	<0.01	lb/hr	X	500	X	0.0005	ton/lb	=	<0.01	TPY

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Flare Emissions Calculations (Continued)

Pilot Emissions

Pollutant	Emission Factor			Capacity			Conversion			Hourly Emissions			Operating Hours		Conversion			Annual Emissions	
NOx	1.00E+02	lb/mmscf	X	2.00E-04	mmscf/hr	X	-	-	=	**0.02**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**0.09**	**TPY**
CO	8.40E+01	lb/mmscf	X	2.00E-04	mmscf/hr	X	-	-	=	**0.02**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**0.07**	**TPY**
VOC	5.50E+00	lb/mmscf	X	2.00E-04	mmscf/hr	X	-	-	=	**<0.01**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**<0.01**	**TPY**
SO_2	6.00E-01	lb/mmscf	X	2.00E-04	mmscf/hr	X	-	-	=	**<0.01**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**<0.01**	**TPY**
$PM_{10/2.5}$	1.90E+00	lb/mmscf	X	2.00E-04	mmscf/hr	X	-	-	=	**<0.01**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**<0.01**	**TPY**
PM_{COND}	5.70E+00	lb/mmscf	X	2.00E-04	mmscf/hr	X	-	-	=	**<0.01**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**<0.01**	**TPY**
PM_{TOT}	7.60E+00	lb/mmscf	X	2.00E-04	mmscf/hr	X	-	-	=	**<0.01**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**0.01**	**TPY**
Formaldehyde	7.50E-02	lb/mmscf	X	2.00E-04	mmscf/hr	X	-	-	=	**<0.01**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**<0.01**	**TPY**
n-Hexane	1.80E+00	lb/mmscf	X	2.00E-04	mmscf/hr	X	-	-	=	**<0.01**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**<0.01**	**TPY**
Benzene	2.10E-03	lb/mmscf	X	2.00E-04	mmscf/hr	X	-	-	=	**<0.01**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**<0.01**	**TPY**
Toluene	3.40E-03	lb/mmscf	X	2.00E-04	mmscf/hr	X	-	-	=	**<0.01**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**<0.01**	**TPY**
Other HAP	1.90E-03	lb/mmscf	X	2.00E-04	mmscf/hr	X	-	-	=	**<0.01**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**<0.01**	**TPY**
CO_2	5.31E+01	kg/mmBtu	X	2.05E-01	mmBtu/hr	X	2.20462	lb/kg	=	**24.00**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**105.14**	**TPY**
CH_4	1.00E-03	kg/mmBtu	X	2.05E-01	mmBtu/hr	X	2.20462	lb/kg	=	**<0.01**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**<0.01**	**TPY**
N_2O	1.00E-04	kg/mmBtu	X	2.05E-01	mmBtu/hr	X	2.20462	lb/kg	=	**<0.01**	**lb/hr**	X	8,760	X	0.0005	ton/lb	=	**<0.01**	**TPY**

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Flare Emissions Calculations - Flare Stream Analysis

