Alyeska pipeline SERVICE COMPANY

P O Box 60469 FAIRBANKS, ALASKA 99706 TELEPHONE (907) 450-7900

January 4, 2024

Government Letter No. 53471

Alaska Department of Environmental Conservation
Air Permit Program
555 Cordova Street
Anchorage, Alaska 99501

Attn: Permit Intake Clerk

Subject: Pump Station 9 – Application for Renewal of Operating Permit AQ0079TVP04

Alyeska Pipeline Service Company (Alyeska) submits this application for an Air Quality Control (AQC) Operating Permit for Pump Station 9 (PS 9). The stationary source currently operates under Operating Permit AQ0079TVP04 which expires on March 6, 2025, and as required by Permit Condition 63 and 18 AAC 50.326, an application must be submitted no sooner than September 6, 2023, and no later than September 6, 2024.

Pursuant to AS 46.14.150, and 18 AAC 50.326, this application is timely. Alyeska understands that completeness will be evaluated by the Alaska Department of Environmental Conservation (ADEC) according to the processes and elements established under 40 CFR 71.7.

Alyeska believes that this submittal constitutes a complete AQC operating permit application according to the requirements of 18 AAC 50.326, which incorporates 40 CFR 71.7 and other relevant sections of 40 CFR Part 71. The application accompanying this letter utilizes the application forms required by ADEC.

Consistent with 18 AAC 50.400(a)(1), Alyeska understands that we will continue to pay an annual permit administrative fee and that no other fees are required with this submittal. If you have any questions or require additional information, please contact Don Mark Anthony at (907) 787-8568 or Hilary Garney at (907) 787-8897.

Sincerely,

Wesley C. Willson
Pipeline Director

Attachment: PS 9 Operating Permit Application

cc: EPA Region 10

Attachment:
Application for Renewal:
Operating Permit No. AQ0079TVP04

Form Series A

Form A1
Stationary Source (General Information)

FORM A1
Stationary Source (General Information)

GENERAL INFORMATION

1. Permittee:

Permittee Name: Alyeska Pipeline Service Company

Mailing Address Line 1: P.O. Box 196660

City: Anchorage | State: AK | Zip Code: 99519-6660

2. Stationary Source Name: ***Pump Station 9 (PS-9)***

3. Stationary Source Physical Address:

Physical Address Line 1: Section 27, T11S, R10E

Physical Address Line 2: Fairbanks Meridian

City: N/A | State: AK | Zip Code: N/A

4. Location: MP 258 Richardson Hwy Latitude: 63 55' 53" Longitude: 145 45' 59"

5. Primary SIC Code: 4612 SIC Code Description: Crude Oil Pipelines ***Primary NAICS Code: 4861***

6. Current/Previous Title V Air Permit No.: AQ0079TVP04 Expiration Date: March 6, 2025

7. Does this application contain confidential data? ☐ Yes ☒ No

/Pipeline Director **8. APPLICATION IS BEING MADE FOR:**

☐ Initial Title V Permit for this Stationary Source ☐ Modify Title V Permit (currently permitted) ☒ Title V Permit Renewal

9. CONTACT INFORMATION (Attach additional sheets if needed)

Owner:	***Operator:***
Name/Title: Hilcorp Alaska, LLC; ConocoPhillips Transporation Alaska, Inc; ExxonMobile Pipeline Company	Name/Title: Alyeska Pipeline Service Company
Mailing Address Line 1:	Mailing Address Line 1: See above
Mailing Address Line 2	Mailing Address Line 2
Permittee's Responsible Official: State: Zip Code:	***Designated Agent:*** State: Zip Code:
Name/Title: Wesley C. Willson/Pipeline Director	Name/Title: CT Corporation
Mailing Address Line 1: APSC	Mailing Address Line 1: 9360 Glacier Hwy
Mailing Address Line 2: 615 Bidwell Ave, DIF 240	Mailing Address Line 2: Suite 202
City: Fairbanks State: AK Zip Code: 99706	City: Juneau State: AK Zip Code: 99801
Stationary Source and Building Contact:	***Fee Contact:***
Name/Title: Brad Gordon, Kyle MacDonald/PS 9 Maintenance Supervisor	Name/Title: Michelle Slwooko/Environmental Coordinator
Mailing Address Line 1:	Mailing Address Line 1: APSC
Mailing Address Line 2	Mailing Address Line 2: P.O. Box 196660, MS 507
City: State: Zip Code:	City: Anchorage State: AK Zip Code: 99519-6660
Phone: 907 787-4902 Email:	Phone: 907 787-8906 Email: michelle.slwooko@alyeska-pipeline.com
Permit Contact:	***Person or Firm that Prepared Application:***
Name/Title: Don Mark Anthony/Environment SME	Name/Title: Alyeska Pipeline Service Company
Mailing Address Line 1: Alyeska Pipeline Service Company	Mailing Address Line 1: PO Box 196660, MS 507
Mailing Address Line 2: P.O. Box 196660, MS 507	Mailing Address Line 2
City: Anchorage State: AK Zip Code: 99519-6660	City: Anchorage State: AK 99519-6660
Phone: 907-787-8568 Email: don.markanthony@alyeska-pipeline	Phone: 907-787-8568 Email: don.markanthony@alyeska-pipeline.com

10. STATEMENT OF CERTIFICATION

Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate, and complete.

Name of Responsible Official (typed): Wesley C. Willson Title: Pipeline Director

X Signature (blue ink): Wes Willson Date: 1/10/24

Form A2
Stationary Source Description

FORM A2
Stationary Source Description

Permit Number: AQ0079TVP04

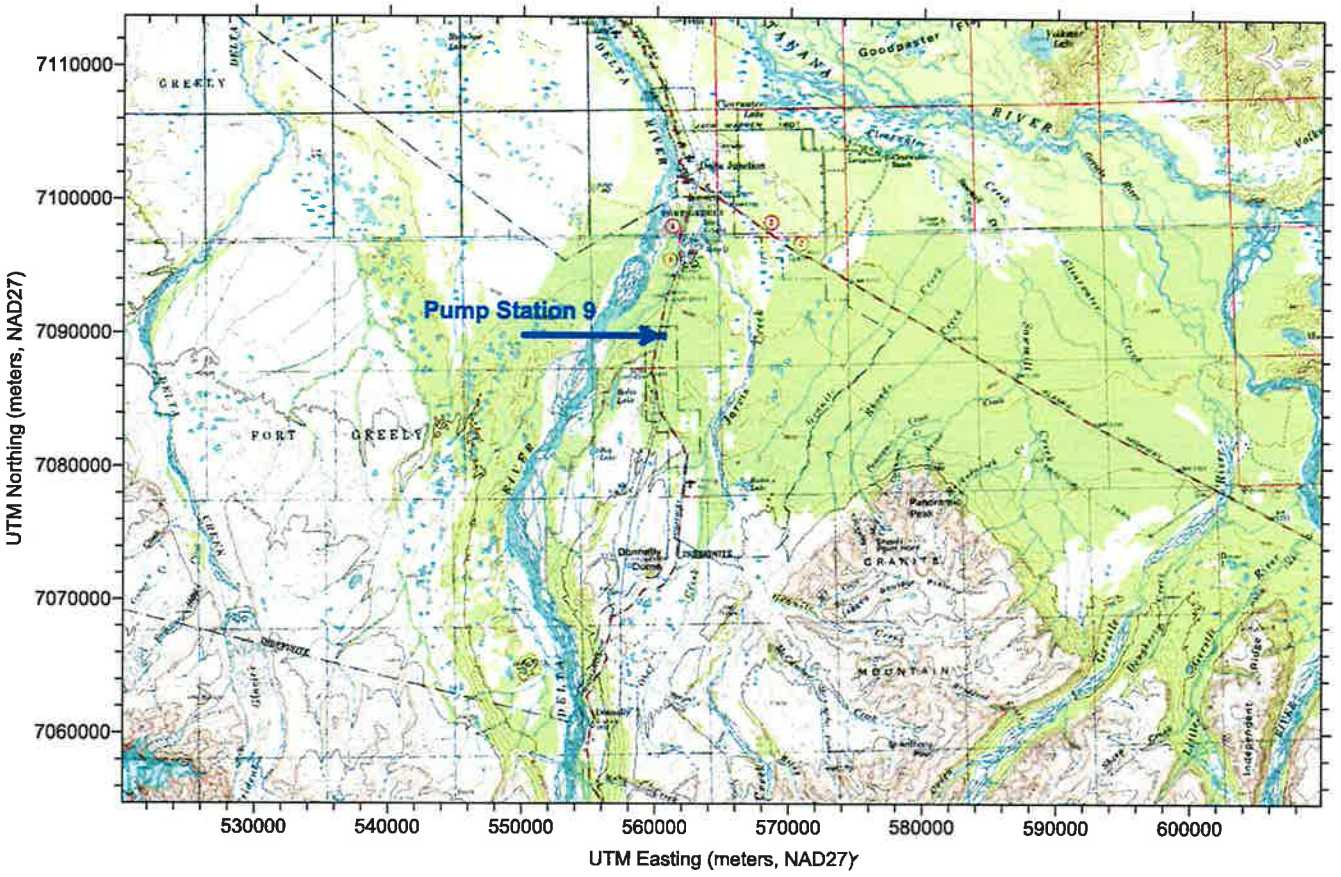
1.	Stationary Source Description (a thorough description of the stationary source, its processes, raw materials, operating scenarios, and other specific information that may be necessary to determine the applicability of Title V requirements.) The information may include property area or map, number of employees, maximum capacity, and other primary emission-generating activities co-located or on adjacent properties. The stationary source is a crude oil pumping facility (SIC code 4612). The purpose of Pump Station 9 is to support the transportation of crude oil by TAPS, which transports crude oil from the North Slope of Alaska to the Valdez Marine Terminal. The operation of Pump Station 9 is supported by several auxiliary activities due to its remote location, including maintenance and support facilities and operations of a crude oil break-out tank. Electrical power for the stationary source including the power to drive the crude oil pumps is provided commercially by Golden Valley Electric Association (GVEA). The stationary source has capacity to generate backup power onsite in the event of commercial power outages.	
2.	Nonattainment area [yes/no; if yes, specify]	No
3.	Does the CAM rule [40 CFR Part 64] apply to any of the emissions units? [if yes, review the guidance provided for CAM in the Form A2 instructions for this item]	No
4.	Does the accidental release prevention regulation [40 CFR Part 68] apply to the facility? [if yes, provide the appropriate regulatory applicability document in detail.]	No

5. Attach plot plan.

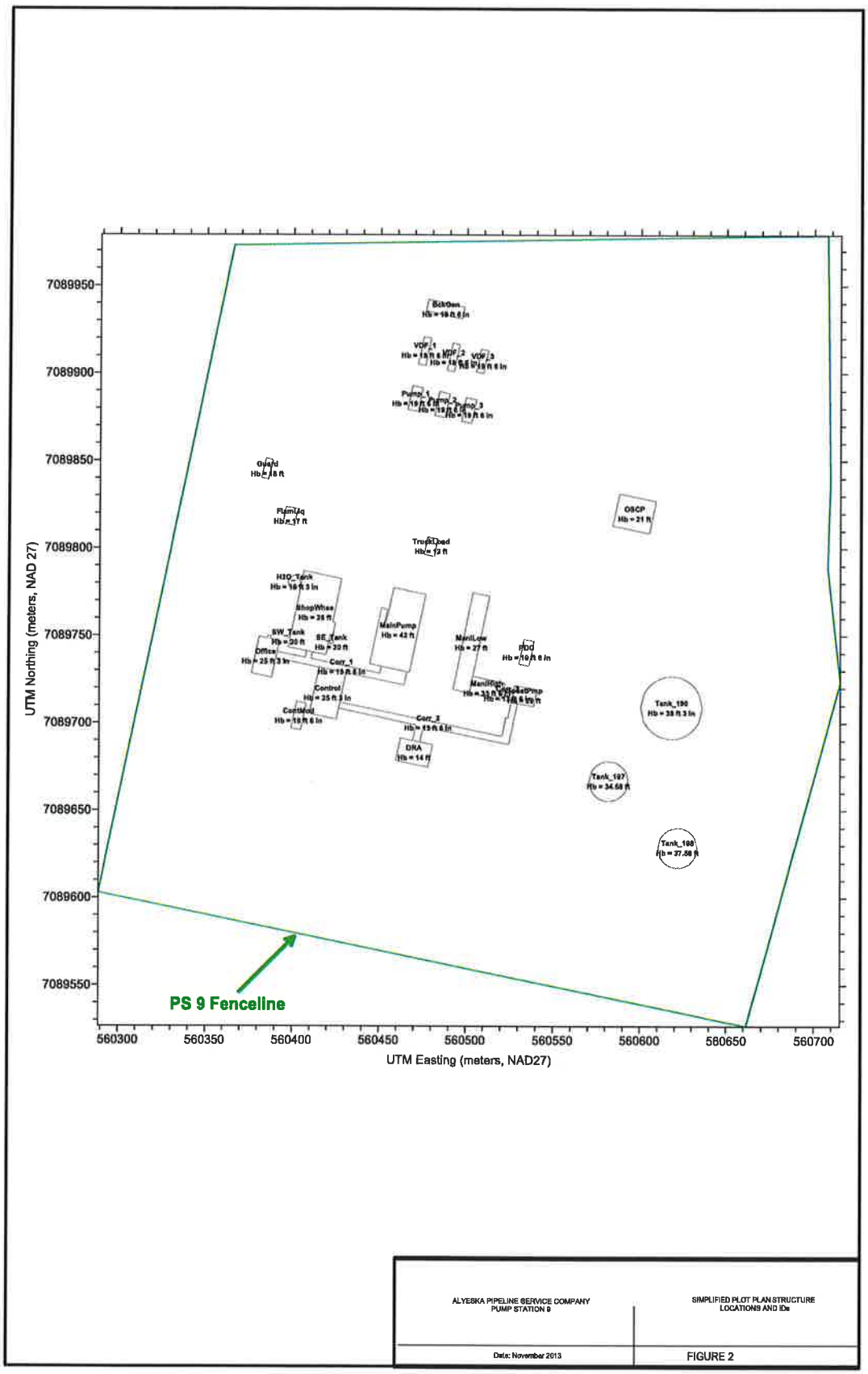
6. Attach regional map.

