

**IKAV Energy INC. – Wolf Point Central Delivery Point
Full Compliance Evaluation (FCE)
On-Site Inspection**

Inspection Date:	June 28, 2022
Date of Inspection Report:	October 12, 2022
EPA Representatives:	Youn Joo Kim, Environmental Scientist, US EPA Region 8 Alex North, Environmental Scientist, US EPA Region 8 Colin LeCortz, Environmental Scientist, US EPA Region 8 Katelyn Bergl, Environmental Scientist, US EPA Region 8
Tribal Representatives:	David Heermance, Southern Ute Indian Tribe Andrew Switzer, Southern Ute Indian Tribe Meredith Breeden, Southern Ute Indian Tribe
Company Representatives:	Pat Atencio
Inspection Report Prepared By:	Youn Joo Kim, Environmental Scientist, US EPA Region 8
Inspection Report Reviewed By:	Scott Patefield, Manager, Enforcement and Compliance Assurance Division, Air and Toxics Enforcement Branch SCOTT PATEFIELD Digitally signed by SCOTT PATEFIELD Date: 2022.10.18 12:53:18 -06'00'
Last Inspection:	May 16, 2018
Operating Status:	Operating
Applicable Requirements:	SMNSR-SU-000034-2012.001 40 CFR Part 60, Subpart JJJJ: Standards of Performance for New Stationary Sources (NSPS JJJJ) Hazardous Pollutants from Oil and Natural Gas Production Facilities (MACT HH-area source)
Permit Number SMNSR-SU-00034-2012.001	Issue Date: June 5, 2014 Effective Date: July 5, 2014 Expiration Date: None

Facility Information and Emission Unit Identification

Parent Company Name:	IKAV Energy Inc.
Mailing Address:	380A Airport Road, Durango, Colorado 81303
Facility Contact:	Julie Best, HSE Manager 970 822 8924 julie.best@ikavenergy.com
Facility Operator & Name:	IKAV Energy Inc- Wolf Point Central Delivery Point
Facility Location:	Latitude 37.107434, Longitude -107.835351
County, State:	La Plata County, Colorado
Reservation:	Southern Ute Indian Reservation
Tribe:	Southern Ute Indian Tribe
Responsible Official:	Julie Best, HSE Manager
SIC Code:	1311
AFS ID:	08-067-U0042 (formerly 08-067-00360)
Other CAA Permits:	There are no other CAA permits for this facility.

Enforcement History

None

Inspection Findings/Areas of Concern

None

Compliance Assistance

IKAV is using extended gas analysis from June 7, 2013, to annually calculate (GLYCALC) to confirm that the dehydrator is exempt from MACT HH control requirements. The extended gas analysis should be updated more regularly to assure that gas composition into the facility has not changed. Additionally, the most recent extended gas analysis should be used in the calculation when available.

Description of Operations

The Wolf Point Central Delivery Point (Wolf Point) is a natural gas production field facility prior to the point of custody transfer. The facility provides natural gas field compression and dehydration to remove entrained water vapor from the gas stream. The natural gas enters the facility from upstream Fruitland Gas (coal-bed methane) wells which are connected to a gathering pipeline. The natural gas produced from these wells is water vapor saturated, and the wells do not produce any condensate or natural gas liquids. Upon entering the facility, the natural gas first passes through an inlet separator vessel to remove any free liquids in the gas stream by gravity. The gas then passes to a filter vessel, which serves to filter out any solids such as coal dust in the gas. The gas is then compressed and finally passes through an outlet coalescer vessel which removes any entrained droplets of lubricating oil before being metered and sent to a gathering facility (Florida Gas Plant).

The permit application indicates that Wolf Point has three Caterpillar G3606 TALE Compressor Engines, WP1, WP2, and WP3, (also referred to as C100, C200 and C300) that are site-rated at 1,734 horsepower. The permit application also indicates that the current WP1 engine is subject to NSPS Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines.

On June 5, 2014, EPA issued the first synthetic minor new source review permit (#SMNSR-SU-000034-

2012.001) for Wolf Point. The SMNSR permit incorporated enforceable requirements previously established in the operating permit (#V-SU-000034-2007.02). As of the effective date of the SMNSR permit, Wolf Point was no longer a major source of hazardous air pollutants (HAPs), and the facility was no longer subject to the requirement to obtain a Title V operating permit.

The EPA also notes that although Wolf Point is an area source of HAPs based on information provided by BP it does not have any MACT ZZZZ obligations. WP1 was reconstructed on 7/20/07 and it satisfies MACT ZZZZ by meeting NSPS JJJJ. WP2 was manufactured on 7/25/06 and WP3 was manufactured on 8/6/06. Both are considered new stationary engines under MACT ZZZZ and satisfy MACT ZZZZ by complying with NSPS JJJJ. However, the emission limits in NSPS JJJJ apply to engines manufactured after 1/1/08. Therefore, WP2 and WP3 are not subject to any emission limits in MACT ZZZZ or NSPS JJJJ.