Unit ID: **FL-1**

Component	Molecular Weight	Stream 1 Compressor Blowdowns		Total Streams Burned in Flare					Net Heating Value	Net Btu Rate
		1.89E+03	scfh	Uncontrolled		scfd	Controlled			
		Mole %	lb/hr	lb/hr	TPY		lb/hr	TPY	Btu/scf	Btu/hr
Water	18.0153	0.000%	0.00	0.00	0.00	0	0.00	0.00	0.00	0
Hydrogen Sulfide	34.081	0.300%	0.51	0.51	0.13	136	0.01	<0.01	586.80	3,325
Carbon Dioxide	44.010	0.731%	1.60	1.60	0.40	331	1.60	0.40	0.00	0
Nitrogen	28.013	2.035%	2.84	2.84	0.71	923	2.84	0.71	0.00	0
Helium	4.003	0.000%	0.00	0.00	0.00	0	0.00	0.00	0.00	0
Oxygen	31.999	0.000%	0.00	0.00	0.00	0	0.00	0.00	0.00	0
Methane	16.043	61.974%	49.50	49.50	12.38	28,097	0.99	0.25	909.40	1,064,624
Ethane	30.069	21.685%	32.46	32.46	8.12	9,831	0.65	0.16	1,618.70	663,068
Propane	44.096	9.469%	20.79	20.79	5.20	4,293	0.42	0.10	2,314.90	414,065
i-Butane	58.122	0.855%	2.47	2.47	0.62	388	0.05	0.01	3,000.40	48,459
n-Butane	58.122	2.189%	6.33	6.33	1.58	992	0.13	0.03	3,010.80	124,497
i-Pentane	72.149	0.265%	0.95	0.95	0.24	120	0.02	<0.01	3,699.00	18,517
n-Pentane	72.149	0.337%	1.21	1.21	0.30	153	0.02	0.01	3,706.90	23,598
n-Hexane	86.175	0.024%	0.10	0.10	0.03	11	<0.01	<0.01	4,403.80	1,997
Other Hexanes	86.175	0.102%	0.44	0.44	0.11	46	0.01	<0.01	4,403.80	8,502
Heptanes	100.202	0.011%	0.05	0.05	0.01	5	<0.01	<0.01	5,100.00	1,060
Benzene	78.114	0.005%	0.02	0.02	0.01	2	<0.01	<0.01	3,590.90	360
Toluene	92.141	0.005%	0.02	0.02	0.01	2	<0.01	<0.01	4,273.60	371
Ethylbenzene	106.167	0.000%	<0.01	<0.01	<0.01	0	<0.01	<0.01	4,970.50	19
Xylenes	106.167	0.001%	0.01	0.01	<0.01	1	<0.01	<0.01	4,957.10	112
Octanes	114.229	0.008%	0.04	0.04	0.01	3	<0.01	<0.01	5,796.00	843
2,2,4-Trimethylpentane	114.231	0.004%	0.02	0.02	0.01	2	<0.01	<0.01	5,778.80	469
Nonanes	128.255	0.000%	0.00	0.00	0.00	0	0.00	0.00	6,493.20	0
Decanes	142.282	0.000%	0.00	0.00	0.00	0	0.00	0.00	7,189.60	0
Totals =		**100.001%**	**119.39**	**119.39**	**29.85**	**45,336**	**--**	**--**	**--**	**2,373,886**
Total VOC =		**13.276%**	**32.47**	**32.47**	**8.12**	**--**	**0.65**	**0.16**	**Heat Value (Btu/scf)**	**1,257**
Total HAP =				**0.18**	**0.04**	**--**	**<0.01**	**<0.01**		
Total H_2S=				**0.51**	**0.13**	**--**	**0.01**	**<0.01**		
MW of Stream =						**23.98**				

Notes:
1) Stream composition assumed to be inlet gas. Estimated 500 compressor blowdowns at 1.889 MCF and one hour each.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Methanol Tank Information

Equipment Information		
	TK-4	**TK-5**
Contents	Methanol	Methanol
Capacity (bbl)	200	24
Capacity (gal)	8,400	1,008
Total Throughput (bbl/yr)	10,400	1,248
Total Throughput (gal/yr)	436,800	52,416
TANKS 4.0.9d Working Losses (lb/yr)[1]	223.78	24.63
TANKS 4.0.9d Breathing Losses (lb/yr)[1]	108.24	9.73
Control Type	None	None

Notes:
1) Working and breathing calculated using EPA TANKS 4.0.9d. See attached reports and following table.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Methanol Tank Emissions Calculations

Unit ID: **TK-4**

Uncontrolled Emissions

Pollutant	Working Losses			Breathing Losses			Annual Emissions			Operating Hours		Conversion			Hourly Emissions[1]	
VOC/Methanol [2]	0.11	TPY	+	0.05	TPY	=	**0.17**	**TPY**	/	8,760	X	2,000	lb/ton	=	**0.04**	**lb/hr**

Notes:
1) Due to variable short-term emission rates, average lb/hr based on annual emissions shown for reference only.
2) VOC TPY working and breathing losses calculated from lb/yr TANKS 4.0.9d results as follows: lb/yr * 1/2000 = TPY.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Methanol Tank Emissions Calculations

Unit ID: **TK-5**

Uncontrolled Emissions

Pollutant	Working Losses			Breathing Losses			Annual Emissions			Operating Hours			Conversion			Hourly Emissions[1]	
VOC/Methanol [2]	0.01	TPY	+	<0.01	TPY	=	**0.02**	**TPY**	/	8,760	X		2,000	lb/ton	=	**<0.01**	**lb/hr**