7. Attach USGS map.

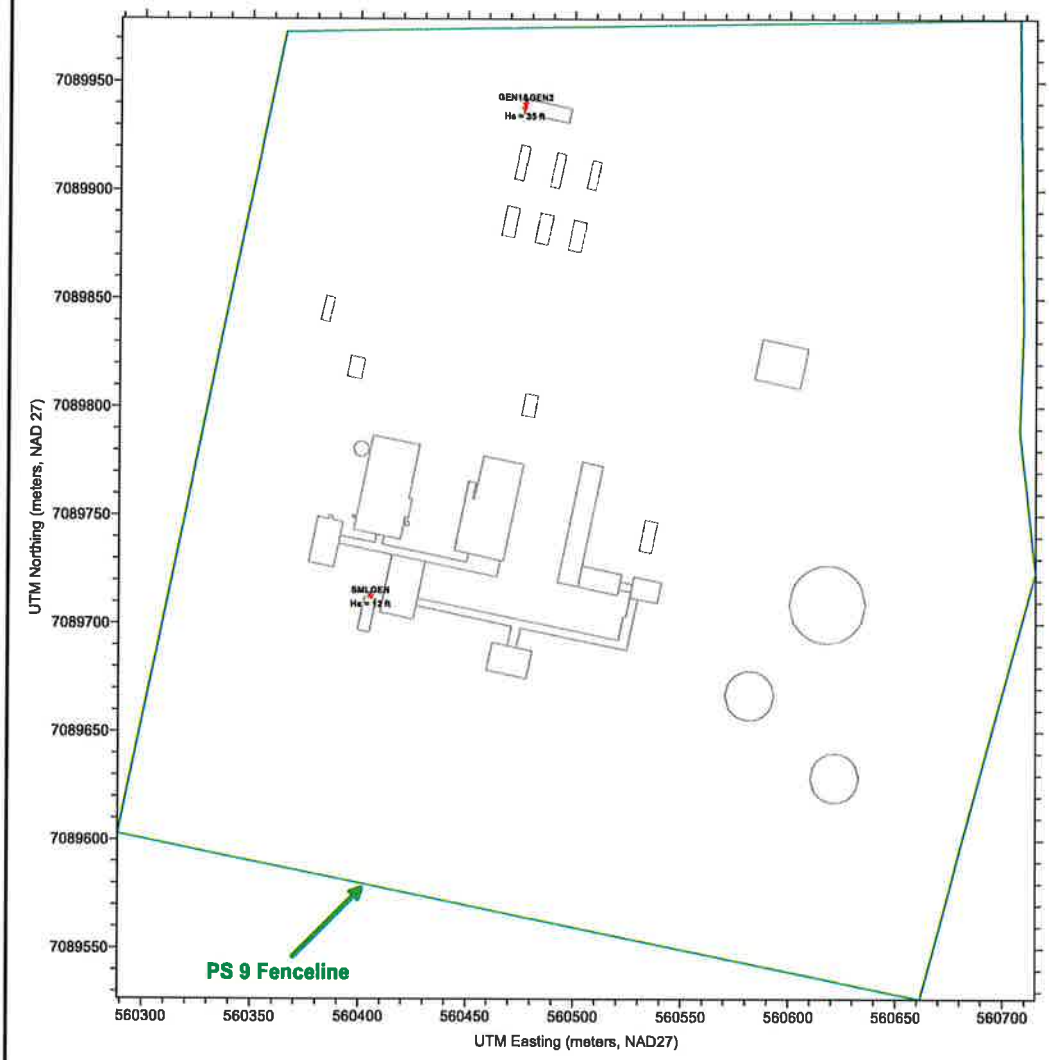
Form A2 Attachments



ALYESKA PIPELINE SERVICE COMPANY PUMP STATION 9	AREA MAP
Date: November 2013	FIGURE 1



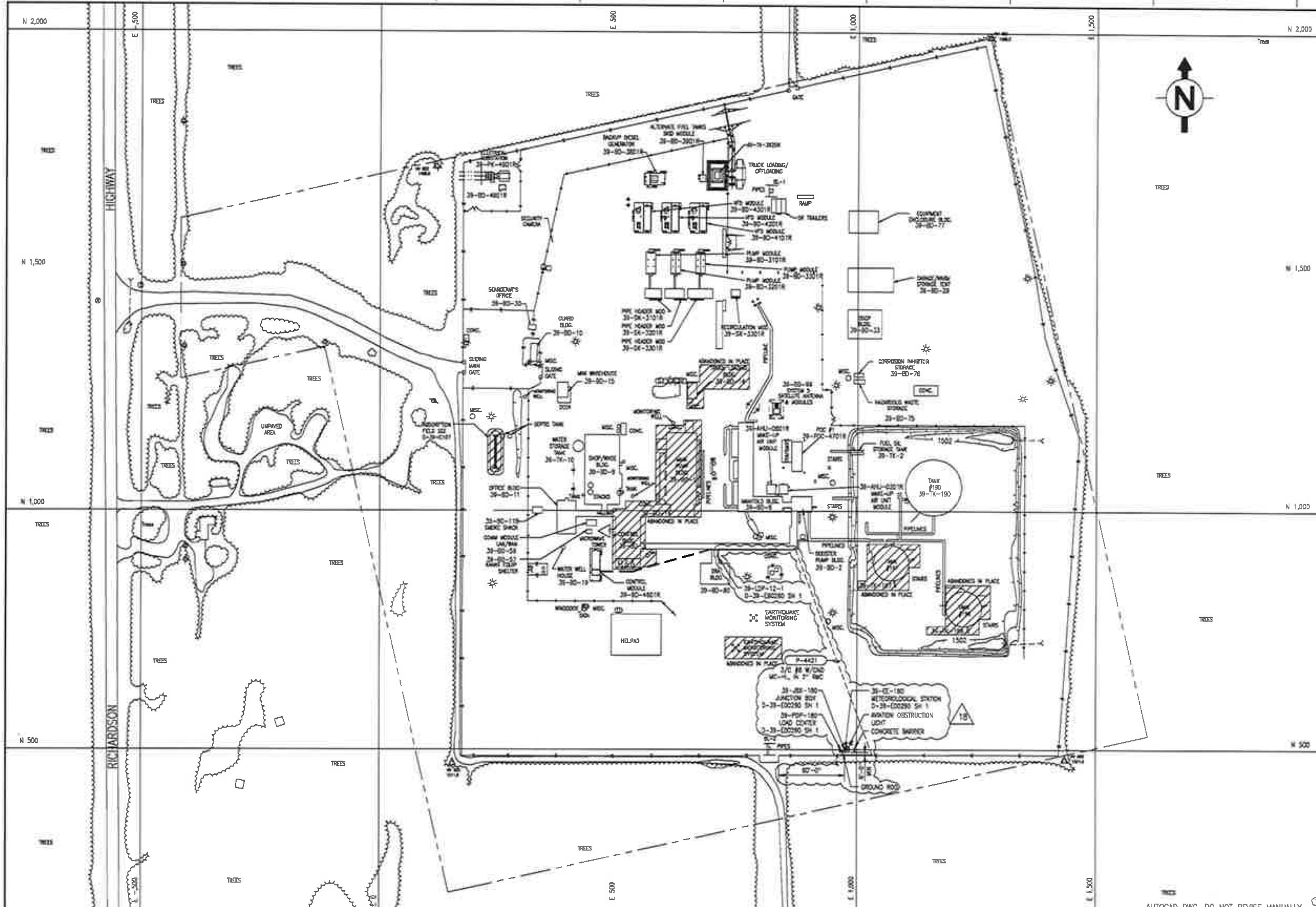
ALYESKA PIPELINE SERVICE COMPANY PUMP STATION 9	SIMPLIFIED PLOT PLAN STRUCTURE LOCATIONS AND IDs
Date: November 2013	FIGURE 2



ALYESKA PIPELINE SERVICE COMPANY PUMP STATION 9	SIMPLIFIED PLOT PLAN STACK LOCATIONS AND IDs
Date: November 2013	FIGURE 3

MAJOR EQUIP. LIST

ALYESKA No.	FLUOR No.	ITEM DESCRIPTION
(BOOSTER PUMP BLDG. 39-BD-2)		
39-BP-1	39-P-1	BOOSTER PUMP
	39-P-18	BOOSTER REINJECTION PUMP
39-SP-3	39-P-13	SUMP PUMP
	39-D-8	UTILITY AIR RECEIVER



AUTOCAD DWG. DO NOT REVISE MANUALLY. ①

GENERAL NOTES

Coordinates are in Plant Grid as established by Alyeska Pipeline Service Co.

Vertical datum is post quake USC&GS.

Horizontal Vertical Control · Manhole · Utility Pole · Sign · Post · Misc. Object · Pole · Culvert · Light Pole · VSM · Fence · Gate · SW Lights

REFERENCE DRAWINGS

NUMBER	TITLE
C-39-L600 SH 1	PUMP STATION NO. 9 SURVEY PLAT
D-39-C103 SH 1	GRADING & DRAINAGE PLAN
D-39-L401 SH 1, 2	PUMP STATION 9 ORTHO TOPO PHOTO PLAN

REVISIONS

REV.	DATE	DESCRIPTION	DWN.	CKD.	APP.
15	06/10	REVISED PER 22267, ER#13340	DLT	RWG	RJR
14	04/09	REVISED PER F574, ER#11864	SPN	LKT	RJR
13	02/09	REVISED PER F548, ER#11762	RSC	CBS	WP
12	12/08	REVISED PER Y009, ER#11852	RTW	DHW	HC
11	09/07	REVISED PER S050, ER#10685	HBR	JSR	DKD
10	11/05	REVISED PER 22047, ER#13624	JDH	JSR	PSB
9	08/04	REVISED PER C073, ER#10161	DKH	JSR	MJF
8	6/99	AS-BUILT PER 8045F & 8130, ER#8066-2	PWL	DGW	PR

REV.	DATE	DESCRIPTION	DWN.	CKD.	APP.
7	12/97	UPDATED PER Z-1573, ER#9862	DDW	DDW	SAS
6	11/92	AS-BUILT REDRAW PER Z#1169, ER#5333	BSW	DWG	
5	9/84	AS-BUILT PER FIELD DATA / ER 325	JSA	DT	KEH
18	05/13	REVISED PER F676, ER#13227	MAD	JSR	DDK
17	05/12	REVISED PER 22488, ER#13240	TMB	SPN	RJR
16	12/10	REVISED PER 22321, ER#13624	RWG	RJR	RJR

ALYESKA PIPELINE SERVICE CO.

TRANS ALASKA PIPELINE SYSTEM

PUMP STATION No 9
OVERALL PLOT PLAN

DWN. LO	APP. DH	DWG. NO. D-39-L20	REV. 18
CKD. DC	APP. DAH		
DATE: 10/18/1972	SCALE: 1"=100'	SHEET 1 OF –	

PLOT SCALE: 1=1200 FILE DATE: 05/10/12 FILENAME: L20-01.DWG

Form A3
Operating Scenario Description

FORM A3
Operating Scenario Description

Permit Number: AQ0079TVP04

1.	Operating scenario ID	1
2.	Operating scenario description: Base operating scenario, consistent with purpose of Pump Station 9, which is to support the transportation of crude oil by TAPS. Emission units involved and pollutants emitted are those identifed in this application. No seasonal variation, 8,760 hr/yr base operating scenario. No alternative operating scenarios identifed.	
3.	List the emissions units involved in this operating scenario.	All units. See above.
4.	Operating schedule: hours/day	24
	days/week	7
	weeks/year	52
5.	Seasonal variation (%): December - February	None
	March – May	None
	June - August	None
	September - November	None

6. Attach process flow diagram

Form A4
Title V Air Operating Permit Renewal Application Information

FORM A4
Title V Air Operating Permit Renewal Application Information

Permit Number: AQ0079TVP04

1.	Permit Contact: Name	See Form A1.
	Title	See Form A1.
	Mailing Address Line 1	See Form A1.
	Mailing Address Line 2	See Form A1.
	Phone Number	See Form A1.
	Email	See Form A1.
2.	Were there any changes to stationary source General Information (Form A1)? If yes, complete and submit a Form A1.	Yes, see Form A1.
3.	Were there any changes to the stationary source description (Form A2)? If yes, complete and submit a Form A2.	No.
4.	Were there any off-permit changes? Reference any notifications provided to the Department, and attach copies of the notifications.	No.
	If yes, integrate changes into renewal permit? [if no, explain]	See above.
5.	Have any Alaska Title I permits been issued to the stationary source since the most recent Title V permit or revision issuance?	No.
	If yes, integrate changes into renewal permit? [If yes, please list. If no, explain]	N/A.
6.	Will there be any changes to the operating scenario(s)? [if yes, describe and attach Form A3]	No.
7.	Will there be any new, modified, or reconstructed emission units or air pollution control equipment? [if yes, attach appropriate forms from Form Series B, C, D, and E]	No.
8.	Are the current emissions units correctly identified and defined in the permit? [if no, attach appropriate forms from Form Series B, C, D, and E]	Yes.
9.	Does the CAM rule [40 CFR Part 64] apply to any of the emissions units? [if yes, review the guidance provided for CAM in the Form A4 instructions for this item]	No.
10.	Does the accidental release prevention regulation [40 CFR Part 68] apply to the facility? [if yes, provide the appropriate regulatory applicability document in detail.]	No.
11.	Are there any other new applicable requirements? [if yes, list the new applicable requirements, emissions units, and attach the appropriate Series E Form]	No.

12.	Are there any requested changes in the assessable potential to emit other than those identified in item 9 above? [if yes, answer the following]	No.
	Are the changes a result of having better emissions information such as a new emission factor from a recent source test? [if yes, complete and attach any applicable emissions forms from Series D. Attach additional information as necessary to fully document.]	N/A.
	Are the changes due to an increase in production? [if yes, complete and attach the applicable emissions form from Series D. Attach additional information as necessary to fully document.]	N/A.
13.	Is the stationary source in compliance with all of the conditions of the current permit? If yes, attach a compliance certification. If no, attach a compliance schedule and/or actions taken for any out-of-compliance emission units.	Yes. See attached compliance certification.
14.	Are there any requested changes to testing and/or monitoring conditions? [if yes, identify the condition, the requested change, and the reason. Attach additional information as necessary to fully document.]	Yes. Alyeska intends to reclassify EU 12 as a non-emergency engine under 40 CFR 63 Subpart ZZZZ, upon issuance of the renewed operating permit. See the Form B2 for EU 12 for the identificaiton of the Subpart ZZZZ requirements for non-emergency engines.
15.	Are there any requested changes to monitoring conditions other than those being replaced by CAM? [if yes, identify the condition, the requested change, and the reason. Attach additional information as necessary to fully document.]	No.
16.	Are there any requested changes to recordkeeping conditions? [if yes, identify the condition, the requested change, and the reason. Attach additional information as necessary to fully document.]	Yes. Alyeska intends to reclassify EU 12 as a non-emergency engine under 40 CFR 63 Subpart ZZZZ, upon issuance of the renewed operating permit. See the Form B2 for EU 12 for the identificaiton of the Subpart ZZZZ requirements for non-emergency engines.
17.	Are there any requested changes to reporting conditions? [if yes, identify the condition, the requested change, and the reason. Attach additional information as necessary to fully document.]	Yes. Alyeska intends to reclassify EU 12 as a non-emergency engine under 40 CFR 63 Subpart ZZZZ, upon issuance of the renewed operating permit. See the Form B2 for EU 12 for the identificaiton of the Subpart ZZZZ requirements for non-emergency engines.
18.	Are there any requested changes to the non-applicable requirements (i.e. permit shield)? [if yes, identify the emission unit, the requested change, and the reason in the appropriate Series B and/or D form. If the change applies stationary source-wide, complete the appropriate Series E form. Attach additional information as necessary to fully document.]	No. Alyeska requests incorporation of the current permit listed shields into the new operating permit.
19.	Are there any other requested changes to any condition? [if yes, identify the condition, the requested change, and the reason. Attach	Yes, please revise Conditions 18-21 by removing references to EU 12 as an emergency engine.

	additional information as necessary to fully document.]	

Statement of Certification:

Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate, and complete.