Additionally, the EPA notes that each TEG dehydrator uncontrolled potential benzene emissions are below 1.0 tpy; therefore. Wolf Point must maintain records of this determination under MACT HH.

Table 1: Emission Units and Emission Generating Activities

Unit ID	Description	Control Equipment	Observations
WP1 (C100)	Natural Gas Fired TALE Caterpillar 4-SLB Engine Reciprocating internal combustion engine (RICE) Model No. G3606 - 1734 hp Serial Number: 3XF00328 Manufacture Date: 7/6/01 Reconstructed: after 6/12/06	Oxidation Catalyst	Engine was being replaced for a like-kind. This occurs every 5 years. The new engine has already had performance test conducted. Serial # 3XF00328 Caterpillar – Model #G3606 Installation date: 3/4/10
WP2 (C200)	Natural Gas Fired TALE Caterpillar 4-SLB Engine Reciprocating internal combustion engine (RICE) Model No. G3606 - 1734 hp Serial Number: 4ZS00662 Manufacture Date: Prior to 07/01/07	Oxidation Catalyst	Operating Serial # 4ZS00620 Caterpillar Model #G3606 Exhaust Temperature: 765.9 F Catalyst Inlet Temperature: 72.9 Inlet Pressure: 29.3 psi Catalyst Pressure Drop: 1.1 in H2O 773 hours of operation Installation date: 3/4/10
WP3 (C300)	Natural Gas Fired TALE Caterpillar 4-SLB Engine Reciprocating internal combustion engine (RICE) Model No. G3606 – 1734 hp Serial Number: 4ZS00665 Manufacture Date: After to 07/01/07	Oxidation Catalyst	Operating Serial # 4ZS00665 Caterpillar Model #G3606 Exhaust Temperature: 773 F Catalyst Inlet Temperature: 73.5 F Inlet Pressure: 29.2 psi Catalyst Pressure Drop: 1.9 in H2O 104373 hours of operation Installation date: 3/4/10

*Hp = horsepower; NR = not recorded

Table 2 – Insignificant Emission units

Description
(2) 1000 gal Ethylene Glycol (EG) Tanks
(1) 500 – 1500 gal Lube Oil Tank
(1) 500 – 1500 gal Used Oil Tank
300 bbl Produced Water Tank
0.5 MMBtu/hr Produced Water Tank Heater
300 bbl Produced Water/ Oily Water Tank
0.5 MMBtu/hr Produced Water/ Oily Water Tank Heater
575 gal Triethylene Glycol (TEG) Tank
0.25 MMBtu/hr Dehy Reboiler
1.5 MMscfd Dehydrator Still Column Vent
(2) 0.5 MMBtu/hr Wellhead Separator Heaters

*Million British thermal units per hour (MMBTU/hr); Barrel (bbl); Gallon (gal); Million standard cubic feet per day (MMscfd)

Table 3: Potential-to-Emit with Legally and Practically Enforceable Controls (tons per year)

Unit ID	NO_x*	CO*	VOC*	PM*	SO₂*	CH₂O*	Total HAPs*
WP1	16.7437	4.1859	14.7344	0.5143	0.0303	1.8753	1.8753
WP2	16.7437	4.1859	14.7344	0.5143	0.0303	1.8753	1.8753
WP3	16.7437	41.8591	14.7344	0.5143	0.0303	4.6882	4.6882
IEUs	1.23	1.04	0.28	0.10	0.01	0.001	0.001
Total	51.46	51.27	44.48	1.64	0.10	8.44	8.44

*NO_x = nitrogen oxide; CO = carbon monoxide; VOC = volatile organic compound; PM = particulate matter; SO₂ = sulfur dioxide; CH₂O = formaldehyde; HAP = hazardous air pollutant; CO₂ = carbon dioxide.

General Inspection Observations and Commentary

On June 28, 2022, at 12:10 PM, EPA representatives (Youn Joo Kim, Alexis North, Katelyn Bergl and Colin LeCortz) and Southern Ute Indian Tribe Air Program representatives (David Heermance, Andrew Switzer, and Meredith Breeden) met IKAV representative Pat Atencio on site at the Wolf Point Central Delivery Point (Wolf Point). A brief opening conference was conducted, during which EPA inspectors presented credentials. A safety orientation was also completed, and EPA inspectors informed IKAV representative that the site would be surveyed using a forward looking infrared (FLIR) camera.

After the opening meeting, Mr. Atencio walked everyone through the process at Wolf Point which involved the two inlets, compression then one outlet discharging to Florida Gas Plant. Wolf Point receives incoming gas, mostly coal bed methane and conventional gas, from wells located west in the valley and wells located east of the plant. Mr. Atencio explained the dehydrator onsite is used only for fuel gas that is being used internally for compressors and engines. Each unit has 3 stages of compression with common headers. According to the information provided by Mr. Atencio during the inspection, Wolf Point had an outlet pressure of 321 psi and was operating at approximately 20.8 MMscfd. During the inspection, WP1 was being replaced with a like-kind engine which occurs every five years according to Mr. Atencio. The new engine has already been performance tested to meet the emission standards.