Notes:
1) Due to variable short-term emission rates, average lb/hr based on annual emissions shown for reference only.
2) VOC TPY working and breathing losses calculated from lb/yr TANKS 4.0.9d results as follows: lb/yr * 1/2000 = TPY.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Fugitive Equipment Data and Emission Factors

Equipment Information - Gas Service							TOC Emissions											
Component	Count[1]		Emission Factor[2]		Control Efficiency			Hourly Emissions		Operating Hours		Conversion			Annual Emissions	
Valves - Gas	576	X	9.92E-03	lb/hr/source	X	0.00%	=	5.71	lb/hr	X	8,760	X	0.0005	ton/lb	=	25.03	TPY
Flanges - Gas	1,158	X	8.60E-04	lb/hr/source	X	0.00%	=	1.00	lb/hr	X	8,760	X	0.0005	ton/lb	=	4.36	TPY
Relief Valves - Gas	36	X	1.94E-02	lb/hr/source	X	0.00%	=	0.70	lb/hr	X	8,760	X	0.0005	ton/lb	=	3.06	TPY
Open-Ended Lines - Gas	12	X	4.41E-03	lb/hr/source	X	0.00%	=	0.05	lb/hr	X	8,760	X	0.0005	ton/lb	=	0.23	TPY
Compressor Seals - Gas	24	X	1.94E-02	lb/hr/source	X	0.00%	=	0.47	lb/hr	X	8,760	X	0.0005	ton/lb	=	2.04	TPY
Other - Gas	24	X	1.94E-02	lb/hr/source	X	0.00%	=	0.47	lb/hr	X	8,760	X	0.0005	ton/lb	=	2.04	TPY

Equipment Information - Liquid Service							TOC Emissions											
Component	Count[1]		Emission Factor[2]		Control Efficiency			Hourly Emissions		Operating Hours		Conversion			Annual Emissions	
Valves - Light Oil	25	X	5.51E-03	lb/hr/source	X	0.00%	=	0.14	lb/hr	X	8,760	X	0.0005	ton/lb	=	0.60	TPY
Flanges - Light Oil	50	X	2.43E-04	lb/hr/source	X	0.00%	=	0.01	lb/hr	X	8,760	X	0.0005	ton/lb	=	0.05	TPY
Open-Ended Lines - Light Oil	2	X	3.09E-03	lb/hr/source	X	0.00%	=	0.01	lb/hr	X	8,760	X	0.0005	ton/lb	=	0.03	TPY
Connectors - Light Oil	50	X	4.63E-04	lb/hr/source	X	0.00%	=	0.02	lb/hr	X	8,760	X	0.0005	ton/lb	=	0.10	TPY
Pump Seals - Light Oil	2	X	2.87E-02	lb/hr/source	X	0.00%	=	0.06	lb/hr	X	8,760	X	0.0005	ton/lb	=	0.25	TPY
Other - Light Oil	5	X	1.65E-02	lb/hr/source	X	0.00%	=	0.08	lb/hr	X	8,760	X	0.0005	ton/lb	=	0.36	TPY

Notes:
1) Component counts estimated based on similar facility.
2) Emission Factor Source: EPA-453/R-95-017. TOC multiplied by pollutant content of streams (weight %) to obtain pollutant emissions.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Fugitive Emissions Calculations