Wesley C. Willson	Pipeline Director
Name of Responsible Official	**Title**
[signature]	1/10/24
Signature (blue ink)	**Date**

Form A4 Attachment

Compliance Certification

Compliance Certification Report
Air Quality Operating Permit AQ0079TVP04/Applicable Requirements
Pump Station 9

Permit Condition		Compliance Status	Method Used to Determine Status	Comments on Condition, Compliance Method or Compliance Status
No(s).	Summary/Description			
Section 3: State Requirements				
1	Visible Emissions Standards - EU IDs 10-12	Continuous	Reasonable inquiry.	EU IDs 10-12 did not trigger significant status during the reporting period. No VE observations were conducted or required to be conducted.
2-4	Visible Emissions Standards MR&R	Continuous	Reasonable inquiry.	No MR&R requirements were triggered during the reporting period.
5	Particulate Matter Emissions Standard - EU IDs 10-12	Continuous	Reasonable inquiry.	EU IDs 10-12 did not trigger significant status at time of signature.
6-8	Particulate Matter Emissions Standard MR&R	Continuous	Reasonable inquiry.	No MR&R requirements were triggered at time of signature.
9	Sulfur Compound Emissions Standard - EU IDs 10-12	Continuous	Monitoring conducted under Condition 9.1.	Fuel combusted at time of signature contained 0.24 wt% or less sulfur.
10	Operational Limits – EU IDs 10-12	Continuous	Monitoring conducted under Condition 10.1.	Operating limits in Table B were not exceeded at time of signature.
10.1-10.3	Operational Limit MR&R	Continuous	Reasonable inquiry/records.	MR&R conducted as required.
11	Fuel Sulfur Limit - EU IDs 10-12	Continuous	Monitoring conducted under Condition 8.3.	Fuel combusted during the reporting period contained 0.24 wt% or less sulfur.

Compliance Certification Report
Air Quality Operating Permit AQ0079TVP04/Applicable Requirements
Pump Station 9

Permit Condition		Compliance Status	Method Used to Determine Status	Comments on Condition, Compliance Method or Compliance Status
No(s).	Summary/Description			
11.1-11.4	Sulfur Compound Emissions Standard/Fuel Sulfur Limit MR&R	Continuous	Reasonable inquiry/records.	MR&R conducted as required.
12	NO_x Emissions (Operating Hours) Limit - EU IDs 10-12	Continuous	Monitoring conducted under Condition 11.1.	Operating limits in Condition 9 were not exceeded at time of signature.
12.1	NO_x Emissions (Operating Hours) Limit MR&R	Continuous	Reasonable inquiry/records.	MR&R requirements conducted as required.
13	Tank 190 HAP Emissions ORL – EU ID 13	Continuous	Monitoring and recordkeeping conducted under Conditions 12.1 and 12.2.	EU ID 13 HAP emissions were less than the limits in Condition 13 at time of signature.
13.1-13.2	Tank 190 HAP Emissions ORL MR&R	Continuous	Reasonable inquiry/records.	All MR&R under Conditions 13.1 and 13.2 conducted as required, records maintained.
14	Insignificant Emission Unit Requirements	Continuous	Reasonable inquiry.	Compliance with applicable emission standards based on reasonable inquiry. No insignificant emission unit had actual emissions greater than the thresholds in 18 AAC 50.326(e) at time of signature.
Section 4: Federal Requirements				

Compliance Certification Report
Air Quality Operating Permit AQ0079TVP04/Applicable Requirements
Pump Station 9

Permit Condition		Compliance Status	Method Used to Determine Status	Comments on Condition, Compliance Method or Compliance Status
No(s).	Summary/Description			
15	NESHAP Subpart A Requirements – EU IDs 10-12	Continuous	Reasonable inquiry.	Alyeska met all requirements of Subpart A identified in Table 8 of Subpart ZZZZ at time of signature.
16	NESHAP Subpart ZZZZ Requirements	See below	See below.	See below.
17	NESHAP Subpart ZZZZ Operation and Management Practices – EU IDs 10-12	Continuous	Reasonable inquiry/records.	Alyeska operated EU IDs 10-12 following GAPCP and followed manufacturer recommendations for maintenance and operation.
18	NESHAP Subpart ZZZZ Work and Management Practices – EU IDs 10-12	Continuous	Reasonable inquiry/records.	All work and management practice requirements in Conditions 18.1-18.5 were met at time of signature.
19	NESHAP Subpart ZZZZ Monitoring Requirements – EU IDs 10-12	Continuous	Reasonable inquiry/records.	EU IDs 10-12 are equipped with non-resettable hours meters as required. EU IDs 10-12 operated following emergency engine use requirements in Conditions 19.2 and 19.3.
20	NESHAP Subpart ZZZZ Recordkeeping Requirements – EU IDs 10-12	Continuous	Reasonable inquiry/records.	Maintenance and hours of operation records were maintained as required.
21	NESHAP Subpart ZZZZ Reporting Requirements – EU IDs 10-12	Continuous	Reasonable inquiry/records.	Alyeska met the requirements of Conditions 18.1 and 20.2 as applicable.

Compliance Certification Report
Air Quality Operating Permit AQ0079TVP04/Applicable Requirements
Pump Station 9

Permit Condition		Compliance Status	Method Used to Determine Status	Comments on Condition, Compliance Method or Compliance Status
No(s).	Summary/Description			
22	Federal Asbestos Requirements (NESHAP)	Continuous	Reasonable inquiry/records.	Alyeska complied with the requirements of 40 CFR 61.145, 61.150, 61.152, Subpart M and applicable sections of Subpart A and Appendix A as required during the reporting period. No NESHAP demolition notifications were submitted or required to be submitted at time of signature.
23-25	Protection of Stratospheric Ozone – Subparts F, G and H	Continuous	Reasonable inquiry/records.	Alyeska complied with the recycling and emissions reduction requirements of Subpart F, and the applicable prohibitions of Subpart G and Subpart H.
26	NESHAP Applicability Determinations	Continuous	Reasonable inquiry.	No NESHAP applicability determinations were submitted or required to be submitted at time of signature. No reconstruction notification required.
Section 5: General Conditions				
27-29	Standard Terms and Conditions	Continuous	Reasonable inquiry.	No comments.
30	Administration Fees	Continuous	Reasonable inquiry/records.	Fees paid as required.
31-32	Assessable Emissions Estimates	Continuous	Reasonable inquiry/records.	Records document that emission fee estimates were submitted as required.
33	Good Air Pollution Control Practices – EU ID 13	Continuous	Reasonable inquiry/records.	Conducted regular maintenance as required at time of signature.
34	Dilution Prohibition	Continuous	Reasonable inquiry.	Alyeska does not dilute emissions. Stacks are in good condition.

Compliance Certification Report
Air Quality Operating Permit AQ0079TVP04/Applicable Requirements
Pump Station 9

Permit Condition No(s).	Permit Condition Summary/Description	Compliance Status	Method Used to Determine Status	Comments on Condition, Compliance Method or Compliance Status
35	Reasonable Precautions to Prevent Fugitive Dust	Continuous	Reasonable inquiry.	Precautions taken as needed. No complaints received at time of signature.
36	Stack Injection Prohibition	Continuous	Reasonable inquiry.	Only products of combustion or process emissions were released from applicable stacks.
37	Air Pollution Prohibited	Continuous	Reasonable inquiry/records.	No complaints were received at time of signature.
37.1.a-f	Air Pollution Prohibited MR&R	Continuous	Reasonable inquiry/records.	No complaints were received, and no MR&R requirements were triggered at time of signature.
38	Technology-Based Emission Standard Excess Emissions Requirements	Continuous	Reasonable inquiry.	No unavoidable excess emissions occurred at time of signature.
39	Open Burning Requirements	Continuous	Reasonable inquiry/records.	No open burning was conducted at time of signature.
Section 6: General Source Testing and Monitoring Requirements				
40-49	Source Tests Requirements and Methods	Continuous	Reasonable inquiry/records.	No source tests were conducted or required to be conducted at time of signature.
Section 7: General Recordkeeping and Reporting Requirements				
50	General Recordkeeping Requirements	Continuous	Reasonable inquiry/records.	Records maintained as required under specific conditions of the permit.

Compliance Certification Report
Air Quality Operating Permit AQ0079TVP04/Applicable Requirements
Pump Station 9

Permit Condition		Compliance Status	Method Used to Determine Status	Comments on Condition, Compliance Method or Compliance Status
No(s).	Summary/Description			
51	Certification of Documents	Continuous	Reasonable inquiry/records.	Alyeska certified all items subject to 18 AAC 50.205 submitted to the ADEC as required.
52-53	Submittals and Information Requests	Continuous	Reasonable inquiry/records.	Alyeska addressed submittals as required during the reporting period. No Information Request were received at time of signature.
54	Excess Emissions and Permit Deviation Reports	Continuous	Reasonable inquiry/records.	No excess emission or permit deviation reports were submitted or required to be submitted at time of signature.
55	Operating Reports	Continuous	Reasonable inquiry/records.	Records document that facility operating reports were submitted to ADEC in a timely manner and were consistent with the requirements of Conditions 55.1-55.4.
56	Annual Compliance Certification	Continuous	Reasonable inquiry/records.	Annual Compliance Certification Report submitted as required.
57	Emission Inventory Reporting	Continuous	Reasonable inquiry/records.	Emission Inventory submitted as required.
58	NSPS and NESHAP Reports	Continuous	Reasonable inquiry/records.	No NSPS or NESHAP reports were submitted or required to be submitted at time of signature. Under Condition 58.2, no requests by ADEC for any EPA-granted waivers were received at time of signature.
Section 8: Permit Changes and Renewal				

Compliance Certification Report
Air Quality Operating Permit AQ0079TVP04/Applicable Requirements
Pump Station 9

Permit Condition No(s).	Permit Condition Summary/Description	Compliance Status	Method Used to Determine Status	Comments on Condition, Compliance Method or Compliance Status
59	Permit Applications and Submittals to EPA	Continuous	Reasonable inquiry/records.	EPA copied as required.
60	Emissions Trading	Continuous	Reasonable inquiry.	PS 9 does not engage in emissions trading.
61	Off Permit Changes	Continuous	Reasonable inquiry/records.	No off-permit changes were made at time of signature.
62	Operational Flexibility	Continuous	Reasonable inquiry/records.	No operational flexibility changes were made at the time of signature.
63	Permit Renewal	Continuous	Reasonable inquiry/records.	Renewal application submitted as required.
Section 9: Compliance Requirements				
64-69	General Compliance Requirements	Continuous	Reasonable inquiry.	No comments.

Notes:

1. "Reasonable inquiry" may include, but is not limited to, process or operator knowledge; routine procedures; current and historical observations; and review of files, monitoring records or reports.
2. The description of compliance status indicates whether the stationary source was in compliance at the time of this certification. For the description of compliance status, a "yes" means that Alyeska certifies that was in compliance at the time of certification and that it believes it will continue to apply. A "no" means that the stationary source was either not in compliance at the time of the application or that it will be unable to achieve continuous compliance with the current permit.
3. As required by 40 CFR 71.5(c)(8)(ii)(A) and (iii)(A), Alyeska hereby states that the stationary source (i.e. PS 9) will continue to comply with applicable requirements which the source is in compliance.

Form Series B

Form B
Emission Unit Listing For This Application

FORM B
Emission Unit Listing For This Application

Permit Number: AQ0079TVP04

EMISSION UNIT LISTING: New, Modified, Previously Unpermitted, Replaced, Deleted					
Emission Unit ID Number	Emission Unit Name	Brief Emission Unit Description	Rating/Size	Construction Date	Notes
Emission Units To Be ADDED By This Application (New, Previously Unpermitted, or Replacement)					
Emission Units To Be MODIFIED By This Application					
Emission Units To Be DELETED By This Application					

FORM B

Emission Unit Listing For This Application

SIGNIFICANT EMISSION UNIT LISTING: Title V permitted emission units that have not been modified				
Emission Unit ID Number	Emission Unit Name	Brief Emission Unit Description	Rating/Size	Construction Date
10	39-GEN-3801R	Caterpillar Electric Generator Model # 3516B	2,250 kWe	2005
11	39-GEN-3810R	Caterpillar Electric Generator Model # 3516B	2,250 kWe	2005
12	39-GEN-4605R	John Deere Engine Electric Generator, Model # 4045	65 kWe	2005
13	TK-190	Breakout Tank 190	55,000 bbl	1975

FORM B

Emission Unit Listing For This Application

INSIGNIFICANT EMISSION UNIT LISTING: Insignificant Title V permitted emission units that have not been modified				
Emission Unit Name	Brief Emission Unit Description	Rating/Size	Construction Date	Basis for Insignificant Status
Aerotec Heater	Diesel-Fired Heater	0.40 MMBTU/hr	N/A	50.326(g)(7)
Renzor Heater	Diesel-Fired Heater	0.23 MMBTU/hr	N/A	50.326(g)(7)
Renzor Heater	Diesel-Fired Heater	0.23 MMBTU/hr	N/A	50.326(g)(7)
Tioga Heater	Diesel-Fired Heater	0.60 MMBTU/hr	N/A	50.326(g)(7)
Tioga Heater	Diesel-Fired Heater	0.60 MMBTU/hr	N/A	50.326(g)(7)
Tioga Heater	Diesel-Fired Heater	0.60 MMBTU/hr	N/A	50.326(g)(7)
Tioga Heater	Diesel-Fired Heater	0.60 MMBTU/hr	N/A	50.326(g)(7)
Tioga Heater	Diesel-Fired Heater	0.60 MMBTU/hr	N/A	50.326(g)(7)
Tioga Heater	Diesel-Fired Heater	0.60 MMBTU/hr	N/A	50.326(g)(7)
Powrmatic Heater	Diesel-Fired Heater	0.23 MMBTU/hr	N/A	50.326(g)(7)
Powrmatic Heater	Diesel-Fired Heater	0.23 MMBTU/hr	N/A	50.326(g)(7)
Powrmatic Heater	Diesel-Fired Heater	0.38 MMBTU/hr	N/A	50.326(g)(7)
Powrmatic Heater	Diesel-Fired Heater	0.38 MMBTU/hr	N/A	50.326(g)(7)
Smart Ash	Waste Burn Barrel	50 lb/hr	N/A	50.326(e)

Form B1
Emission Unit Detail Form – External Combustion Equipment (Boilers and Heaters)

FORM B1

Emission Unit Detail Form – External Combustion Equipment (Boilers and Heaters)

Permit Number: AQ0079TVP04

1.	Emission Unit ID Number // Operating Scenario	N/A, insignificant EUs not listed in permit
2.	Date installation/construction commenced	Various
3.	Date installed	Various
4.	Emission Unit serial number	N/A, multiple units
5.	Special control requirements? [if yes, describe]	No
6.	Manufacturer	Aerotec, Renzor, Tioga, Powrmatic
7.	Description of emission unit, including type of boiler/heater and firing method: Diesel-fired heaters (13).	
8.	Rated design capacity (heat input, MMBtu/hr)	Various, all < 1 MMBTU/hr, see Form D spreadsheets
9.	Maximum steam production rate (lbs/hr)	N/A
10.	Maximum steam pressure (psi)	N/A
11.	Maximum steam temperature (°F)	N/A

12. Fuel usage: [for EACH fuel, enter]:

Fuel	Maximum hourly firing rate (specify units)
Diesel	0.6 MMBTU/hr or less, see Form D spreadsheets

13.	Is waste heat utilized for any purpose? If yes, describe: No.

FORM B1

Emission Unit Detail Form – External Combustion Equipment (Boilers and Heaters)

Applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Applicable Requirements*):

Permit and Condition Number	Applicable Requirement Citation[1]	Parameter/ Pollutant	Limit/Standard/ Requirement	Currently in Compliance?	Monitoring, Recordkeeping and Reporting Methods Used to Demonstrate Compliance
N/A	18 AAC 50.055(a)(1)	Visible emissions	20%	Yes	N/A. Insignificant EU. Compliance based on reasonable inquiry.
N/A	18 AAC 50.055(b)(1)	Particulate matter	0.05 gr/scf	Yes	N/A. Insignificant EU. Compliance based on reasonable inquiry.
N/A	18 AAC 50.055(c)	Sulfur compound emissions	500 ppm	Yes	N/A. Insignificant EU. Compliance based on reasonable inquiry.