Compressor engine WP1 was not operating at the time of the inspection. Mr. Atencio informed that all engines have an air fuel ratio controller (AFRC), and all engine parameters are monitored by the central control system. The catalyst pressure drops, and catalyst inlet temperature are monitored every 15 seconds by the central control system and alarms are set at 0 to 15% range from the baseline readings from the recent catalyst exchange. Ms. Kim verified the operating parameters from CPMS and central control board of the engines, listed in Table 1 above along with information regarding serial numbers.

EPA and tribal representatives departed the facility at 1:00 PM. An email to request relevant compliance-related information and records was sent to Ms. Julie Best on August 18, 2022. Ms. Best provided the requested information to EPA via email on August 29, 2022, and September 7, 2022.

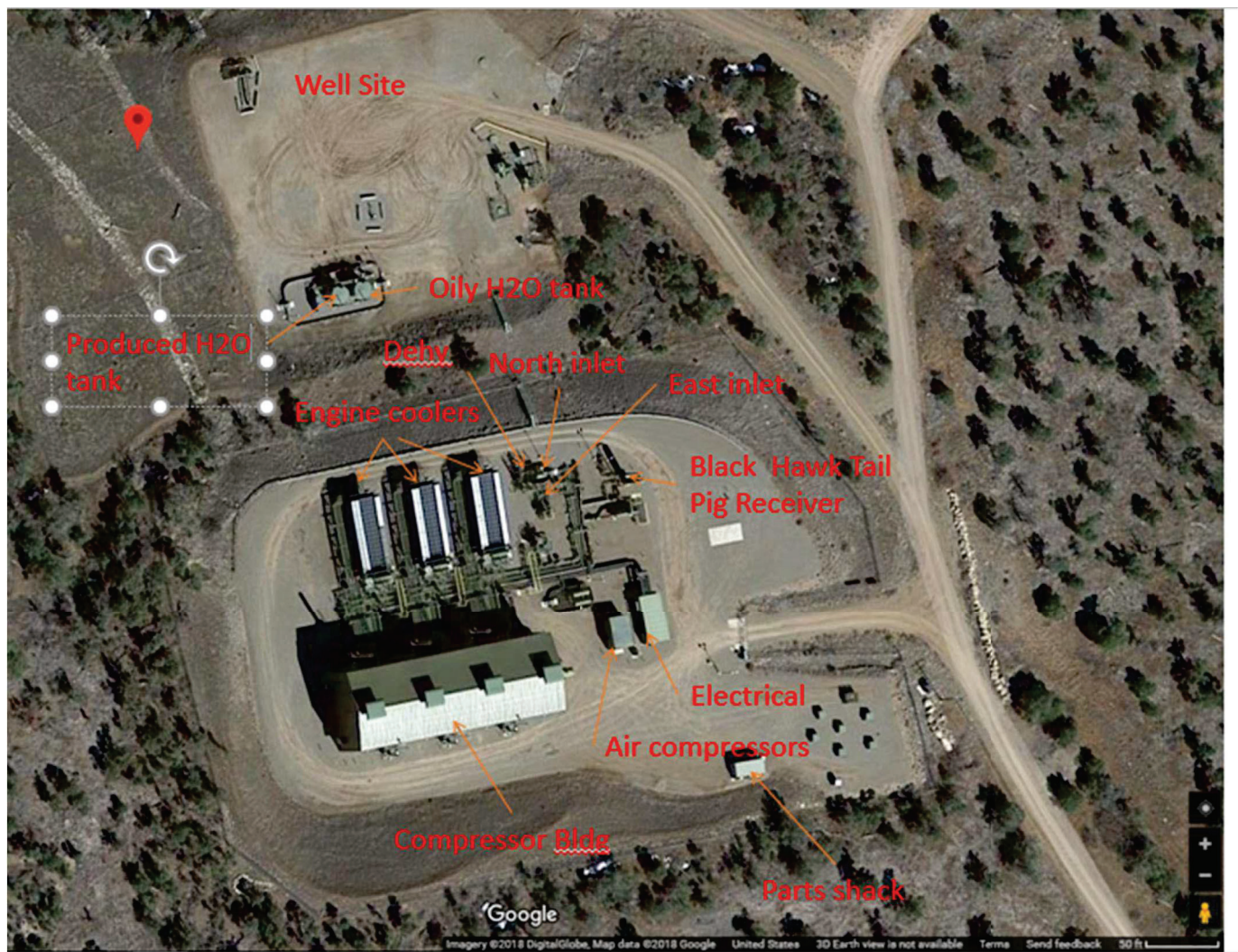


Image 1: Wolf Point CDP, Aerial view from Google Maps.

Permit Number SMNSR-SU-00034-2012.001 Requirements and Compliance Status

Inspector notes discussing compliance status will follow each relevant permit requirement in **bold blue** font.

Note that with respect to this full compliance evaluation, the EPA is generally reviewing data and information from roughly 1/1/2021 to 6/30/2022.