Component	VOC Emissions				CO_2 Emissions				CH_4 Emissions				H_2S Emissions			
Valves - Gas	1.62	lb/hr	7.10	TPY	0.08	lb/hr	0.34	TPY	2.47	lb/hr	10.83	TPY	0.02	lb/hr	0.11	TPY
Flanges - Gas	0.28	lb/hr	1.24	TPY	0.01	lb/hr	0.06	TPY	0.43	lb/hr	1.89	TPY	<0.01	lb/hr	0.02	TPY
Relief Valves - Gas	0.20	lb/hr	0.87	TPY	0.01	lb/hr	0.04	TPY	0.30	lb/hr	1.32	TPY	<0.01	lb/hr	0.01	TPY
Open-Ended Lines - Gas	0.02	lb/hr	0.07	TPY	<0.01	lb/hr	<0.01	TPY	0.02	lb/hr	0.10	TPY	<0.01	lb/hr	<0.01	TPY
Compressor Seals - Gas	0.13	lb/hr	0.58	TPY	0.01	lb/hr	0.03	TPY	0.20	lb/hr	0.88	TPY	<0.01	lb/hr	0.01	TPY
Other - Gas	0.13	lb/hr	0.58	TPY	0.01	lb/hr	0.03	TPY	0.20	lb/hr	0.88	TPY	<0.01	lb/hr	0.01	TPY
Valves - Light Oil	0.14	lb/hr	0.60	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	0.00	lb/hr	0.00	TPY
Flanges - Light Oil	0.01	lb/hr	0.05	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	0.00	lb/hr	0.00	TPY
Open-Ended Lines - Light Oil	0.01	lb/hr	0.03	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	0.00	lb/hr	0.00	TPY
Connectors - Light Oil	0.02	lb/hr	0.10	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	0.00	lb/hr	0.00	TPY
Pump Seals - Light Oil	0.06	lb/hr	0.25	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	0.00	lb/hr	0.00	TPY
Other - Light Oil	0.08	lb/hr	0.36	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	0.00	lb/hr	0.00	TPY
Total	**2.70**	**lb/hr**	**11.82**	**TPY**	**0.11**	**lb/hr**	**0.49**	**TPY**	**3.63**	**lb/hr**	**15.90**	**TPY**	**0.04**	**lb/hr**	**0.16**	**TPY**

Component	n-Hexane Emissions				Benzene Emissions				Toluene Emissions				Ethylbenzene Emissions				Xylene Emissions				2,2,4-Trimethylpentane Emissions			
Valves - Gas	0.01	lb/hr	0.02	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	0.01	TPY
Flanges - Gas	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY
Relief Valves - Gas	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY
Open-Ended Lines - Gas	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY
Compressor Seals - Gas	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY
Other - Gas	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY
Valves - Light Oil	0.02	lb/hr	0.09	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	0.01	TPY	0.00	lb/hr	0.00	TPY
Flanges - Light Oil	<0.01	lb/hr	0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	0.00	lb/hr	0.00	TPY
Open-Ended Lines - Light Oil	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	0.00	lb/hr	0.00	TPY
Connectors - Light Oil	<0.01	lb/hr	0.02	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	0.00	lb/hr	0.00	TPY
Pump Seals - Light Oil	0.01	lb/hr	0.04	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	0.00	lb/hr	0.00	TPY
Other - Light Oil	0.01	lb/hr	0.06	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	<0.01	TPY	<0.01	lb/hr	0.01	TPY	0.00	lb/hr	0.00	TPY
Total	**0.06**	**lb/hr**	**0.25**	**TPY**	**<0.01**	**lb/hr**	**0.01**	**TPY**	**0.01**	**lb/hr**	**0.02**	**TPY**	**<0.01**	**lb/hr**	**0.01**	**TPY**	**0.01**	**lb/hr**	**0.02**	**TPY**	**<0.01**	**lb/hr**	**0.01**	**TPY**

Notes:
1) TOC from previous table multiplied by pollutant content of streams (weight%) to obtain pollutant emissions. See attached analyses table.

ONEOK Rockies Midstream, L.L.C.
Alamo Compressor Station
Miscellaneous Venting and Blowdown Emissions Calculations

Component	Molecular Weight	Stream 1 Inlet Gas	Emissions	
		Mole %	scf/yr[1]	TPY[2]
Hydrogen Sulfide	34.081	0.300%	1,500	0.07
Carbon Dioxide	44.010	0.731%	3,655	0.21
Nitrogen	28.013	2.035%	10,175	0.38
Helium	4.003	0.000%	0	0.00
Oxygen	31.999	0.000%	0	0.00
Methane	16.043	61.974%	309,870	6.55
Ethane	30.069	21.685%	108,425	4.30
Propane	44.096	9.469%	47,345	2.75
i-Butane	58.122	0.855%	4,275	0.33
n-Butane	58.122	2.189%	10,945	0.84
i-Pentane	72.149	0.265%	1,325	0.13
n-Pentane	72.149	0.337%	1,685	0.16
n-Hexane	86.175	0.024%	120	0.01
Other Hexanes	86.175	0.102%	511	0.06
Heptanes	100.202	0.011%	55	0.01
Benzene	78.114	0.005%	27	<0.01
Toluene	92.141	0.005%	23	<0.01
Ethylbenzene	106.167	0.000%	1	<0.01
Xylenes	106.167	0.001%	6	<0.01
Octanes	114.229	0.008%	39	0.01
2,2,4-Trimethylpentane	114.231	0.004%	22	<0.01
Nonanes	128.255	0.000%	0	0.00
Decanes	142.282	0.000%	0	0.00
	Totals =	100.001%	**500,003**	**15.80**
		Total VOC =	**66,378**	**4.30**
		Total HAP =	**198**	**0.02**