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

Non-applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Permit Shield Request*):

Non-Applicable Requirements[1]	Reason for non-applicability and citation/basis
40 CFR 63 Subpart JJJJJJ	EU are not boilers as defined in 63.11237.

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

Form B2
Emission Unit Detail Form – Internal Combustion Equipment (Engines and Turbines)

FORM B2

Emission Unit Detail Form - Internal Combustion Equipment (Engines and Turbines)

Permit Number: AQ0079TVP04

1.	Emission Unit ID Number // Operating Scenario	EU 10 and EU 11
2.	Date installation/construction commenced[1]	2005
3.	Date installed	2005
4.	Emission Unit serial number	39-GEN-3801R and 39-GEN-3810R
5.	Special control requirements? [if yes, describe]	No
6.	Manufacturer and model number	Caterpillar 3516
7.	Type of combustion device	Compression Ignition Engine
8.	Rated design capacity (horsepower rating for engines)	
9.	Rated design capacity (heat input, MMBtu/hr rating for turbines)	
10.	If used for power generation, electrical output (kW)	2,250 kWe

1. See page 2 of the Form B instructions regarding installation/construction date and consult regulations under 40 C.F.R. 60 (NSPS) and 40 C.F.R. 63 (NESHAP) for applicability dates, e.g.,
- NSPS Subparts IIII and JJJJ, and NESHAP Subpart ZZZZ for engines, and
- NSPS Subparts GG and KKKK, and NESHAP Subpart YYYY for turbines.
Note that other regulations may apply in addition to the regulations cited.

11. Fuel usage: [for EACH fuel, enter]:

Fuel	Maximum hourly firing rate (specify units)
Diesel	150 gal/hr

12.	Describe any specific modifications to the emission unit that must be addressed in the permit: N/A

Applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Applicable Requirements*):

Permit and Condition Number	Applicable Requirement Citation[1]	Parameter/ Pollutant	Limit/Standard/ Requirement	Currently in Compliance?	Monitoring, Recordkeeping and Reporting Methods Used to Demonstrate Compliance
AQ0079TVP04, Condition 1	18 AAC 50.055(a)(1)	Visible emissions	20%	Yes	Permit AQ0079TVP04, Conditions 2-4
AQ0079TVP04, Condition 5	18 AAC 50.055(b)(1)	Particulate matter	0.05 gr/scf	Yes	Permit AQ0079TVP04, Conditions 6-8
AQ0079TVP04, Condition 9	18 AAC 50.055(c)	Sulfur compound emissions	500 ppm	Yes	Permit AQ0079TVP04, Condition 11
AQ0079TVP04, Conditions 10 and 12	N/A	Operating Limit/NOx Limit	11,200 hr/yr, combined	Yes	Permit AQ0079TVP04, Conditions 10.1-10.3
AQ0079TVP04, Condition 11	N/A	Fuel sulfur limit	0.24 wt%	Yes	Permit AQ0079TVP04, Conditions 11.1-11.4
AQ0079TVP04, Conditions 16-18	40 CFR 63 Subpart ZZZZ, specifically: 40 CFR 63.6603(a); 63.6604; 63.6605(a) and (b); 63.6625(e)(3), (f), (h), and (i)	Management practices, etc.	Requirements applicable to emergency engines located at an area source.	Yes	Permit AQ0079TVP04, Conditions 19-21

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

Non-applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Permit Shield Request*):

Non-Applicable Requirements[1]	Reason for non-applicability and citation/basis

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

FORM B2

Emission Unit Detail Form - Internal Combustion Equipment (Engines and Turbines)

Permit Number: AQ0079TVP04

1.	Emission Unit ID Number // Operating Scenario	EU 12
2.	Date installation/construction commenced[1]	2005
3.	Date installed	2005
4.	Emission Unit serial number	39-GEN-4605R
5.	Special control requirements? [if yes, describe]	No
6.	Manufacturer and model number	John Deere 4045
7.	Type of combustion device	Compression Ignition Engine
8.	Rated design capacity (horsepower rating for engines)	
9.	Rated design capacity (heat input, MMBtu/hr rating for turbines)	
10.	If used for power generation, electrical output (kW)	65 kWe

1. See page 2 of the Form B instructions regarding installation/construction date and consult regulations under 40 C.F.R. 60 (NSPS) and 40 C.F.R. 63 (NESHAP) for applicability dates, e.g.,
- NSPS Subparts IIII and JJJJ, and NESHAP Subpart ZZZZ for engines, and
- NSPS Subparts GG and KKKK, and NESHAP Subpart YYYY for turbines.
Note that other regulations may apply in addition to the regulations cited.

11. Fuel usage: [for EACH fuel, enter]:

Fuel	Maximum hourly firing rate (specify units)
Diesel	4.3 gal/hr

12.	Describe any specific modifications to the emission unit that must be addressed in the permit: N/A

Applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Applicable Requirements*):

Permit and Condition Number	Applicable Requirement Citation[1]	Parameter/ Pollutant	Limit/Standard/ Requirement	Currently in Compliance?	Monitoring, Recordkeeping and Reporting Methods Used to Demonstrate Compliance
AQ0079TVP04, Condition 1	18 AAC 50.055(a)(1)	Visible emissions	20%	Yes	Permit AQ0079TVP04, Conditions 2-4
AQ0079TVP04, Condition 5	18 AAC 50.055(b)(1)	Particulate matter	0.05 gr/scf	Yes	Permit AQ0079TVP04, Conditions 5-8
AQ0079TVP04, Condition 9	18 AAC 50.055(c)	Sulfur compound emissions	500 ppm	Yes	Permit AQ0079TVP04, Condition 9
AQ0079TVP04, Conditions 9 and 11	N/A	Operating Limit	300 hr/yr	Yes	Permit AQ0079TVP04, Condition 10
AQ0079TVP04, Condition 10	N/A	Fuel sulfur limit	0.24 wt%	Yes	Permit AQ0079TVP04, Condition 11
AQ0079TVP04, Condition 12	N/A	NOx Limit	300 hr/yr	Yes	Permit AQ0079TVP04, Condition 12
AQ0079TVP04, Condition 15	40 CFR 63 Subpart A	General Provisions	NESHAP Subpart A	Yes	40 CFR 63 Subpart A and 40 CFR 63 Subpart ZZZZ Table 8, as applicable.

FORM B2

Emission Unit Detail Form - Internal Combustion Equipment (Engines and Turbines)

Permit and Condition Number	Applicable Requirement Citation[1]	Parameter/ Pollutant	Limit/Standard/ Requirement	Currently in Compliance?	Monitoring, Recordkeeping and Reporting Methods Used to Demonstrate Compliance
AQ0079TVP04, Conditions 16-21	40 CFR 63 Subpart ZZZZ, specifically: 40 CFR 63.6603(a); 63.6604; 63.6605(a) and (b); 63.6625(e)(3), (f), (h), and (i)	Management practices, etc.	Requirements applicable to emergency engines located at an area source.	Yes	Permit AQ0079TVP04, Conditions 16-21
New conditions	40 CFR 63 Subpart ZZZZ, specifically: 40 CFR 63.6603(a); 63.6604; 63.6605(a) and (b); 63.6625(e)(4), (h), and (i)	Management practices, etc.	Requirements applicable to non-emergency CI engines located at an area source.	NA	MR&R as required by Subpart ZZZZ. Deletion of EU 12 as emergency from Conditions 18.1, 18.3, 19, 20.2, and 21.1. Add 63.6603(a) and Table 2d, Item 1 maintenances practices for non-emergency engines under condition 18 for EU 12.

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

Non-applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Permit Shield Request*):

Non-Applicable Requirements[1]	Reason for non-applicability and citation/basis

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

Form B3
Emission Unit Detail Form – Incinerators

FORM B3
Emission Unit Detail Form - Incinerators

Permit Number: AQ0079TVP04

1.	Emission Unit ID Number // Operating Scenario	N/A - IEU
2.	Date installation/construction commenced[1]	N/A
3.	Date installed	N/A
4.	Emission Unit serial number	100A
5.	Special control requirements? [if yes, describe]	No
6.	Manufacturer	Spill Shield International
7.	Waste classification	Industrial
8.	Type of incinerator	Smart Ash cyclonic burn barrel
9.	Charge information:	
	batch or continuous	Batch
	charge method	Manual
	charge measurement method	Manual
10.	Primary combustion chamber information:	
	temperature (°F)	N/A
	rated heat input (MMBtu/hr)	N/A
	type/grade fuel(s)	Non-hazardous waste
11.	Secondary combustion chamber information:	
	temperature (°F)	N/A
	gas residency time [attach calculations]	N/A
	rated heat input (MMBtu/hr)	N/A
	type/grade fuel(s)	N/A
12.	Automatically controlled auxiliary burners?	No
13.	Interlock system to control charging?	No
14.	Air lock system?	No
15.	Waste heat boiler?	No
16.	Maximum flue gas outlet temperature (°F)	N/A
17.	Rated capacity (tons material/day)	50 lb/hr
18.	Emergency bypass stack?	No
19.	Incinerator design efficiency (%) [attach calculations]	N/A

[1] See page 2 of the Form B instructions regarding installation/construction date and consult regulations under 40 C.F.R. 60 (NSPS) and 40 C.F.R. 63 (NESHAP) for applicability dates.

20. Incinerated materials:

Material	Origin of material	Weight percentage (%)	Heating value (Btu/lb)
Industrial non-hazardous waste	PS 9	100	N/A

21. Attach diagram.

22. Attach energy balance equations for the materials incinerated.

FORM B3

Emission Unit Detail Form - Incinerators

Applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Applicable Requirements*):

Permit and Condition Number	Applicable Requirement Citation[1]	Parameter/ Pollutant	Limit/Standard/ Requirement	Currently in Compliance?	Monitoring, Recordkeeping and Reporting Methods Used to Demonstrate Compliance
N/A	18 AAC 50.050(a)	Visible emissions	20%	Yes	N/A. Insignificant EU. Compliance based on reasonable inquiry.

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

Non-applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Permit Shield Request*):

Non-Applicable Requirements[1]	Reason for non-applicability and citation/basis

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

Form B4
Emission Unit Detail Form – Volatile Liquid Storage Tanks

FORM B4
Emission Unit Detail Form – Volatile Liquid Storage Tanks

Permit Number: AQ0079TVP04

1.	Emission Unit ID Number // Operating Scenario	EU 13
2.	Date installation/construction commenced	1975
3.	Date installed	1975
4.	Special control requirements? [if yes, describe]	No
5.	Rated capacity (gallons)	2,310,000 (55,000 bbl)
6.	Tank height (ft)	32
7.	Tank diameter (ft)	116
8.	Tank age (years)	38
9.	Submerged fill pipe?	yes
10.	Type of tank (specify)	fixed roof
11.	Underground?	no
	If underground, specify type of tube and vapor return.	
12.	Above ground vapor control information:	
	Pipe material	
	Pipe size	
	Piping drainage (continuous drain downward or condensate collection tank – if condensate collection, attach a description)	
	Isolation valve installed in piping?	
13.	Pressure vacuum relief valves:	
	Vent pressure settings (psia)	0.06
	Months in which relief valves removed (specify)	N/A
14.	Pressure conservation vent? [if yes, specify pressure setting – psia]	No
15.	Fixed roof tanks:	
	Roof color	White
	Shell color	Green
	Average vapor space height (ft)	22
	Shell condition (specify)	Good

	Emission Unit ID Number	13
16	Floating roof tanks:	
	Type of construction (specify)	
	Condition (specify)	
	Tank color	
	Deck type (specify)	
17.	External floating roof tanks, seal type (specify)	
18.	Internal floating roof tanks:	
	Seal type (specify)	
	Number of columns	
	Effective column diameter (ft)	
	Total deck seam length (ft)	
	Deck fitting types – access hatch	
	bolted cover, gasketed	
	unbolted cover, gasketed	
	unbolted cover, ungasketed	
	Deck fitting types - Automatic gauge float well	
	bolted cover, gasketed	
	unbolted cover, gasketed	
	unbolted cover, ungasketed	
	Deck fitting types – column well	
	Built up column – sliding cover, gasketed	
	Built up column – sliding cover, ungasketed	
	Pipe column – flexible fabric sleeve seal	
	Pipe column – – sliding cover, gasketed	
	Pipe column – – sliding cover, ungasketed	
	Deck fitting types – ladder well	
	sliding cover, gasketed	
	sliding cover, ungasketed	

	Emission Unit ID Number	
	Deck fitting types – smple well or pipe	
	Slotted pipe – sliding cover, gasketed	
	Slotted pipe – sliding cover, ungasketed	
	Sample well – slit fabric seal, 10% open area	
	Stub drain – 1-inch diameter	
	Deck fitting type – roof leg or hanger will	
	Adjustable	
	fixed	
	Deck fitting type – vacuum breaker	
	Weighted mechanical actuation, gasketed	
	Weighted mechanical actuation, ungasketed	
19.	Maximum liquid loading rate (gal/hr)	1,000,000
20.	Submerged fill at out-loading (describe)	
21.	Material(s) stored	
	Type of material	Crude Oil
	Normal annual throughput (gal/yr)	21,000,000
	Normal turnovers per year	9
	Density (lbs/gal)	7
	Molecular weight	203
	Average storage temperature (°F)	57
	Vapor pressure (psi)	4.3

FORM B4

Emission Unit Detail Form – Volatile Liquid Storage Tanks

Applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Applicable Requirements*):

Permit and Condition Number	Applicable Requirement Citation[1]	Parameter/ Pollutant	Limit/Standard/ Requirement	Currently in Compliance?	Monitoring, Recordkeeping and Reporting Methods Used to Demonstrate Compliance
AQ0079TVP04, Condition 13	N/A	Single HAP/ Combined HAPs	8.5/17.8 tpy	Yes	AQ0079TVP04, Condition 13.1-13.2

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

Non-applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Permit Shield Request*):

Non-Applicable Requirements[1]	Reason for non-applicability and citation/basis

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

Form Series D

Forms D1 and D2
(Spreadsheets Containing Required Information)

Emissions Summary
Pump Station 9

Emissions Unit Type	Emissions (tons per year)						
	NO_X	CO	PM_{10}	VOC	SO_2	CO_2e	HAP
Potential Emissions (w/ Controls and Limitations)							
Significant	397	12.5	3.1	411	27.7	19,677	8.5
Insignificant	4.0	1.5	0.7	0.1	6.4	4,226	0.05
Subtotals	401	14	3.8	411	34	23,902	8.6
Unrestricted Emissions (w/o Controls and Limitations)							
Significant	621	19.4	4.9	820	43.3	30,685	16.3
Insignificant	4.0	1.5	0.7	0.1	6.4	4,204	0.05
Subtotals	625	21	5.6	820	50	34,889	16.3
Expected Actual Emissions							
Significant	2.33	0.08	0.024	27	0.07	116.0	0.8
Insignificant	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Subtotals	2.33	0.08	0.024	27	0.07	116.0	0.8

Notes:

1. Criteria air pollutant calculations based on AP-42 emission factors, manufacturer's data, and mass balances, as shown in accompanying spreadsheets.
2. HAP emissions calculations as shown in following spreadsheets. Note that Tank 190 HAP potential emissions included directly above are based on the limit of 8.5 tpy (single HAP) under AQC Permit AQ0079CPT03. N-hexane is the highest emitted HAP.