I. Conditional Permit to Construct

C. Requirements for Engines

1. Construction and Operational Limits:

- (a) The Permittee shall install and operate emission controls as specified in this permit on two (2) reciprocating internal combustion engines used for compression, each meeting the following specifications:
 - (i) Operated as a 4-stroke lean-burn engine;
 - (ii) Fired with natural gas; and
 - (iii) Limited to a maximum site rating of 1,734 horsepower (hp).
- (b) Only the engines that are operated and controlled as specified in this permit are approved for installation under this permit.

Observations: There are three engines onsite, two are controlled under the permit (WP1 and WP3). Information provided in the permit application indicates that these engines are Caterpillar G3606 engines fired on natural gas and site rated to 1,734 horsepower. Ms. Kim confirmed the engine model numbers during the inspection.

2. Emission Limits:

- (a) Emissions from each engine shall not exceed:
 - (i) CO: 0.96 pounds per hour (lbs/hr); and
 - (ii) CH₂O: 0.43 lbs/hr.
- (b) Emission limits shall apply at all times, unless otherwise specified in this permit.

Observations: See Tables 4 and 6, below, showing results from annual stack testing and semiannual monitoring.

3. Control and Operational Requirements

- (a) The Permittee shall ensure that each engine is equipped with an oxidation catalyst control system capable of reducing uncontrolled CO and CH₂O emissions to meet the emission limits specified in this permit.

Observations: During the inspection, Ms. Kim observed the location of the catalyst on each engine stack.

- (b) The Permittee shall install, operate, and maintain temperature-sensing devices (i.e., thermocouple or resistance temperature detectors) before the catalytic control system on each engine to continuously monitor the exhaust temperature at the inlet of the catalyst bed. Each temperature-sensing device shall be calibrated and operated by the Permittee according to manufacturer specifications or equivalent specifications developed by the Permittee or vendor.

Observations: During the inspection, Ms. Kim observed the real-time pre-catalyst inlet temperature being monitored on each engine. See also information below regarding temperature data provided following the inspection.

- (c) Except during startups, which shall not to exceed 30 minutes, the engine exhaust temperature of each engine, at the inlet to the catalyst bed, shall be maintained at all times the engines operate with an inlet temperature of at least 450° F and no more than 1,350°F.

Observations: No start-ups were observed during the inspection. See discussion below regarding review of temperature data submitted following the inspection.

- (d) During operation, the pressure drop across the catalyst bed on each engine shall be maintained to within ± 2 inches of water from the baseline pressure drop measured during the most recent performance test. The baseline pressure drop for the catalyst bed shall be determined at 100% $\pm$ 10% of the engine load measured during the most recent performance test.

Observations: During the inspection, Ms. Kim observed the real-time pressure drop monitored across each engine catalyst. See information below regarding pressure drop readings provided following the inspection.

- (e) The Permittee shall only fire each engine with natural gas. The natural gas shall be pipeline-quality in all respects except that the carbon dioxide (CO₂) concentration in the gas is not required to be within pipeline-quality.

Observations: During the records review, Ms. Best indicated that the fuel for the engines comes from incoming wells is dehydrated coal bed methane. Following the records review, Ms. Best provided the last extended gas analysis which was sampled on 8/29/22. Ms. Best also indicated that the fuel sample analysis is conducted every five years due to consistency of coal bed methane.

- (f) The Permittee shall follow, for each engine and its respective catalytic control system, the manufacturer recommended maintenance schedule and procedures, or equivalent maintenance schedule and procedures developed by the Permittee or vendor, to ensure optimum performance of each engine and its respective catalytic control system.

Observations: During the records review, the documents provided by Ms. Best indicated that the maintenance requirements are outlined in maintenance checklists and that the checklists contain the manufacturer recommendations. In an email dated 8/29/22, Ms. Best provided copies of completed checklist for preventative maintenance that occurs at the following intervals: 45-day, 90-day, 6-month, and annually.

- (g) The Permittee may rebuild or replace an existing permitted engine with an engine of the same hp rating, and configured to operate in the same manner as the engine being rebuilt or replaced. Any emission limits, requirements, control technologies, testing or other provisions that apply to the permitted engines that are replaced shall also apply to the rebuilt and replaced engines.

Observations: During the inspection, Mr. Atencio indicated that the permitted engines were not rebuilt. The WP1 was “in swing” to be replaced with a “like-kind” on the day of the inspection. This according to Mr. Atencio occurs every three to five years.

- (h) The Permittee may resume operation without the catalytic control system during an engine break-in period, not to exceed 200 operating hours, for rebuilt and replaced engines.

Observations: Engines have not been replaced or rebuilt since 2015.