Estimated Annual Volume 500,000 scf/yr
Molar volume conversion @60° F and 1 atm: 1 lb/mole = 379.4 scf

Notes:
1) Calculated as follows: Total Losses scf/yr * mol% of component.
2) Calculated as follows: component scf/yr / 379.4 molar volume conversion * MW component / 2000 lb/ton.

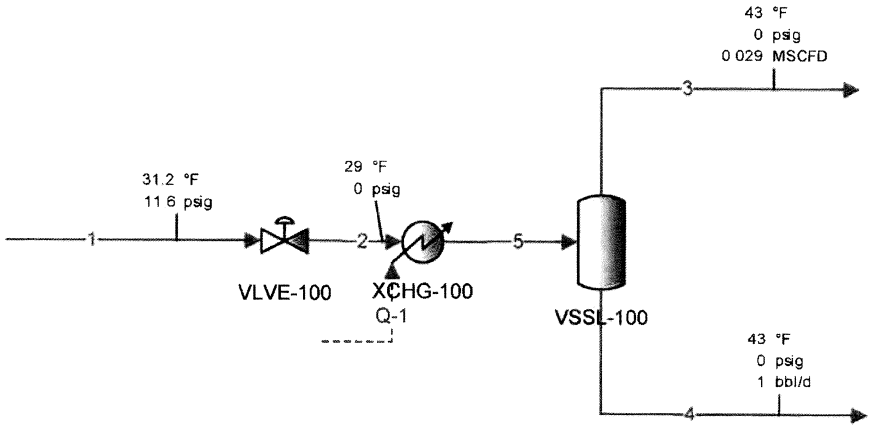
Appendix C – Support Documents

ProMax Process Simulation Report

TANKS 4.0.9d Reports

Alamo – Flash Calc
9-26-2016 (1)

ONEOK



Names	Units	1	2	3	4
Temperature	°F	31.2	29	43	43
Pressure	psig	11.6*	0*	0	0
Mole Fraction Vapor	%	0*	1.66	100	0
Molecular Weight	lb/lbmol	89.3	89.3	40.8	90.7
Mass Density	lb/ft^3	43.4	10.5	0.102	43.2
Mass Flow	lb/h	10	10	0.13	9.88
Molar Flow	lbmol/h	0.112	0.112	0.00319	0.109
Compressibility		0.00973	0.0215	0.985	0.00518
Specific Gravity		0.696		1.41	0.692
Std Vapor Volumetric Flow	MMSCFD	0.00102	0.00102	2.9e-05	0.000991
Std Liquid Volumetric Flow	sgpm	0.0297#	0.0297	0.000547	0.0292
Enthalpy	MMBtu/h	-0.00965	-0.00965	-0.000143	-0.00943

Names	Units	1	2	3	4
N2(Mole Fraction)	%	0*	0	0	0
CO2(Mole Fraction)	%	0.018*	0.018	0.402	0.00675
C1(Mole Fraction)	%	0.525*	0.525	15.6	0.0827
C2(Mole Fraction)	%	1.89*	1.89	28	1.12
C3(Mole Fraction)	%	5.83*	5.83	31.7	5.07
iC4(Mole Fraction)	%	1.7*	1.7	3.59	1.65
nC4(Mole Fraction)	%	8.93*	8.93	12.4	8.82
iC5(Mole Fraction)	%	4.52*	4.52	2.37	4.58
nC5(Mole Fraction)	%	9.61*	9.61	3.59	9.79
C6(Mole Fraction)	%	15.6*	15.6	1.46	16
C7(Mole Fraction)	%	24.3*	24.3	0.634	24.9
C8(Mole Fraction)	%	15.8*	15.8	0.113	16.2
C9(Mole Fraction)	%	5.91*	5.91	0.0112	6.08
C11(Mole Fraction)	%	0*	0	0	0
C12(Mole Fraction)	%	0*	0	0	0
Benzene(Mole Fraction)	%	0.433*	0.433	0.0405	0.444
Toluene(Mole Fraction)	%	1.07*	1.07	0.0257	1.1
Ethylbenzene(Mole Fraction)	%	0.415*	0.415	0.00292	0.427
o-Xylene(Mole Fraction)	%	1.33*	1.33	0.00735	1.37
m-Xylene(Mole Fraction)	%	0*	0	0	0
p-Xylene(Mole Fraction)	%	0*	0	0	0