Emissions Unit Inventory
Pump Station 9

EU No.	Tag No.	Emitting Unit	Fuel	Rating	Insignificant Emissions Unit?
10	39-GEN-3801R	Caterpillar 3516B Engine Generator	Dsl	2,250 kWe	No
11	39-GEN-3810R	Caterpillar 3516B Engine Generator	Dsl	2,250 kWe	No
12	39-GEN-4605R	John Deere Engine Generator	Dsl	65 kWe	No
13	TK-190	Breakout Tank 190	N/A	55,000 bbl	No
N/A	N/A	Aerotec Heater	Dsl	0.40 MMBtu/hr	Yes - 18 AAC 50.326(g)(7)
N/A	N/A	Renzor Heater	Dsl	0.23 MMBtu/hr	Yes - 18 AAC 50.326(g)(7)
N/A	N/A	Renzor Heater	Dsl	0.23 MMBtu/hr	Yes - 18 AAC 50.326(g)(7)
N/A	N/A	Tioga Heater	Dsl	0.60 MMBtu/hr	Yes - 18 AAC 50.326(g)(7)
N/A	N/A	Tioga Heater	Dsl	0.60 MMBtu/hr	Yes - 18 AAC 50.326(g)(7)
N/A	N/A	Tioga Heater	Dsl	0.60 MMBtu/hr	Yes - 18 AAC 50.326(g)(7)
N/A	N/A	Tioga Heater	Dsl	0.60 MMBtu/hr	Yes - 18 AAC 50.326(g)(7)
N/A	N/A	Tioga Heater	Dsl	0.60 MMBtu/hr	Yes - 18 AAC 50.326(g)(7)
N/A	N/A	Tioga Heater	Dsl	0.60 MMBtu/hr	Yes - 18 AAC 50.326(g)(7)
N/A	N/A	Powrmatic Heater	Dsl	0.23 MMBtu/hr	Yes - 18 AAC 50.326(g)(7)
N/A	N/A	Powrmatic Heater	Dsl	0.23 MMBtu/hr	Yes - 18 AAC 50.326(g)(7)
N/A	N/A	Powrmatic Heater	Dsl	0.38 MMBtu/hr	Yes - 18 AAC 50.326(g)(7)
N/A	N/A	Powrmatic Heater	Dsl	0.38 MMBtu/hr	Yes - 18 AAC 50.326(g)(7)
N/A	N/A	Smart Ash Burn Barrel	Waste	50 lb/hr	Yes - 18 AAC 50.326(e)

Note: EU 14 has been permanently decommissioned.

Emissions Calculations - NO_X
Pump Station 9

Emitting Unit	Factor Reference	NO_X Emission Factor	Equipment Rating	Allowable Fuel Use/ Operation	Potential Emissions (w/ Limits)	Unrestricted Emissions (w/o Limits)	Actual Emissions (CY 2018)
Caterpillar 3516B Engine Generator	Manufacturer's Data	70.8 lb/hr	2,250 kW	11,200 hr/yr	396.5 tpy	620.2 tpy	2.3 tpy
Caterpillar 3516B Engine Generator	Manufacturer's Data	70.8 lb/hr	2,250 kW	Combined Limit	Combined	Combined	Combined
John Deere Engine Generator	Tier 2 Standard	9.2 g/kW-hr	65 kW	300 hr/yr	0.2 tpy	0.3 tpy	0.03 tpy
Breakout Tank 190	N/A	N/A	55,000 bbl	N/A	N/A	N/A	N/A
Aerotec Heater	AP-42 Table 1.3-1	20 lb/Mgal	0.40 MMBtu/hr	26,164 gal/yr	0.26 tpy	0.26 tpy	N/A
Renzor Heater	AP-42 Table 1.3-1	20 lb/Mgal	0.23 MMBtu/hr	15,044 gal/yr	0.15 tpy	0.15 tpy	N/A
Renzor Heater	AP-42 Table 1.3-1	20 lb/Mgal	0.23 MMBtu/hr	15,044 gal/yr	0.15 tpy	0.15 tpy	N/A
Tioga Heater	AP-42 Table 1.3-1	20 lb/Mgal	0.60 MMBtu/hr	39,246 gal/yr	0.39 tpy	0.39 tpy	N/A
Tioga Heater	AP-42 Table 1.3-1	20 lb/Mgal	0.60 MMBtu/hr	39,246 gal/yr	0.39 tpy	0.39 tpy	N/A
Tioga Heater	AP-42 Table 1.3-1	20 lb/Mgal	0.60 MMBtu/hr	39,246 gal/yr	0.39 tpy	0.39 tpy	N/A
Tioga Heater	AP-42 Table 1.3-1	20 lb/Mgal	0.60 MMBtu/hr	39,246 gal/yr	0.39 tpy	0.39 tpy	N/A
Tioga Heater	AP-42 Table 1.3-1	20 lb/Mgal	0.60 MMBtu/hr	39,246 gal/yr	0.39 tpy	0.39 tpy	N/A
Tioga Heater	AP-42 Table 1.3-1	20 lb/Mgal	0.60 MMBtu/hr	39,246 gal/yr	0.39 tpy	0.39 tpy	N/A
Powrmatic Heater	AP-42 Table 1.3-1	20 lb/Mgal	0.23 MMBtu/hr	15,044 gal/yr	0.15 tpy	0.15 tpy	N/A
Powrmatic Heater	AP-42 Table 1.3-1	20 lb/Mgal	0.23 MMBtu/hr	15,044 gal/yr	0.15 tpy	0.15 tpy	N/A
Powrmatic Heater	AP-42 Table 1.3-1	20 lb/Mgal	0.38 MMBtu/hr	24,529 gal/yr	0.25 tpy	0.25 tpy	N/A
Powrmatic Heater	AP-42 Table 1.3-1	20 lb/Mgal	0.38 MMBtu/hr	24,529 gal/yr	0.25 tpy	0.25 tpy	N/A
Smart Ash Burn Barrel	AP-42 Table 2.1-12	3 lb/ton	50 lb/hr	8,760 hr/yr	0.33 tpy	0.33 tpy	N/A
				Total Emissions - NO_X	401 tpy	625 tpy	2.3 tpy

Notes:

1. Maximum fuel use rates for all units based on maunufacturer's fuel or heat input rates, and permit operating limits where applicable.
2. Diesel fuel heating value: 133,925 Btu/gal (HHV)
3. The NOx emission rates for the Cat 3516B engines based on manufacturer's data (as corrected) and permitted total NOx of 396.5 tpy. See Section 2.2.1 of PS 9 Strategic Reconfiguration Construction Permit Application (September 2004) for additional details.
4. Emissions without limitations are based on 8,760 hr/yr, except that for EU ID 12, emissions are based on 500 hr/yr per EPA guidance for emergency generators, and for EU ID 14, emissions are based on 336 hr/yr, consistent with the expected maximum operation under an emergency cold restart of TAPS.

Emissions Calculations - CO
Pump Station 9

Emitting Unit	Factor Reference	CO Emission Factor	Equipment Rating	Allowable Fuel Use/ Operation	Potential Emissions (w/ Limits)	Unrestricted Emissions (w/o Limits)	Actual Emissions (CY 2018)
Caterpillar 3516B Engine Generator	Manufacturer's Data	2.22 lb/hr	2,250 kW	11,200 hr/yr	12.4 tpy	19.4 tpy	0.07 tpy
Caterpillar 3516B Engine Generator	Manufacturer's Data	2.22 lb/hr	2,250 kW	Combined Limit	Combined	Combined	Combined
John Deere Engine Generator	Tier 2 Standard	5 g/kW-hr	65 kW	300 hr/yr	0.11 tpy	0.2 tpy	0.01 tpy
Breakout Tank 190	N/A	N/A	55,000 bbl	N/A	N/A	N/A	N/A
Aerotec Heater	AP-42 Table 1.3-1	5 lb/Mgal	0.40 MMBtu/hr	26,164 gal/yr	0.07 tpy	0.07 tpy	N/A
Renzor Heater	AP-42 Table 1.3-1	5 lb/Mgal	0.23 MMBtu/hr	15,044 gal/yr	0.04 tpy	0.04 tpy	N/A
Renzor Heater	AP-42 Table 1.3-1	5 lb/Mgal	0.23 MMBtu/hr	15,044 gal/yr	0.04 tpy	0.04 tpy	N/A
Tioga Heater	AP-42 Table 1.3-1	5 lb/Mgal	0.60 MMBtu/hr	39,246 gal/yr	0.10 tpy	0.10 tpy	N/A
Tioga Heater	AP-42 Table 1.3-1	5 lb/Mgal	0.60 MMBtu/hr	39,246 gal/yr	0.10 tpy	0.10 tpy	N/A
Tioga Heater	AP-42 Table 1.3-1	5 lb/Mgal	0.60 MMBtu/hr	39,246 gal/yr	0.10 tpy	0.10 tpy	N/A
Tioga Heater	AP-42 Table 1.3-1	5 lb/Mgal	0.60 MMBtu/hr	39,246 gal/yr	0.10 tpy	0.10 tpy	N/A
Tioga Heater	AP-42 Table 1.3-1	5 lb/Mgal	0.60 MMBtu/hr	39,246 gal/yr	0.10 tpy	0.10 tpy	N/A
Tioga Heater	AP-42 Table 1.3-1	5 lb/Mgal	0.60 MMBtu/hr	39,246 gal/yr	0.10 tpy	0.10 tpy	N/A
Powrmatic Heater	AP-42 Table 1.3-1	5 lb/Mgal	0.23 MMBtu/hr	15,044 gal/yr	0.04 tpy	0.04 tpy	N/A
Powrmatic Heater	AP-42 Table 1.3-1	5 lb/Mgal	0.23 MMBtu/hr	15,044 gal/yr	0.04 tpy	0.04 tpy	N/A
Powrmatic Heater	AP-42 Table 1.3-1	5 lb/Mgal	0.38 MMBtu/hr	24,529 gal/yr	0.06 tpy	0.06 tpy	N/A
Powrmatic Heater	AP-42 Table 1.3-1	5 lb/Mgal	0.38 MMBtu/hr	24,529 gal/yr	0.06 tpy	0.06 tpy	N/A
Smart Ash Burn Barrel	Manufacturer's Data	0.132 lb/hr	50 lb/hr	8,760 hr/yr	0.58 tpy	0.58 tpy	N/A
				Total Emissions - CO	14.0 tpy	21.1 tpy	0.08 tpy

Notes:

1. Maximum fuel use rates for all units based on maunufacturer's fuel or heat input rates, and permit operating limits where applicable.
2. Diesel fuel heating value: 133,925 Btu/gal (HHV)
3. Emissions without limitations are based on 8,760 hr/yr, except that for EU ID 12, emissions are based on 500 hr/yr per EPA guidance for emergency generators, and for EU ID 14, emissions are based on 336 hr/yr, consistent with the expected maximum operation under an emergency cold restart of TAPS.

Emissions Calculations - PM_{10}
Pump Station 9

Emitting Unit	Factor Reference	PM_{10} Emission Factor	Equipment Rating	Allowable Fuel Use/ Operation	Potential Emissions (w/ Limits)	Unrestricted Emissions (w/o Limits)	Actual Emissions (CY 2018)
Caterpillar 3516B Engine Generator	Manufacturer's Data	0.55 lb/hr	2,250 kW	11,200 hr/yr	3.1 tpy	4.8 tpy	0.02 tpy
Caterpillar 3516B Engine Generator	Manufacturer's Data	0.55 lb/hr	2,250 kW	Combined Limit	Combined	Combined	Combined
John Deere Engine Generator	AP-42 Table 3.3-1	0.0022 lb/hp-hr	65 kW	300 hr/yr	0.03 tpy	0.05 tpy	0.004 tpy
Breakout Tank 190	N/A	N/A	55,000 bbl	N/A	N/A	N/A	N/A
Aerotec Heater	AP-42 Table 1.3-1	2 lb/Mgal	0.40 MMBtu/hr	26,164 gal/yr	0.03 tpy	0.03 tpy	N/A
Renzor Heater	AP-42 Table 1.3-1	2 lb/Mgal	0.23 MMBtu/hr	15,044 gal/yr	0.02 tpy	0.02 tpy	N/A
Renzor Heater	AP-42 Table 1.3-1	2 lb/Mgal	0.23 MMBtu/hr	15,044 gal/yr	0.02 tpy	0.02 tpy	N/A
Tioga Heater	AP-42 Table 1.3-1	2 lb/Mgal	0.60 MMBtu/hr	39,246 gal/yr	0.04 tpy	0.04 tpy	N/A
Tioga Heater	AP-42 Table 1.3-1	2 lb/Mgal	0.60 MMBtu/hr	39,246 gal/yr	0.04 tpy	0.04 tpy	N/A
Tioga Heater	AP-42 Table 1.3-1	2 lb/Mgal	0.60 MMBtu/hr	39,246 gal/yr	0.04 tpy	0.04 tpy	N/A
Tioga Heater	AP-42 Table 1.3-1	2 lb/Mgal	0.60 MMBtu/hr	39,246 gal/yr	0.04 tpy	0.04 tpy	N/A
Tioga Heater	AP-42 Table 1.3-1	2 lb/Mgal	0.60 MMBtu/hr	39,246 gal/yr	0.04 tpy	0.04 tpy	N/A
Tioga Heater	AP-42 Table 1.3-1	2 lb/Mgal	0.60 MMBtu/hr	39,246 gal/yr	0.04 tpy	0.04 tpy	N/A
Powrmatic Heater	AP-42 Table 1.3-1	2 lb/Mgal	0.23 MMBtu/hr	15,044 gal/yr	0.02 tpy	0.02 tpy	N/A
Powrmatic Heater	AP-42 Table 1.3-1	2 lb/Mgal	0.23 MMBtu/hr	15,044 gal/yr	0.02 tpy	0.02 tpy	N/A
Powrmatic Heater	AP-42 Table 1.3-1	2 lb/Mgal	0.38 MMBtu/hr	24,529 gal/yr	0.02 tpy	0.02 tpy	N/A
Powrmatic Heater	AP-42 Table 1.3-1	2 lb/Mgal	0.38 MMBtu/hr	24,529 gal/yr	0.02 tpy	0.02 tpy	N/A
Smart Ash Burn Barrel	Manufacturer's Data	0.08 lb/hr	50 lb/hr	8,760 hr/yr	0.35 tpy	0.35 tpy	N/A
				Total Emissions - PM_{10}	3.8 tpy	5.6 tpy	0.02 tpy

Notes:

1. Maximum fuel use rates for all units based on maunufacturer's fuel or heat input rates, and permit operating limits where applicable.
2. Diesel fuel heating value: 133,925 Btu/gal (HHV)
3. Emissions without limitations are based on 8,760 hr/yr, except that for EU ID 12, emissions are based on 500 hr/yr per EPA guidance for emergency generators, and for EU ID 14, emissions are based on 336 hr/yr, consistent with the expected maximum operation under an emergency cold restart of TAPS.