4. Performance Testing Requirements

- (a) Performance tests shall be conducted on each engine for measuring CO, and CH₂O emissions to demonstrate compliance with each emission limitation in this permit. The performance tests shall be conducted in accordance with appropriate reference methods specified in 40 CFR Part 60, Appendix A and 40 CFR Part 63, Appendix A, or an EPA-approved American Society for Testing and Materials (ASTM) method. The Permittee may submit to the EPA a written request for approval of an alternate test method, but shall only use that alternate test method after obtaining approval from the EPA.
 - (i) The initial performance test shall be conducted within 90 calendar days of startup of a new engine.
 - (ii) Subsequent performance tests for CH₂O emissions shall be conducted within 12 months of most recent performance test.
 - (iii) Performance tests for shall be conducted within 90 calendar days of replacement of the catalyst on each engine.
 - (iv) Performance tests for shall be conducted within 90 calendar days of startup of all rebuilt and replaced engines.

Observations: As indicated in Table 4, below, annual performance tests are conducted on permitted engines. Ms. Best forwarded an email from 7/14/2021 and 3/1/2022 from Mr. Gomez indicating catalyst change for C-100 at 98272 hours and C-300 at 101585 hours.

- (b) The Permittee shall not perform engine tuning or make any adjustments to engine settings, catalytic control system settings, processes, or operational parameters the day of or during the engine testing. Any such tuning or adjustments may result in a determination by the EPA that the test is invalid. Artificially increasing an engine load to meet testing requirements is not considered engine tuning or adjustments.

Observations: During the records review, documents indicated that IKAV representatives and stack testers (contractors) sign a document indicating that no tuning or stopping is allowed during the performance test.

- (c) The Permittee shall not abort any engine tests that demonstrate non-compliance with the emission limits in this permit.

Observations: See discussion immediately above.

- (d) All performance tests conducted on each engine shall meet the following requirements:
- (i) The pressure drop across each catalyst bed and the inlet temperature to each catalyst bed shall be measured and recorded at least once during each performance test.
 - (ii) The Permittee shall measure NO_x emissions from each engine simultaneously with all performance tests for CO emissions. NO_x emissions shall be measured using a portable analyzer and protocol approved by the EPA. *[Note to Permittee: Although the permit does not contain NO_x emission limits, NO_x measurement requirements have been included as an indicator to ensure compliance with Condition C.4(b) above.]*
 - (iii) All tests shall be performed at a maximum operating rate (90% to 110% of the maximum achievable engine load available on the day of the test). The Permittee may submit to the EPA a written request for approval of an alternate load level for testing, but shall only test at that alternate load level after obtaining written approval from the EPA.
 - (iv) During each test run, data shall be collected on all parameters necessary to document how emissions were measured and calculated (such as test run length, minimum sample volume, volumetric flow rate, moisture and oxygen corrections, etc.).
 - (v) Each test shall consist of at least three 1-hour or longer valid test runs. Emission results shall be reported as the arithmetic average of all valid test runs and shall be in terms of the emission limits in this permit.
 - (vi) Performance test plans for shall be submitted to the EPA for approval 60 calendar days prior to the date the test is planned.
 - (vii) Performance test plans that have already been approved by the EPA for the emission units approved in this permit may be used in lieu of new test plans unless the EPA requires the submittal and approval of new test plans. The Permittee may submit new plans for EPA approval at any time.

Observations: See tests results in table below. On 7/11/22, BP submitted a test protocol to be used for testing the engines subject to the synthetic minor permits. The test plan states that ASTM 6348-03 and EPA Reference Methods 1-4 will be followed.

Table 4: Results from annual performance test are as follows:

Test Date	Engine	Serial #	% Load	Test length/ engine	NOx lbs/h r	CO lbs/hr	CH2O lbs/hr	Pres Drop	Inlet Cat Temp
4/16/2021	C-300	4ZS00665	81	3 1-hour	2.09	0.71	0.24	3.8	787
1/29/2021	C-100	3XF00328	91	3 1-hour	2.58	0.59	0.37	1.8	792
4/7/2022	C-300	4ZS00665	82	3 1-hour	2.44	0.02	0.09	1.8	783
9/9/2021	C-100	3XF00328	91	3 1-hour	1.14	0.04	0.01	1.8	770

(viii) The test plans shall include and address the following elements:

- A) Purpose of the test;
- B) Engines and catalytic control systems to be tested;
- C) Expected engine operating rate(s) during the test;
- D) Sampling and analysis procedures (sampling locations, test methods, laboratory identification);
- E) Quality assurance plan (calibration procedures and frequency, sample recovery and field documentation, chain of custody procedures); and
- F) Data processing and reporting (description of data handling and quality control procedures, report content).

Observations: The test plan submitted on 7/11/2022 contains the required information.

- (e) The Permittee shall notify the EPA at least 30 calendar days prior to scheduled performance testing. The Permittee shall notify the EPA at least 1 week prior to scheduled performance testing if the testing cannot be performed.

Observations: IKAV submitted notifications for testing on 7/11/2022 for the C-100 that was “in-swing” during the time of the inspection..

- (f) If the results of a complete and valid performance test of the emissions from any permitted engine demonstrate noncompliance with the emission limits in this permit, the engine shall be shut down as soon as safely possible, and appropriate corrective action shall be taken (e.g., repairs, catalyst cleaning, catalyst replacement). The Permittee shall notify the EPA in writing within 24 hours of each such shut down. The engine must be retested within 7 days of being restarted and the emissions must meet the applicable limits in this permit. If the retest shows that the emissions continue to exceed the limits in this permit, the engine shall again be shut down as soon as safely possible, and the engine may not operate, except for purposes of startup and testing, until the Permittee demonstrates through testing that the emissions do not exceed the emission limits in this permit.