Alamo - Flash Calc
9/26/2016 (1)

	Flash Gas (lb/d)
N2	0.000
CO2	0.014
C1	0.192
C2	0.644
C3	1.069
iC4	0.1595
nC4	0.5532
iC5	0.1310
nC5	0.1981
C6	0.0961
C7	0.0486
C8	0.0099
C9	1.09E-03
C10	0.00E+00
C11	0.00E+00
C12	0.00E+00
Benzene	2.42E-03
Toluene	1.81E-03
Ethylbenzene	2.37E-04
o-Xylene	5.97E-04
m-Xylene	0.00E+00
p-Xylene	0.00E+00
Total=	3.121

C3+ Flow (lb/d)=	2.271
C6 Flow (lb/d)=	0.0961
HAP Flow (lb/d)=	0.00506
Condensate Flow (bbl/d)=	1.000

C3+ Factor (lb/bbl)=	2.271
C6 Factor (lb/bbl)=	0.0961
HAP Factor (lb/bbl)=	0.00506

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	ORM Alamo Condensate
City:	Williams County
State:	North Dakota
Company:	ONEOK Rockies Midstream, L.L.C.
Type of Tank:	Vertical Fixed Roof Tank
Description:	Each of six (6) 400-bbl Condensate Tanks

Tank Dimensions

Shell Height (ft):		20.00
Diameter (ft):		12.00
Liquid Height (ft) :		19.00
Avg. Liquid Height (ft):		10.00
Volume (gallons):		16,074.56
Turnovers:		248.22
Net Throughput(gal/yr):		3,990,000.00
Is Tank Heated (y/n):	N	

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition	Good
Roof Color/Shade:	Gray/Light
Roof Condition:	Good

Roof Characteristics

Type:	Cone	
Height (ft)		0.00
Slope (ft/ft) (Cone Roof)		0.06

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Williston, North Dakota (Avg Atmospheric Pressure = 13.82 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

ORM Alamo Condensate - Vertical Fixed Roof Tank
Williams County, North Dakota

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
ONEOK Condensate	All	47.88	38.82	56.94	43.67	8.7119	7.5669	10.3223	53.5810			89.19	
Benzene						0.8262	0.6293	1.0722	78.1100	0.0045	0.0007	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Butane (n-1)						20.7071	17.9500	24.8363	58.1230	0.0534	0.2113	58.12	Option 1: VP40 = 17.95 VP50 = 21.45
Cyclohexane						0.8640	0.6624	1.1144	84.1600	0.1020	0.0168	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Decane (-n)						0.0253	0.0210	0.0311	142.2900	0.0125	0.0001	142.29	Option 1: VP40 = .021003 VP50 = .026411
Ethylbenzene						0.0703	0.0499	0.0975	106.1700	0.0016	0.0000	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Heptane (-n)						0.4217	0.3156	0.5577	100.2000	0.2181	0.0176	100.20	Option 3: A=37358, B=8.2585
Hexane (-n)						1.3832	1.0718	1.7659	86.1700	0.0693	0.0183	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Isobutane						30.9378	27.0700	36.6639	58.1230	0.0227	0.1342	58.12	Option 1: VP40 = 27.07 VP50 = 31.98
Isopentane						7.4621	5.8780	9.3573	72.1500	0.0654	0.0932	72.15	Option 1: VP40 = 5.878 VP50 = 7.889
Nonane (-n)						0.0490	0.0403	0.0610	128.2600	0.0642	0.0006	128.26	Option 1: VP40 = .040291 VP50 = .051285
Octane (-n)						0.1070	0.0868	0.1353	114.2300	0.2538	0.0052	114.23	Option 1: VP40 = .086844 VP50 = .112388
Pentane (-n)						5.1895	4.1868	6.3841	72.1500	0.0674	0.0668	72.15	Option 3: A=27691, B=7.558
Propane						89.4122	79.6600	103.6074	44.0970	0.0254	0.4339	44.10	Option 1: VP40 = 79.66 VP50 = 92.04
Toluene						0.2238	0.1649	0.2999	92.1300	0.0256	0.0011	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.0583	0.0412	0.0811	106.1700	0.0141	0.0002	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: Annual