Emissions Calculations - VOC
Pump Station 9

Emitting Unit	Factor Reference	VOC Emission Factor	Equipment Rating	Allowable Fuel Use/ Operation	Potential Emissions (w/ Limits)	Unrestricted Emissions (w/o Limits)	Actual Emissions (CY 2018)
Caterpillar 3516B Engine Generator	Manufacturer's Data	0.96 lb/hr	2,250 kW	11,200 hr/yr	5.4 tpy	8.4 tpy	0.03 tpy
Caterpillar 3516B Engine Generator	Manufacturer's Data	0.96 lb/hr	2,250 kW	Combined Limit	Combined	Combined	Combined
John Deere Engine Generator	AP-42 Table 3.3-1	0.00247 lb/hp-hr	65 kW	300 hr/yr	0.03 tpy	0.05 tpy	0.004 tpy
Breakout Tank 190	TANKS 4.0	N/A	55,000 bbl	N/A	406 tpy	812 tpy	27.4 tpy
Aerotec Heater	AP-42 Table 1.3-2	0.34 lb/Mgal	0.40 MMBtu/hr	26,164 gal/yr	0.004 tpy	0.004 tpy	N/A
Renzor Heater	AP-42 Table 1.3-2	0.34 lb/Mgal	0.23 MMBtu/hr	15,044 gal/yr	0.003 tpy	0.003 tpy	N/A
Renzor Heater	AP-42 Table 1.3-2	0.34 lb/Mgal	0.23 MMBtu/hr	15,044 gal/yr	0.003 tpy	0.003 tpy	N/A
Tioga Heater	AP-42 Table 1.3-2	0.34 lb/Mgal	0.60 MMBtu/hr	39,246 gal/yr	0.01 tpy	0.01 tpy	N/A
Tioga Heater	AP-42 Table 1.3-2	0.34 lb/Mgal	0.60 MMBtu/hr	39,246 gal/yr	0.01 tpy	0.01 tpy	N/A
Tioga Heater	AP-42 Table 1.3-2	0.34 lb/Mgal	0.60 MMBtu/hr	39,246 gal/yr	0.01 tpy	0.01 tpy	N/A
Tioga Heater	AP-42 Table 1.3-2	0.34 lb/Mgal	0.60 MMBtu/hr	39,246 gal/yr	0.01 tpy	0.01 tpy	N/A
Tioga Heater	AP-42 Table 1.3-2	0.34 lb/Mgal	0.60 MMBtu/hr	39,246 gal/yr	0.01 tpy	0.01 tpy	N/A
Tioga Heater	AP-42 Table 1.3-2	0.34 lb/Mgal	0.60 MMBtu/hr	39,246 gal/yr	0.01 tpy	0.01 tpy	N/A
Powrmatic Heater	AP-42 Table 1.3-2	0.34 lb/Mgal	0.23 MMBtu/hr	15,044 gal/yr	0.003 tpy	0.003 tpy	N/A
Powrmatic Heater	AP-42 Table 1.3-2	0.34 lb/Mgal	0.23 MMBtu/hr	15,044 gal/yr	0.003 tpy	0.003 tpy	N/A
Powrmatic Heater	AP-42 Table 1.3-2	0.34 lb/Mgal	0.38 MMBtu/hr	24,529 gal/yr	0.004 tpy	0.004 tpy	N/A
Powrmatic Heater	AP-42 Table 1.3-2	0.34 lb/Mgal	0.38 MMBtu/hr	24,529 gal/yr	0.004 tpy	0.004 tpy	N/A
Smart Ash Burn Barrel	Manufacturer's Data	0.0025 lb/hr	50 lb/hr	8,760 hr/yr	0.01 tpy	0.01 tpy	N/A
				Total Emissions - VOC	411 tpy	820 tpy	27.4 tpy

Notes:

1. Maximum fuel use rates for all units based on maunufacturer's fuel or heat input rates, and permit operating limits where applicable.
2. Diesel fuel heating value: 133,925 Btu/gal (HHV)
3. Potential VOC emissions from Tank 190 calculated using TANKS program, based on expected maximum throughput under HAP ORL. See HAP calculations for additional information. Emissions w/o limit estimated at 2X emissions w/ limit.
4. Emissions without limitations are based on 8,760 hr/yr, except that for EU ID 12, emissions are based on 500 hr/yr per EPA guidance for emergency generators, and for EU ID 14, emissions are based on 336 hr/yr, consistent with the expected maximum operation under an emergency cold restart of TAPS.

Emissions Calculations - SO_2
Pump Station 9

Emitting Unit	Factor Reference	SO_2 Emission Factor	Equipment Rating	Allowable Fuel Use/ Operation	Potential Emissions (w/ Limits)	Unrestricted Emissions (w/o Limits)	Actual Emissions (CY 2018)
Caterpillar 3516B Engine Generator	Mass Balance	0.24 wt%	2,250 kW	1,677,363 gal/yr	27.7 tpy	43.3 tpy	0.06 tpy
Caterpillar 3516B Engine Generator	Mass Balance	0.24 wt%	2,250 kW	Combined	Combined	Combined	Combined
John Deere Engine Generator	Mass Balance	0.24 wt%	65 kW	1,367 gal/yr	0.02 tpy	0.04 tpy	0.01 tpy
Breakout Tank 190	N/A	N/A	55,000 bbl	N/A	N/A	N/A	N/A
Aerotec Heater	Mass Balance	0.24 wt%	0.40 MMBtu/hr	26,164 gal/yr	0.43 tpy	0.43 tpy	N/A
Renzor Heater	Mass Balance	0.24 wt%	0.23 MMBtu/hr	15,044 gal/yr	0.25 tpy	0.25 tpy	N/A
Renzor Heater	Mass Balance	0.24 wt%	0.23 MMBtu/hr	15,044 gal/yr	0.25 tpy	0.25 tpy	N/A
Tioga Heater	Mass Balance	0.24 wt%	0.60 MMBtu/hr	39,246 gal/yr	0.65 tpy	0.65 tpy	N/A
Tioga Heater	Mass Balance	0.24 wt%	0.60 MMBtu/hr	39,246 gal/yr	0.65 tpy	0.65 tpy	N/A
Tioga Heater	Mass Balance	0.24 wt%	0.60 MMBtu/hr	39,246 gal/yr	0.65 tpy	0.65 tpy	N/A
Tioga Heater	Mass Balance	0.24 wt%	0.60 MMBtu/hr	39,246 gal/yr	0.65 tpy	0.65 tpy	N/A
Tioga Heater	Mass Balance	0.24 wt%	0.60 MMBtu/hr	39,246 gal/yr	0.65 tpy	0.65 tpy	N/A
Tioga Heater	Mass Balance	0.24 wt%	0.60 MMBtu/hr	39,246 gal/yr	0.65 tpy	0.65 tpy	N/A
Powrmatic Heater	Mass Balance	0.24 wt%	0.23 MMBtu/hr	15,044 gal/yr	0.25 tpy	0.25 tpy	N/A
Powrmatic Heater	Mass Balance	0.24 wt%	0.23 MMBtu/hr	15,044 gal/yr	0.25 tpy	0.25 tpy	N/A
Powrmatic Heater	Mass Balance	0.24 wt%	0.38 MMBtu/hr	24,529 gal/yr	0.40 tpy	0.40 tpy	N/A
Powrmatic Heater	Mass Balance	0.24 wt%	0.38 MMBtu/hr	24,529 gal/yr	0.40 tpy	0.40 tpy	N/A
Smart Ash Burn Barrel	AP-42 Table 2.1-12	2.5 lb/ton	50 lb/hr	8,760 hr/yr	0.27 tpy	0.27 tpy	N/A
				Total Emissions - SO_2	34.1 tpy	49.7 tpy	0.07 tpy

Notes:

1. Maximum fuel use rates for all units estimated based on maunufacturer's fuel or heat input rates, and permit operating limits where applicable.
2. Diesel fuel heating value: 133,925 Btu/gal (HHV)
3. Diesel engine heat rate: 7,000 Btu/hp-hr
4. Cat 3516B engine heat rate: 8,914 Btu/kW-hr
5. Diesel fuel density: 6.9 lb/gal
6. Cat C-15 booster pump burns only ULSD per Subpart IIII.

Emissions Calculations - CO_2
Pump Station 9

Emitting Unit	Factor Reference	CO_2 Emission Factor	Equipment Rating	Allowable Fuel Use/ Operation	Potential Emissions (w/ Limits)	Unrestricted Emissions (w/o Limits)	Actual Emissions (CY 2018)
Caterpillar 3516B Engine Generator	AP-42 Table 3.4-1	1.16 lb/hp-hr	2,250 kW	11,200 hr/yr	19,600 tpy	30,660 tpy	114 tpy
Caterpillar 3516B Engine Generator	AP-42 Table 3.4-1	1.16 lb/hp-hr	2,250 kW	Combined Limit	Combined	Combined	Combined
John Deere Engine Generator	AP-42 Table 3.3-1	1.15 lb/hp-hr	65 kW	300 hr/yr	15 tpy	25 tpy	2 tpy
Breakout Tank 190	N/A	N/A	55,000 bbl	N/A	N/A	N/A	N/A
Aerotec Heater	AP-42 Table 1.3-12	21,500 lb/1000gal	0.40 MMBtu/hr	26,164 gal/yr	281 tpy	281 tpy	N/A
Renzor Heater	AP-42 Table 1.3-12	21,500 lb/1000gal	0.23 MMBtu/hr	15,044 gal/yr	162 tpy	162 tpy	N/A
Renzor Heater	AP-42 Table 1.3-12	21,500 lb/1000gal	0.23 MMBtu/hr	15,044 gal/yr	162 tpy	162 tpy	N/A
Tioga Heater	AP-42 Table 1.3-12	21,500 lb/1000gal	0.60 MMBtu/hr	39,246 gal/yr	422 tpy	422 tpy	N/A
Tioga Heater	AP-42 Table 1.3-12	21,500 lb/1000gal	0.60 MMBtu/hr	39,246 gal/yr	422 tpy	422 tpy	N/A
Tioga Heater	AP-42 Table 1.3-12	21,500 lb/1000gal	0.60 MMBtu/hr	39,246 gal/yr	422 tpy	422 tpy	N/A
Tioga Heater	AP-42 Table 1.3-12	21,500 lb/1000gal	0.60 MMBtu/hr	39,246 gal/yr	422 tpy	422 tpy	N/A
Tioga Heater	AP-42 Table 1.3-12	21,500 lb/1000gal	0.60 MMBtu/hr	39,246 gal/yr	422 tpy	422 tpy	N/A
Tioga Heater	AP-42 Table 1.3-12	21,500 lb/1000gal	0.60 MMBtu/hr	39,246 gal/yr	422 tpy	422 tpy	N/A
Powrmatic Heater	AP-42 Table 1.3-12	21,500 lb/1000gal	0.23 MMBtu/hr	15,044 gal/yr	162 tpy	162 tpy	N/A
Powrmatic Heater	AP-42 Table 1.3-12	21,500 lb/1000gal	0.23 MMBtu/hr	15,044 gal/yr	162 tpy	162 tpy	N/A
Powrmatic Heater	AP-42 Table 1.3-12	21,500 lb/1000gal	0.38 MMBtu/hr	24,529 gal/yr	264 tpy	264 tpy	N/A
Powrmatic Heater	AP-42 Table 1.3-12	21,500 lb/1000gal	0.38 MMBtu/hr	24,529 gal/yr	264 tpy	264 tpy	N/A
Smart Ash Burn Barrel	AP-42 Table 2.1-7	1,970 lb/ton	50 lb/hr	8,760 hr/yr	216 tpy	216 tpy	N/A
				Total Emissions - CO_2	23,818 tpy	34,888 tpy	116 tpy

Notes:

1. Maximum fuel use rates for all units based on maunufacturer's fuel or heat input rates, and permit operating limits where applicable.
2. Diesel fuel heating value: 133,925 Btu/gal (HHV)
3. Emissions without limitations are based on 8,760 hr/yr, except that for EU ID 12, emissions are based on 500 hr/yr per EPA guidance for emergency generators, and for EU ID 14, emissions are based on 336 hr/yr, consistent with the expected maximum operation under an emergency cold restart of TAPS.

Emissions Calculations - CH_4
Pump Station 9

Emitting Unit	Factor Reference	CH_4 Emission Factor	Equipment Rating	Allowable Fuel Use/ Operation	Potential Emissions (w/ Limits)	Unrestricted Emissions (w/o Limits)	Actual Emissions (CY 2018)
Caterpillar 3516B Engine Generator	40 CFR 98, Table C-2	0.007 lb/MMBTU	2,250 kW	1,677,363 gal/yr	0.7 tpy	1.2 tpy	0.0 tpy
Caterpillar 3516B Engine Generator	40 CFR 98, Table C-2	0.007 lb/MMBTU	2,250 kW	Combined	Combined	Combined	Combined
John Deere Engine Generator	40 CFR 98, Table C-2	0.007 lb/MMBTU	65 kW	1,367 gal/yr	0.0006 tpy	0.001 tpy	0.00004 tpy
Breakout Tank 190	N/A	N/A	55,000 bbl	N/A	N/A	N/A	N/A
Aerotec Heater	40 CFR 98, Table C-2	0.007 lb/MMBTU	0.40 MMBtu/hr	26,164 gal/yr	0.012 tpy	0.012 tpy	N/A
Renzor Heater	40 CFR 98, Table C-2	0.007 lb/MMBTU	0.23 MMBtu/hr	15,044 gal/yr	0.007 tpy	0.007 tpy	N/A
Renzor Heater	40 CFR 98, Table C-2	0.007 lb/MMBTU	0.23 MMBtu/hr	15,044 gal/yr	0.007 tpy	0.007 tpy	N/A
Tioga Heater	40 CFR 98, Table C-2	0.007 lb/MMBTU	0.60 MMBtu/hr	39,246 gal/yr	0.017 tpy	0.017 tpy	N/A
Tioga Heater	40 CFR 98, Table C-2	0.007 lb/MMBTU	0.60 MMBtu/hr	39,246 gal/yr	0.017 tpy	0.017 tpy	N/A
Tioga Heater	40 CFR 98, Table C-2	0.007 lb/MMBTU	0.60 MMBtu/hr	39,246 gal/yr	0.017 tpy	0.017 tpy	N/A
Tioga Heater	40 CFR 98, Table C-2	0.007 lb/MMBTU	0.60 MMBtu/hr	39,246 gal/yr	0.017 tpy	0.017 tpy	N/A
Tioga Heater	40 CFR 98, Table C-2	0.007 lb/MMBTU	0.60 MMBtu/hr	39,246 gal/yr	0.017 tpy	0.017 tpy	N/A
Tioga Heater	40 CFR 98, Table C-2	0.007 lb/MMBTU	0.60 MMBtu/hr	39,246 gal/yr	0.017 tpy	0.017 tpy	N/A
Powrmatic Heater	40 CFR 98, Table C-2	0.007 lb/MMBTU	0.23 MMBtu/hr	15,044 gal/yr	0.007 tpy	0.007 tpy	N/A
Powrmatic Heater	40 CFR 98, Table C-2	0.007 lb/MMBTU	0.23 MMBtu/hr	15,044 gal/yr	0.007 tpy	0.007 tpy	N/A
Powrmatic Heater	40 CFR 98, Table C-2	0.007 lb/MMBTU	0.38 MMBtu/hr	24,529 gal/yr	0.011 tpy	0.011 tpy	N/A
Powrmatic Heater	40 CFR 98, Table C-2	0.007 lb/MMBTU	0.38 MMBtu/hr	24,529 gal/yr	0.011 tpy	0.011 tpy	N/A
Smart Ash Burn Barrel	40 CFR 98, Table C-2	0.070 lb/MMBTU	50 lb/hr	8,760 hr/yr	0.15 tpy	0.15 tpy	N/A
				Total Emissions - CH_4	1.06 tpy	1.48 tpy	0.0000 tpy

Notes:

1. Maximum fuel use rates for all units based on maunufacturer's fuel or heat input rates, and permit operating limits where applicable.
2. Diesel fuel heating value: 133,925 Btu/gal (HHV)
3. Cat 3516B engine heat rate: 8,914 Btu/kW-hr
4. Assume a heat content of 10,000 Btu/lb for waste.