Observations: Performance tests provided indicate that emission limits have not been exceeded during testing.

- (g) If a permitted engine is not operating, the Permittee does not need to start up the engine solely to conduct a performance test. The Permittee may conduct the performance test when the engine is started up again.

Observations: Permitted engines have been tested annually.

5. Monitoring Requirements

- (a) The Permittee shall continuously monitor the exhaust temperature of each engine at the inlet to the catalyst bed.

Observations: During the inspection, Ms. Kim observed the real-time pre-catalyst inlet temperature being monitored on all engines. Additionally, in an email dated 8/29/22, Ms. Best provided hourly temperature readings for WP1 and WP3 from 1/1/21 to 6/30/22 and indicated that for continuous temperature monitoring, BP records are based on an hourly snapshot of the temperature reading.

- **For WP1 no readings were < 450°F and none were greater than 1350°F**
- **For WP3 no readings were < 450°F and none were greater than 1350°F**

- (b) Except during startups, which shall not to exceed 30 minutes, if the engine's exhaust temperature at the inlet to the catalyst bed on either engine deviates from the acceptable ranges specified in this permit then the following actions shall be taken. The Permittee's completion of any or all of these actions shall not constitute, nor qualify as, an exemption from any other emission limits in this permit.
- (i) Within 24 hours of determining a deviation of the engine exhaust temperature at the inlet to the catalyst bed, the Permittee shall investigate. The investigation shall include testing the temperature sensing device, inspecting the engine for performance problems and assessing the catalytic control system for possible damage that could affect catalytic system effectiveness (including, but not limited to, catalyst housing damage, and fouled, destroyed or poisoned catalyst).
- (ii) If the engine exhaust temperature at the inlet to the catalyst bed can be corrected by following the engine manufacturer recommended procedures or equivalent procedures developed by the Permittee or vendor, and the catalytic control system has not been damaged, then the Permittee shall correct the engine exhaust temperature at the inlet to the catalyst bed within 24 hours of inspecting the engine and catalytic control system.
- (iii) If the engine exhaust temperature at the inlet to the catalyst bed cannot be corrected using the engine manufacturer recommended procedures or equivalent procedures developed by the Permittee or vendor, or the catalytic control system has been damaged, then the affected engine shall cease operating immediately and shall not be returned to routine service until the following has been met:
- (A) The engine exhaust temperature at the inlet to the catalyst bed is measured and found to be within the acceptable temperature range for that engine; and
- (B) The catalytic control system has been repaired or replaced, if necessary.

Observations: During the inspection, Mr. Atencio informed that:

- If the hourly temperature is out of range while the unit is operating or the recorded data is missing/invalid, reasons and actions taken are documented in the deviation reports submitted to EPA.
- If the hourly temperature is out of range while the unit is operating, and the recorded temperature is the hourly reading before/after unit is down, it is presumed the engine was in startup/shutdown mode at that time.

- (c) The Permittee shall monitor the pressure drop across the catalyst bed on each engine every 30 days using pressure sensing devices before and after the catalyst bed to obtain a direct reading of the pressure drop (also referred to as the differential pressure). *[Note to Permittee: Differential pressure measurements, in general, are used to show the pressure across the filter elements. This information will determine when the elements of the catalyst bed are fouling, blocked or blown out and thus require cleaning or replacement.]*

Observations: During the inspection, Ms. Kim observed the real-time pressure drop being monitored across the catalyst on all engines. During the inspection, Mr. Atencio indicated that IKAV voluntarily monitors/records pressure drop readings more frequently than the minimum requirement of every 30 days. No pressure drop readings were noted as being out of range in the data provided.

- (d) The Permittee shall perform the first measurement of the pressure drop across the catalyst bed on each engine no more than 30 days from the date of the initial performance test. Thereafter, the Permittee shall measure the pressure drop across the catalyst bed, at a minimum every 30 days. Subsequent performance tests, as required in this permit, can be used to meet the periodic pressure drop monitoring requirements provided it occurs within the 30-day window. The pressure drop reading can be a one-time measurement on that day, the average of performance tests runs conducted on that day, or an average of all the measurements taken on that day if continuous readings are taken.

Observations: See discussion immediately above.

- (e) The Permittee shall monitor CO and NO_x emissions from the exhaust of the catalytic control system on each engine at least quarterly, to demonstrate compliance with the emission limits in this permit. To meet this requirement, the Permittee shall:
- (i) Measure CO and NO_x emissions at the normal operating load using a portable analyzer and a monitoring protocol approved by the EPA or conduct a performance test as specified in this permit;
 - (ii) Measure the CO and NO_x emissions simultaneously; and
 - (iii) Commence monitoring for CO and NO_x emissions within 90 calendar days of the Permittee's submittal of the initial performance test results for CO emissions to the EPA.