ORM Alamo Condensate - Vertical Fixed Roof Tank
Williams County, North Dakota

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
ONEOK Condensate	12,750.58	3,782.58	16,533.16
Butane (n-1)	2,693.82	799.15	3,492.96
Cyclohexane	214.71	63.69	278.40
Decane (-n)	0.77	0.23	1.00
Ethylbenzene	0.27	0.08	0.36
Heptane (-n)	224.05	66.47	290.52
Hexane (-n)	233.52	69.28	302.79
Isobutane	1,710.89	507.55	2,218.45
Isopentane	1,188.91	352.70	1,541.61
Nonane (-n)	7.66	2.27	9.93
Octane (-n)	66.14	19.62	85.76
Pentane (-n)	852.11	252.79	1,104.89
Propane	5,532.72	1,641.33	7,174.05
Toluene	13.96	4.14	18.10
Benzene	9.06	2.69	11.74
Xylene (-m)	2.00	0.59	2.60

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Indentification and Physical Characteristics

Identification		
User Identification:	ORM Alamo 200-bbl Methanol	
City:		
State:	North Dakota	
Company:	ONEOK Rockies Midstream, LLC	
Type of Tank:	Vertical Fixed Roof Tank	
Description:	One (1) 200-bbl Methanol Tank	
Tank Dimensions		
Shell Height (ft):		10.00
Diameter (ft):		12.00
Liquid Height (ft) :		9.00
Avg. Liquid Height (ft):		5.00
Volume (gallons):		7,614.27
Turnovers:		57.37
Net Throughput(gal/yr):		436,800.00
Is Tank Heated (y/n):	N	
Paint Characteristics		
Shell Color/Shade:	Gray/Light	
Shell Condition	Good	
Roof Color/Shade:	Gray/Light	
Roof Condition:	Good	
Roof Characteristics		
Type:	Cone	
Height (ft)		0.00
Slope (ft/ft) (Cone Roof)		0.06
Breather Vent Settings		
Vacuum Settings (psig):		-0.03
Pressure Settings (psig)		0.03

Meterological Data used in Emissions Calculations: Williston, North Dakota (Avg Atmospheric Pressure = 13.82 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

ORM Alamo 200-bbl Methanol - Vertical Fixed Roof Tank

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Methyl alcohol	All	47.88	38.82	56.94	43.67	0.9738	0.7155	1.3087	32.0400			32.04	Option 2: A=7.897, B=1474.08, C=229.13

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: Annual

ORM Alamo 200-bbl Methanol - Vertical Fixed Roof Tank

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Methyl alcohol	223.78	108.24	332.02

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	ORM Alamo 24-bbl Methanol
City:	
State:	North Dakota
Company:	ONEOK Rockies Midstream, LLC
Type of Tank:	Horizontal Tank
Description:	One (1) 24-bbl Methanol Tank

Tank Dimensions

Shell Length (ft):		6.25
Diameter (ft):		5.33
Volume (gallons):		1,008.00
Turnovers:		52.00
Net Throughput(gal/yr):		52,416.00
Is Tank Heated (y/n):	N	
Is Tank Underground (y/n):	N	

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Williston, North Dakota (Avg Atmospheric Pressure = 13.82 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

ORM Alamo 24-bbl Methanol - Horizontal Tank

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Methyl alcohol	All	43.08	37.17	48.98	41.45	0.8284	0.6755	1.0103	32.0400			32.04	Option 2: A=7.897, B=1474.08, C=229.13

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: Annual

ORM Alamo 24-bbl Methanol - Horizontal Tank

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Methyl alcohol	24.63	9.73	34.37