Emissions Calculations - N_2O
Pump Station 9

Emitting Unit	Factor Reference	N_2O Emission Factor	Equipment Rating	Allowable Fuel Use/ Operation	Potential Emissions (w/ Limits)	Unrestricted Emissions (w/o Limits)	Actual Emissions (CY 2018)
Caterpillar 3516B Engine Generator	40 CFR 98, Table C-2	0.0013 lb/MMBTU	2,250 kW	1,677,363 gal/yr	0.15 tpy	0.23 tpy	0.0 tpy
Caterpillar 3516B Engine Generator	40 CFR 98, Table C-2	0.0013 lb/MMBTU	2,250 kW	Combined	Combined	Combined	Combined
John Deere Engine Generator	40 CFR 98, Table C-2	0.0013 lb/MMBTU	65 kW	1,367 gal/yr	0.0001 tpy	0.0002 tpy	0.000008 tpy
Breakout Tank 190	N/A	N/A	55,000 bbl	N/A	N/A	N/A	N/A
Aerotec Heater	40 CFR 98, Table C-2	0.0013 lb/MMBTU	0.40 MMBtu/hr	26,164 gal/yr	0.002 tpy	0.002 tpy	N/A
Renzor Heater	40 CFR 98, Table C-2	0.0013 lb/MMBTU	0.23 MMBtu/hr	15,044 gal/yr	0.001 tpy	0.001 tpy	N/A
Renzor Heater	40 CFR 98, Table C-2	0.0013 lb/MMBTU	0.23 MMBtu/hr	15,044 gal/yr	0.001 tpy	0.001 tpy	N/A
Tioga Heater	40 CFR 98, Table C-2	0.0013 lb/MMBTU	0.60 MMBtu/hr	39,246 gal/yr	0.003 tpy	0.003 tpy	N/A
Tioga Heater	40 CFR 98, Table C-2	0.0013 lb/MMBTU	0.60 MMBtu/hr	39,246 gal/yr	0.003 tpy	0.003 tpy	N/A
Tioga Heater	40 CFR 98, Table C-2	0.0013 lb/MMBTU	0.60 MMBtu/hr	39,246 gal/yr	0.003 tpy	0.003 tpy	N/A
Tioga Heater	40 CFR 98, Table C-2	0.0013 lb/MMBTU	0.60 MMBtu/hr	39,246 gal/yr	0.003 tpy	0.003 tpy	N/A
Tioga Heater	40 CFR 98, Table C-2	0.0013 lb/MMBTU	0.60 MMBtu/hr	39,246 gal/yr	0.003 tpy	0.003 tpy	N/A
Tioga Heater	40 CFR 98, Table C-2	0.0013 lb/MMBTU	0.60 MMBtu/hr	39,246 gal/yr	0.003 tpy	0.003 tpy	N/A
Powrmatic Heater	40 CFR 98, Table C-2	0.0013 lb/MMBTU	0.23 MMBtu/hr	15,044 gal/yr	0.001 tpy	0.001 tpy	N/A
Powrmatic Heater	40 CFR 98, Table C-2	0.0013 lb/MMBTU	0.23 MMBtu/hr	15,044 gal/yr	0.001 tpy	0.001 tpy	N/A
Powrmatic Heater	40 CFR 98, Table C-2	0.0013 lb/MMBTU	0.38 MMBtu/hr	24,529 gal/yr	0.002 tpy	0.002 tpy	N/A
Powrmatic Heater	40 CFR 98, Table C-2	0.0013 lb/MMBTU	0.38 MMBtu/hr	24,529 gal/yr	0.002 tpy	0.002 tpy	N/A
Smart Ash Burn Barrel	40 CFR 98, Table C-2	0.0093 lb/MMBTU	50 lb/hr	8,760 hr/yr	0.02 tpy	0.02 tpy	N/A
				Total Emissions - N_2O	0.20 tpy	0.29 tpy	0.00001 tpy

Notes:

1. Maximum fuel use rates for all units based on maunufacturer's fuel or heat input rates, and permit operating limits where applicable.
2. Diesel fuel heating value: 133,925 Btu/gal (HHV)
3. Cat 3516B engine heat rate: 8,914 Btu/kW-hr
4. Assume a heat content of 10,000 Btu/lb for waste.

Summary of Estimated HAP Emissions
TAPS Pump Station 9

Hazardous Air Pollutant	HAP Emissions by Unit Category (tons per year)				Potential HAP Emissions	Unrestricted HAP Emissions	Actual HAP Emissions
	Breakout Tank	Diesel Engines	Diesel Heaters	Burn Barrel Incinerator			
Acetaldehyde	----	8.09E-02	----	----	8.09E-02	1.27E-01	1.37E-04
Acrolein	----	9.76E-03	----	----	9.76E-03	1.53E-02	1.66E-05
Benzene	1.65E+00	9.85E-02	3.98E-05	----	1.75E+00	3.45E+00	1.65E-01
1,3 Butadiene	----	4.13E-03	----	----	4.13E-03	6.45E-03	7.00E-06
Ethyl Benzene	1.11E-01	----	1.18E-05	----	1.11E-01	2.22E-01	1.11E-02
Formaldehyde	----	1.25E-01	6.13E-03	----	1.31E-01	2.01E-01	8.24E-04
N-Hexane	8.11E+00	----	5.00E-02	----	8.16E+00	1.63E+01	8.16E-01
Hydrochloric Acid	----	----	----	2.35E-01	2.35E-01	2.35E-01	2.35E-02
Isopropylbenzene	1.41E-02	----	----	----	1.41E-02	2.81E-02	1.41E-03
Napthalene	3.05E-02	8.95E-03	2.10E-04	----	3.96E-02	7.52E-02	3.08E-03
1,1,1-Trichloroethane	----	----	4.38E-05	----	4.38E-05	4.38E-05	4.38E-06
2,3,7,8-Tetrachlorodibenzo-p-dioxin	----	----	----	3.22E-07	3.22E-07	3.22E-07	3.22E-08
Toluene	1.32E+00	4.32E-02	1.15E-03	----	1.36E+00	2.71E+00	1.32E-01
Xylenes	4.65E-01	3.01E-02	2.02E-05	----	4.95E-01	9.76E-01	4.65E-02
Polycyclic Organic Matter	----	1.77E-02	6.13E-04	----	1.83E-02	2.83E-02	9.14E-05
Arsenic Compounds	----	----	9.95E-05	7.33E-05	1.73E-04	1.73E-04	1.73E-05
Beryllium Compounds	----	----	7.46E-05	----	7.46E-05	7.46E-05	7.46E-06
Cadmium Compounds	----	----	7.46E-05	2.64E-04	3.39E-04	3.39E-04	3.39E-05
Chromium Compounds	----	----	7.46E-05	3.62E-04	4.37E-04	4.37E-04	4.37E-05
Lead Compounds	----	----	2.24E-04	----	2.24E-04	2.24E-04	2.24E-05
Manganese Compounds	----	----	1.49E-04	----	1.49E-04	1.49E-04	1.49E-05
Mercury Compounds	----	----	7.46E-05	6.13E-04	6.88E-04	6.88E-04	6.88E-05
Nickel Compounds	----	----	7.46E-05	6.04E-04	6.79E-04	6.79E-04	6.79E-05
Selenium Compounds	----	----	3.73E-04	----	3.73E-04	3.73E-04	3.73E-05
Total - Unit Category/Source	**11.7**	**0.42**	**0.06**	**0.24**	**12.4**	**24.3**	**1.2**

Notes:

1. Breakout tank potential HAP emissions are based on a crude breakout flow rate of 3,500,000 bbl/yr. Emissions w/o limit estimated at 2X emissions w/ limit. See HAP tonnage ORLs under AQC Permit AQ0079CPT03 that cap individual and aggregate HAP emissions from this emitting unit.
2. See individual emissions unit category emissions calculations for details on methodology and assumptions.

Estimating Procedure for Determining HAP Content of Crude Breakout Tank Vapors

I. Sample Description/Comments

1. PS 1 discharge stream sample
2. Sample Date: 10/31/02
3. Sample ID: L1-021031-06
4. Core Laboratories data includes crude molecular weight and component wt% values.

II. Determine Component Mole Fractions in Liquid Crude

Methodology Assumptions/Comments:

1. The component mole fraction in crude is determined from component weight fraction and component molecular weight by assuming a mass of 1,000 lb of crude (see AP-42 Section 7.1.5).
2. The component mole fraction in crude is determined from component weight fraction
3. The component molecular weight of Decanes+ is equal to the value required for the sum of all molecular weights to be equal to the Core Laboratories measured crude molecular weight of: 232 lb/lb-mole

Liquid Crude Analysis Data		Calculate Component Mole Fraction in Crude			
Component **i**	Component Weight Fraction in Crude (wt%/100) Z_{Li}	Component Molecular Weight M_i	Total Moles of Crude (sum ZL_i/M_i x 1000) x_T	Component Mole Fraction in Crude ($Z_{Li}/M_i/x_T$) x_i	Crude Molecular Weight (sum $Mi*x_i$) M_T
Methane	0	16	0.0000	0.0000	0.000
Ethane	0.0002	30	0.0067	0.0015	0.046
Propane	0.003	44	0.0680	0.0158	0.696
Isobutane	0.0044	58	0.0757	0.0176	1.021
N-Butane	0.0152	58	0.2615	0.0607	3.529
1,3 Butadiene	0	54	0.0000	0.0000	0.000
Isopentane	0.0088	72	0.1220	0.0283	2.043
N-Pentane	0.0127	72	0.1760	0.0409	2.948
N-Hexane	0.0104	86	0.1206	0.0280	2.414
Hexanes	0.0118	84	0.1405	0.0326	2.739
Benzene	0.0033	78	0.0423	0.0098	0.766
Heptanes	0.0392	97	0.4041	0.0938	9.100
2,2,4 Trimethylpentane	0	114	0.0000	0.0000	0.000
Toluene	0.0084	92	0.0912	0.0212	1.950
Octanes	0.0464	111	0.4180	0.0970	10.771
Ethyl Benzene	0.002	106	0.0188	0.0044	0.464
Xylenes	0.0095	106	0.0896	0.0208	2.205
Isopropylbenzene	0.0005	120	0.0042	0.0010	0.116
Nonanes	0.031	123	0.2520	0.0585	7.196
Naphthalene	0.0016	128	0.0125	0.0029	0.371
Decanes+	0.7916	395	2.0041	0.4652	183.761
SUM Z_{Li} / x_T / x_i / M_T	1.00		4.3078	1.00	232

Note:

1. Molecular weight values for component groups such as octanes are estimates from Core Laboratories.

Estimating Procedure for Determining HAP Content of Crude Breakout Tank Vapors

III. Determine Component Vapor Pressure at Given Crude Temperature

Methodology Assumptions/Comments:

1. Clausius-Clapeyron equation provides relationship between temperature and vapor pressure:

$$\log P_2/P_1 = H_v/2.303R*(T_2-T_1/T_2T_1)$$

where R = Universal Gas Constant = 8.31448 J/g-mole·K = 3.58 Btu/lb-mole·K
Hv = Heat of Vaporization = see table below

2. Let P_1 be known component vapor pressure at known temperature T_1 = 100 F (311 K), and P_2 be unknown component vapor pressure at given crude temperature T_2 (shown below).
3. Let P_1 be known component vapor pressure at known temperature T_1 = 100 F (311 K),
4. PS 9 crude (and vapor) constant temperature (P_2) of: 90 F 305 K
   Based on average crude temperature at PS 9 during peak TAPS throughput flow year 1995.

Component Physical Properties			Component Vapor Pressure at Crude Temperature			
Component i	Component Vapor Pressure at 100F (psia) P_1	Component Heat of Vaporization (Btu/lb-mole) H_v	Component Heat of Vaporization/ Gas Constant $H_v/2.303R$	Calculate $(T_2-T_1)/T_2T_1$	Calculate Inverse Log of $(H_v/2.303R)*(T_2-T_1)/T_2T_1$	Component Vapor Pressure at Crude Temperature (psia) P_2
Methane	5000	3520	426.9	-0.000059	0.944	4720
Ethane	800	6349	770.1	-0.000059	0.901	721
Propane	189	8071	978.9	-0.000059	0.876	165
Isobutane	72.6	9136	1108.2	-0.000059	0.861	62.5
N-Butane	51.7	9642	1169.5	-0.000059	0.854	44.2
1,3 Butadiene	59.5	10025	1215.9	-0.000059	0.849	50.5
Isopentane	20.4	10613	1287.3	-0.000059	0.841	17.2
N-Pentane	15.6	11082	1344.2	-0.000059	0.834	13.0
N-Hexane	4.96	12404	1504.5	-0.000059	0.816	4.05
Hexanes	10	12500	1516.1	-0.000059	0.815	8.15
Benzene	3.22	13215	1602.8	-0.000059	0.806	2.59
Heptanes	3.5	13500	1637.4	-0.000059	0.802	2.81
2,2,4 Trimethylpentane	1.70	14000	1698.1	-0.000059	0.795	1.35
Toluene	1.03	14263	1730.0	-0.000059	0.792	0.82
Octanes	1	14500	1758.7	-0.000059	0.789	0.79
Ethyl Benzene	0.37	15288	1854.3	-0.000059	0.779	0.29
Xylenes	0.33	16000	1940.6	-0.000059	0.770	0.25
Isopropylbenzene	0.19	16136	1957.1	-0.000059	0.768	0.15
Nonanes	0.40	16500	2001.3	-0.000059	0.764	0.31
Naphthalene	0.13	16700	2025.5	-0.000059	0.761	0.10
Decanes+	0.1	47282	5734.7	-0.000059	0.462	0.05

Notes:

1. Heat of Vaporization and vapor pressure of pure components from GPSA Engineering Data Book, Volume II, Section 23.
2. Vapor pressure values for component groups such as octanes are estimates from Core Laboratories.
3. Heat of Vaporization values for component groups are estimates based on values for individual components within the group.