Observations: As allowed by the permit (discussed below), IKAV conducts semiannual monitoring of the permitted engines. On some instances, the semiannual monitoring is satisfied by the annual performance test. Performance test results are shown in the table above.

Table 5: Semiannual monitoring results

Test Date	Engine	Serial #	% Load	NO _x lbs/hr	CO lbs/hr	Pres Drop	Inlet Cat Temp
9/9/2021	C100	3XF00328	91	1.14	0.04	1.8	770
4/7/2022	C300	4ZS00665	82	2.44	0.02	1.8	783
1/29/2021	C100	3XF00328	91	2.58	0.59	1.8	792
4/16/2020	C300	4ZS00665	81	2.09	0.71	3.8	787

- (f) The Permittee shall not perform engine tuning or make any adjustments to engine settings, catalytic control system settings, or processes or operational parameters the day of or during measurements. Any such tuning or adjustments may result in a determination by the EPA that the result is invalid. Artificially increasing an engine load to meet measuring requirements is not considered engine tuning or adjustments.

Observations: The EPA has not been present during testing. During the inspection, Mr. Atencio indicated that IKAV representatives and stack testers sign a document indicating that no tuning or stopping is allowed during the performance test.

- (g) If the pressure drop reading exceeds ± 2 inches of water from the baseline pressure drop reading taken during the most recent performance test, or if the results of any quarterly emissions monitoring demonstrate non-compliance with the CO and NO_x emission limits in this permit, then the following actions shall be taken. The Permittee's completion of any or all of these actions shall not constitute, nor qualify as, an exemption from any other emission limits in this permit:
- (i) Within 24 hours of determining a deviation of the pressure drop across the catalyst bed, or the emission limits in this permit, the Permittee shall investigate. The investigation shall include testing the pressure transducers and assessing the catalytic control system for possible damage that could affect catalytic system effectiveness (including, but not limited to, catalyst housing damage, and plugged, fouled, destroyed or poisoned catalyst).
 - (ii) If the pressure drop across the catalyst bed, or the elevated emission rates, can be corrected by following the catalytic control system manufacturer recommended procedures or equivalent procedures developed by the Permittee or vendor, and the catalytic control system has not been damaged, then the Permittee shall correct the problem within 24 hours of inspecting the catalytic control system.
 - (iii) If the pressure drop across the catalyst bed, or the elevated emission rates, cannot be corrected using the catalytic control system manufacturer recommended procedures or equivalent procedures developed by the Permittee or vendor, or the catalytic control system is damaged, then the Permittee shall do one of the following:

- (A) Conduct a performance test within 90 calendar days, as specified in this permit, to ensure that the CO and CH₂O emission limits are being met and to re-establish the pressure drop across the catalyst bed. The Permittee shall perform a portable analyzer test for CO and NO_x and establish a new temporary pressure drop baseline until a performance test can be scheduled and completed; or
- (B) Cease operating the affected engine immediately. The engine shall not be returned to routine service until the pressure drop is measured and found to be within the acceptable pressure range for that engine as determined from the most recent performance test and the emission rates are found to be in compliance with the emission limits in this permit. Corrective action may include removal and cleaning of the catalyst or replacement of the catalyst.

Observations: Information provided by Ms. Best indicated that pressure drop requirements on permitted engines have not been out of range. Additionally, performance test and semiannual monitoring results indicate that there haven't been any deviations with meeting emission limits.

- (h) For any one (1) engine: If the results of 2 consecutive quarterly portable analyzer measurements demonstrate compliance with the CO emission limit, the required monitoring frequency for the respective pollutant may change from quarterly to semi-annually.

Observations: IKAV conducts semiannual monitoring of the permitted engines. On some instances, the semiannual monitoring is satisfied by the annual performance test. Performance test and semiannual monitoring results are shown in the tables above.

- (i) For any one (1) engine: If the results of any subsequent portable analyzer measurements demonstrate non-compliance with the CO emission limit, the required test frequency shall revert back to quarterly.

Observations: IKAV continues to conduct semiannual monitoring of the permitted engines. On some instances, the semiannual monitoring is satisfied by the annual performance test. Performance test and semiannual monitoring results are shown in the tables above.

- (j) The Permittee shall submit portable analyzer specifications and monitoring protocols to the EPA at the following address for approval at least 45 calendar days prior to the date of initial portable analyzer monitoring:

Region 8 Office of Enforcement, Compliance & Environmental Justice
Air Toxics and Technical Enforcement Program, 8ENF-AT
1595 Wynkoop Street
Denver, Colorado 80202

- (k) Portable analyzer specifications and monitoring protocols that have already been approved by the EPA for the emission units approved in this permit may be used in lieu of new protocols unless the EPA determines it is necessary to require the submittal and approval of new protocol. The Permittee may submit a new protocol for EPA approval at any time.
- (l) The Permittee is not required to conduct emissions monitoring and parametric monitoring of exhaust temperature and catalyst differential pressure on engines that have not operated during the monitoring period. The Permittee shall certify that the engine(s) did not operate during the monitoring period in the annual report.