Estimating Procedure for Determining HAP Content of Crude Breakout Tank Vapors

IV. Determine Component Partial Pressure and Mole Fraction in Crude Vapor

Methodology Assumptions/Comments:

1. Conservatively assume C1-C10 hydrocarbons and HAPs are only species present in vapor phase due to dramatic dropoff in component vapor pressue as component molecular weight increases.
2. For speciation purposes, assume crude vapor pressure (P_{VA}) equal to sum of component partial pressures indicated below. This assumption ignores CO_2 present in crude and is conservative because it results in vapor mole fractions of listed components (including HAPs) being overstated.
3. Component partial pressure is equal to the component mole fraction in the liquid crude multiplied by the component vapor pressure at the given crude temperature:
4. Component partial pressure is equal to the component mole fraction in the liquid crude multiplied by

$$P_i = P_2 * x_i$$

5. The component mole fraction in the crude vapor is then equal to the component partial pressure divided by the overall crude vapor pressure:

$$y_i = P_i / P_{VA}$$

	Calculation of Component Partial Pressure and Mole Fraction in Vapor			
Component i	Component Vapor Pressure at Crude Temperature (psia) P_2	Component Mole Fraction in Crude ($Z_{Li}/M_i/x_T$) x_i	Component Partial Pressure at Crude Temperature ($P_2 * x_i$) P_i	Component Mole Fraction in Vapor (P_i/P_{VA}) y_i
Methane	4720	0.0000	0.000	0.0000
Ethane	721	0.0015	1.113	0.1193
Propane	165	0.0158	2.611	0.2798
Isobutane	62.5	0.0176	1.099	0.1178
N-Butane	44.2	0.0607	2.681	0.2873
1,3 Butadiene	50.5	0.0000	0.000	0.0000
Isopentane	17.2	0.0283	0.487	0.0521
N-Pentane	13.0	0.0409	0.532	0.0570
N-Hexane	4.05	0.0280	0.113	0.0122
Hexanes	8.15	0.0326	0.266	0.0285
Benzene	2.59	0.0098	0.025	0.0027
Heptanes	2.81	0.0938	0.263	0.0282
2,2,4 Trimethylpentane	1.35	0.0000	0.000	0.0000
Toluene	0.82	0.0212	0.017	0.0019
Octanes	0.79	0.0970	0.077	0.0082
Ethyl Benzene	0.29	0.0044	0.001	0.0001
Xylenes	0.25	0.0208	0.005	0.0006
Isopropylbenzene	0.15	0.0010	0.000	0.0000
Nonanes	0.31	0.0585	0.018	0.0019
Naphthalene	0.10	0.0029	0.000	0.0000
Decanes+	0.05	0.4652	0.021	0.0023
P_{VA} / y_i SUM			9.3	1.00

Estimating Procedure for Determining HAP Content of Crude Breakout Tank Vapors

V. Determine Component Weight Fractions in Crude Vapor

1. Component weight fraction in the vapor is determined in two steps. First, the overall vapor molecular weight is determined by summing the product of the molecular weight and vapor mole fraction for each component:

$$M_V = \text{sum } (M_i * y_i)$$

2. Then, the component weight fraction is determined by dividing the product of the molecular weight and vapor mole fraction for each component by the overall vapor molecular weight:

$$Z_{Vi} = (M_i * y_i)/M_V$$

Component Physical Properties		Calculation of Component Weight Fraction in Vapor		
Component **i**	Component Molecular Weight $\mathbf{M_i}$	Component Mole Fraction in Vapor (P_i/P_{VA}) $\mathbf{y_i}$	Calculate Vapor Molecular Weight (sum M_i*y_i) $\mathbf{M_V}$	Component Weight Fraction in Vapor ($Mi*y_i/M_V$) $\mathbf{Z_{Vi}}$
Methane	16	0.0000	0.00	0.0000
Ethane	30	0.1193	3.59	0.0640
Propane	44	0.2798	12.34	0.2202
Isobutane	58	0.1178	6.84	0.1221
N-Butane	58	0.2873	16.70	0.2980
1,3 Butadiene	54	0.0000	0.00	0.0000
Isopentane	72	0.0521	3.76	0.0671
N-Pentane	72	0.0570	4.11	0.0734
N-Hexane	86	0.0122	1.05	0.0187
Hexanes	84	0.0285	2.39	0.0427
Benzene	78	0.0027	0.21	0.0038
Heptanes	97	0.0282	2.74	0.0488
2,2,4 Trimethylpentane	114	0.0000	0.00	0.0000
Toluene	92	0.0019	0.17	0.0030
Octanes	111	0.0082	0.91	0.0163
Ethyl Benzene	106	0.0001	0.01	0.0003
Xylenes	106	0.0006	0.06	0.0011
Isopropylbenzene	120	0.0000	0.00	0.0000
Nonanes	123	0.0019	0.24	0.0042
Naphthalene	128	0.0000	0.00	0.0001
Decanes+	395	0.0023	0.91	0.0162
y_i SUM / M_v / Z_{vi} SUM		1.00	56.0	1.00

Estimated Potential HAP Emissions - Breakout Tank
Pump Station 9

1. The TOC emissions (losses) are determined from EPA's TANKS 4.0 program. Individual component emission rates (losses) are then determined using the vapor phase weight fractions previously determined for each component.

$$L_{Ti} = (Z_{Vi})(L_T)$$

2. Based on a maximum flow of crude to the breakout tank of: 3,500,000 bbl/yr
147,000,000 gal/yr

The total TOC losses from the breakout tank are: 867,498 lb/yr
434 tpy

Calculation of Component Emission Rates (Losses)				
Component **i**	Component Weight Fraction in Vapor Z_{Vi}	TOC Losses (from TANKS) L_T	Component Emission Rate/Loss L_{Ti}	Total HAP Emission Rate/Losses L_{HAP}
Methane	0.0000	434	0.00	N/A
Ethane	0.0640	434	27.77	N/A
Propane	0.2202	434	95.50	N/A
Isobutane	0.1221	434	52.97	N/A
N-Butane	0.2980	434	129.25	N/A
1,3 Butadiene	0.0000	434	0.00	0.00
Isopentane	0.0671	434	29.12	N/A
N-Pentane	0.0734	434	31.83	N/A
N-Hexane	0.0187	434	8.11	8.11
Hexanes	0.0427	434	18.52	N/A
Benzene	0.0038	434	1.65	1.65
Heptanes	0.0488	434	21.19	N/A
2,2,4 Trimethylpentane	0.0000	434	0.00	0.00
Toluene	0.0030	434	1.32	1.32
Octanes	0.0163	434	7.05	N/A
Ethyl Benzene	0.0003	434	0.11	0.11
Xylenes	0.0011	434	0.46	0.46
Isopropylbenzene	0.0000	434	0.01	0.01
Nonanes	0.0042	434	1.82	N/A
Naphthalene	0.0001	434	0.03	0.03
Decanes+	0.0162	434	7.04	N/A
L_{Ti} SUM / L_{HAP} SUM			434	11.7

Estimated Potential HAP Emissions - Diesel-Fired Engines
Pump Station 9

Maximum Total Heat Input: 211,063 **MMBtu/yr**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
1	75070	Acetaldehyde	7.67E-04 lb/MMBtu	8.09E-02 tpy
6	107028	Acrolein	9.25E-05 lb/MMBtu	9.76E-03 tpy
15	71432	Benzene	9.33E-04 lb/MMBtu	9.85E-02 tpy
23	106990	1,3-Butadiene	3.91E-05 lb/MMBtu	4.13E-03 tpy
87	5000	Formaldehyde	1.18E-03 lb/MMBtu	1.25E-01 tpy
119	91203	Naphthalene	8.48E-05 lb/MMBtu	8.95E-03 tpy
152	108883	Toluene	4.09E-04 lb/MMBtu	4.32E-02 tpy
169	1330207	Xylenes (isomers and mixture)	2.85E-04 lb/MMBtu	3.01E-02 tpy
187	N/A	Polycylic Organic Matter	1.68E-04 lb/MMBtu	1.77E-02 tpy
			TOTAL HAP Emissions	**0.42 tpy**

Notes/Comments:

1. Reference: AP-42, Table 3.3-2.
2. Total fuel use based on permit-limited operation of the following:

		Output	Heat Input
EU 10		2250 kW	18.8 MMBtu/hr
EU 11		2250 kW	18.8 MMBtu/hr
	Combined Operational Limit - 11,200 hr/yr		210,880 MMBtu/yr
EU 12		65 kW	0.61 MMBtu/hr
	Operational Limit - 300 hr/yr		183 MMBtu/yr
		TOTAL	211,063 MMBtu/yr

3. Engine outputs, heat rates, and operational restrictions from Section 2.2.3 of PS 9 Strategic Reconfiguration Construction Permit Application (September 2004).
4. Heat input values based on a diesel fuel heat content of 133,925 Btu/gal, and a fuel consumption rate of 0.341lb/hp-hr (Cat Engine) and a heat consumption rate of 7,000 Btu/hp-hr (small engines).

Estimated Potential HAP Emissions - Diesel Fired Heaters
Pump Station 9

Maximum Total Fuel Use: 372 **Mgal/yr**

Maximum Total Heat Input: 0.05 **10^{12} Btu/yr**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
46	N/A	Arsenic Compounds	4.0 lb/10^{12} Btu	9.951E-05 tpy
48	71432	Benzene	2.14E-04 lb/Mgal	3.975E-05 tpy
52	N/A	Beryllium Compounds	3 lb/10^{12} Btu	7.464E-05 tpy
58	N/A	Cadmium Compouns	3 lb/10^{12} Btu	7.464E-05 tpy
75	N/A	Chromium Chompounds	3 lb/10^{12} Btu	7.464E-05 tpy
99	100414	Ethyl benzene	6.36E-05 lb/Mgal	1.181E-05 tpy
109	5000	Formaldehyde	3.30E-02 lb/Mgal	6.130E-03 tpy
118	110543	Hexane	0.269 lb/Mgal	5.002E-02 tpy
124	N/A	Lead Compounds	9 lb/10^{12} Btu	2.239E-04 tpy
127	N/A	Manganese Compounds	6 lb/10^{12} Btu	1.493E-04 tpy
128	N/A	Mercury Compounds	3 lb/10^{12} Btu	7.464E-05 tpy
132	71556	Methyl chloroform (1,1,1-Trichloroethane)	2.36E-04 lb/Mgal	4.384E-05 tpy
145	91203	Naphthalene	1.13E-03 lb/Mgal	2.099E-04 tpy
146	N/A	Nickel Compounds	3 lb/10^{12} Btu	7.464E-05 tpy
162	N/A	Polycylic Organic Matter	0.0033 lb/Mgal	6.130E-04 tpy
171	N/A	Selenium Compounds	15 lb/10^{12} Btu	3.732E-04 tpy
176	108883	Toluene	6.20E-03 lb/Mgal	1.152E-03 tpy
185	1330207	Xylenes (isomers and mixture)	1.09E-04 lb/Mgal	2.025E-05 tpy
			Total HAP Emissions	**0.06 tpy**

Notes/Comments:

1. Reference: AP-42, Tables 1.3-8, 1.3-9, and 1.3-10.
2. Assume diesel fuel heat content of 133,925 Btu/gal.
3. Total heater fuel use based on full time operation of the following:
   (13) Insignificant Units 5.7 MMBtu/hr (total input)
   Total Potential Fuel Use 371,527 gal/yr

Estimated Potential HAP Emissions - Incinerators
Pump Station 9

Maximum Waste Combusted: 219 **tpy**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
15	1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin	2.94E-06 lb/ton	3.22E-07 tpy
46	N/A	Arsenic Compounds	6.69E-04 lb/ton	7.33E-05 tpy
58	N/A	Cadmium Compouns	2.41E-03 lb/ton	2.64E-04 tpy
75	N/A	Chromium Chompounds	3.31E-03 lb/ton	3.62E-04 tpy
120	7647010	Hydrochloric acid	2.15E+00 lb/ton	2.35E-01 tpy
128	N/A	Mercury Compounds	5.60E-03 lb/ton	6.13E-04 tpy
146	N/A	Nickel Compounds	5.52E-03 lb/ton	6.04E-04 tpy
			Total HAP Emissions	**0.24 tpy**

Notes/Comments:
1. Reference: AP-42, Table 2.1-9
2. Total incinerator use based on full-time operation of the following:
   Smart Ash Burn Barrel 50 lb/hr maximum rated capacity
   Potential Waste Incinerated 219 tpy

Form Series E

Form E1
Stationary Source Wide Applicable Requirements

FORM E1
Stationary Source-Wide Applicable Requirements

Permit Number: AQ0079TVP04

Stationary Source-Wide Applicable Requirements (*attach additional sheets as needed*):

Permit and Condition Number	Applicable Requirement Citation[1]	Parameter/ Pollutant	Limit/Standard/ Requirement	Currently in Compliance?	Monitoring, Recordkeeping and Reporting Used to Determine Compliance
AQ0079TVP04, Condition 39	18 AAC 50.065	Open Burning	Prohibition	Yes	AQ0079TVP04, Conditions 39.1-39.2
AQ0079TVP04, Condition 37	18 AAC 50.110 and 18 AAC 50.346(a)	Air Pollution Prohibited	Prohibition	Yes	AQ0079TVP04, Conditions 37.1(a)-(f)
AQ0079TVP04, Condition 22	40 CFR 61 Subpart M 61.145, 61.150, and 61.152 applicable sections set forth in 40 CFR 61, Subpart A and Appendix A	National Emission Standards for Hazardous Air Pollutants – Asbestos	Demolition, renovation, and waste disposal activities requirements	Yes	Reasonable inquiry. No regulated activities ongoing at time of signature.
AQ0079TVP04, Condition 23	40 CFR 82 Subpart F, 82.154(a)-(n), 82.156(a)-(g)	Protection of Stratospheric Ozone – Subpart F	Recycling and Emissions Reduction	Yes	Reasonable inquiry.
AQ0079TVP04, Condition 24	40 CFR 82 Subpart G, 82.174(b)-(d)	Protection of Stratospheric Ozone – Subpart G	Significant New Alternatives Policy	Yes	Reasonable inquiry.

FORM E1

Stationary Source-Wide Applicable Requirements

Permit and Condition Number	Applicable Requirement Citation[1]	Parameter/ Pollutant	Limit/Standard/ Requirement	Currently in Compliance?	Monitoring, Recordkeeping and Reporting Used to Determine Compliance
AQ0079TVP04, Condition 25	40 CFR 82 Subpart H, 82.270(b)-(f)	Protection of Stratospheric Ozone- Subpart H	Halon Emissions Reduction	Yes	Reasonable inquiry.

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

Goal:

- Create PWS lead role under M band
- Optional -Consolidate multiple OSCP roles under one job family

Info:

Currently we have an OSCP Lead for Pipeline EP&R positions but no equivalent for PWS/SERVS. This is a gap because the work is concurrent between both roles. We also have multiple OSCP response positions under the L, K and J bands. These could be consolidated. See below.

Band	**Current**		**Potential**
	Pipeline	*PWS/SERVS*	
M	OSCP Lead	None	OSCP Resp Lead
L	Sr OSCP Spec III	Sr PWS Resp Coord III	OSCP Resp Spec III
K	PWS Resp Coord II	OSCP Spec II	OSCP Resp Spec II
J	PWS Resp Coord I	OSCP Spec I	OSCP Resp Spec I

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