Observations: The annual emissions report identifies the operating hours of the engines.

6. Recordkeeping Requirements

- (a) Records shall be kept of manufacturer and/or vendor specifications and maintenance requirements developed by the manufacturer, vendor, or Permittee for each engine, catalytic control system, temperature-sensing device, and pressure-measuring device.

Observations: During the records review, Ms. Best indicated that engine maintenance requirements are outlined in maintenance checklists and that the checklists basically contain the manufacturer recommendations.

The steps involving catalyst instrumentation were created by the Midstream Automation Tech with approval from the Midstream Maintenance Team Lead at that time.

The DP transmitter maintenance involves:

1. Block in and bleed down the impulse lines.
2. Open the low-pressure port to atmosphere and connect test equipment to the high-pressure port.
3. Compare transmitter reading to test equipment.
4. Perform calibration if the transmitter reading is greater than 0.2" H₂O different from the test equipment.
5. Record as found and as left information.

The temperature transmitter maintenance involves:

1. Verify that the temperature probes have thermowells or LOTO the equipment.
2. Set up dry well temperature calibrator within reach of the temperature probes.
3. Initial temperature set to 100 degrees. Place temperature probe in the calibrator and allow the temperature to stabilize.
4. Move calibrator set point to 1000 degrees. Allow temperature to stabilize.
5. Perform calibration if the transmitter reading is greater than 5 degrees different than the calibrator.
6. Record as found and as left information.

- (b) Records shall be kept of all calibration and maintenance conducted for each engine, catalytic control system, temperature-sensing device, and pressure-measuring device.

Observations: In an email dated 8/29/22, Ms. Best provided copies of completed checklist for engine preventative maintenance that occurred at the following intervals in 2021 and 2022: 45-day, 90-day, 6-month, and annually.

- (c) Records shall be kept that are sufficient to demonstrate that the fuel used for each engine is pipeline quality natural gas in all respects, with the exception of CO₂ concentrations.

Observations: During the records review, Ms. Best indicated that the fuel for the engines comes from incoming gas to the facility and that confirmation that the incoming gas is pipeline quality is based upon the last gas analysis that was performed at the facility in 2022. Following the records review, in an email dated 8/29/22, Ms. Robert provided the last extended gas analysis which was performed on 8/29/22.

- (d) Records shall be kept of all temperature measurements required in this permit, as well as a description of any corrective actions taken pursuant to this permit.

Observations: Temperature measurement data was provided on request.

- (e) Records shall be kept of all pressure drop measurements required in this permit, as well as a description of any corrective actions taken pursuant to this permit.

Observations: Pressure drop measurement data was provided upon request.

- (f) Records shall be kept of all required testing and monitoring in this permit. The records shall include the following:

- (i) The date, place, and time of sampling or measurements;
- (ii) The date(s) analyses were performed;
- (iii) The company or entity that performed the analyses;
- (iv) The analytical techniques or methods used;
- (v) The results of such analyses or measurements; and
- (vi) The operating conditions as existing at the time of sampling or measurement.

Observations: The performance test reports are submitted to EPA within required timeframes. Copies of requested portable analyzer monitoring were provide upon request.

- (g) Records shall be kept of all catalyst replacements, engine rebuilds and replacements.

Observations: Information regarding catalyst replacement, engine rebuilds and replacement was provided upon request.

- (h) Records shall be kept of each rebuilt or replaced engine break-in period, pursuant to the requirements of this permit, where an existing engine that has been rebuilt or replaced resumes operation without the catalyst control system, for a period not to exceed 200 hours.

Observations: Information regarding the break in period was provided, if requested.

- (i) Records shall be kept of each time any engine is shut-down due to a deviation in the inlet temperature to the catalyst bed or pressure drop across a catalyst bed. The Permittee shall include in the record the cause of the problem, the corrective action taken, and the timeframe for bringing the pressure drop and inlet temperature range into compliance.

Observations: The engines have been shut down due to deviations in catalyst inlet temperature or pressure drop across the catalyst.

D. Requirements for Records Retention Error! Bookmark not defined.

1. The Permittee shall retain all records required by this permit for a period of at least 5 years from the date the record was created.

Observations: Records for the previous two years were reviewed by Ms. Kim.

2. Records shall be kept in the vicinity of the facility, such as at the facility, the location that has day-to-day operational control over the facility, or the location that has day-to-day responsibility for compliance of the facility.

Observations: Records were requested after the inspections to be reviewed offsite. The records are kept at the Wolf Point facility electronically.

E. Requirements for Reporting

1. Annual Emission Reports

- (a) The Permittee shall submit a written annual report of the actual annual emissions from all emission units at the facility covered under this permit, including emissions from startups, shutdowns, and malfunctions, each year no later than April 1st. The annual report shall cover the period for the previous calendar year. All reports shall be certified to truth and accuracy by the person primarily responsible for Clean Air Act compliance for the Permittee.
- (b) The report shall include CO and CH₂O emissions.
- (c) The report shall be submitted to: