



Clean Air Act Compliance Inspection Report

United States Environmental Protection Agency
Region 10 – Seattle, WA

Clean Air Act Partial Compliance Evaluation Inspection Report

**Gas Transmission Northwest LLC
Grass Valley, Oregon
Madras, Oregon
Bend, Oregon**

Inspection Dates: July 19-20, 2022

JOHN PAVITT

Digitally signed by JOHN PAVITT
Date: 2022.09.16 11:26:08 -08'00'

Report Author Signature

Date

John Pavitt
CAA Inspector
EPA Region 10

DANIEL HEINS

Digitally signed by DANIEL HEINS
Date: 2022.09.16 12:36:50 -07'00'

Peer Review Signature

Date

Daniel Heins
CAA Inspector
EPA Region 10

DERRICK TERADA

Digitally signed by DERRICK TERADA
Date: 2022.09.16 12:45:47 -07'00'

Section Chief Signature

Date

Derrick Terada
Acting ATES Section Chief
EPA Region 10

Table of Contents

Contents

I. Introduction	5
II. Compliance History	7
III. NSPS Subpart OOOOa Annual Reports.....	8
IV. On Site Inspection.....	8
A. Day 1: Compressor Station 10, Grass Valley, OR (aka Kent) (7/19/22).....	8
B. Day 2: Compressor Station 12, Bend, OR (7/20/22)	13
C. Day 2: Compressor Station 11, Madras, OR (7/20/22)	15
V. Closing Conference	16
VI. Records Review	17
VII. Post-Inspection Activity.....	21
VIII. Areas of Concern.....	22

Attachments

Attachment 1.....	EPA Notification of Inspection
Attachment 2.....	Fugitive Emissions Monitoring Plan
Attachment 3.....	GTN Tariff Map
Attachment 4.....	EPA Records Request
Attachment 5.....	Records Provided by TC Energy (w/ Attachments A-F)
Attachment 6	EPA LDAR Data and Photo Log
Attachment 7.....	EPA Questions on Records Received

Inspection Dates: July 19-20, 2022

**Regulatory
Program(s):** CAA NSPS, TV Permit, GHG Reporting

Company name: Gas Transmission Northwest LLC

**Facility Names/
Physical Locations:** **Compressor Station 10**
Wilcox Road, 18 miles S of
Grass Valley, OR on Hwy 97
Latitude: 45.128799
Longitude: -120.613297

Compressor Station 11
Oregon Hwy 26
12 miles S of Madras, OR
Latitude: 44.438836
Longitude: -121.035792

Compressor Station 12
US Hwy 97
19 miles S of Bend, OR
Latitude: 43.821382
Longitude: -121.422873

Mailing Address: Gas Transmission Northwest LLC
201 W North River Dr.
Suite 505
Spokane, WA 99201

County/Parish: Compressor Station 10 – Sherman County
Compressor Station 11 – Jefferson County
Compressor Station 12 – Deschutes County

ICIS-Air Numbers OR0000004105500007, OR0000004103100026, and OR0000004101700084

Permit Numbers: 28-0007-TV-01, 16-0026-TV-01, and 09-0084-TV-01

NAICS: 486210 - Pipeline Transportation of Natural Gas
SIC: 4922 - Natural Gas Transmission

Facility Contacts: Melinda Holdsworth
Air Quality - USNG Pipelines (GTN, N. Baja, & TGT)
TC Energy
700 Louisiana St., Ste. 1300
Houston, TX 77002

832-320-5665
melinda_holdsworth@tcenergy.com

Dan Maguire; PMP
Environmental Engineer
TC Energy Borders West Region
U.S. Environment Services
Stakeholder Relations-U.S.
201 W. North River Drive, Suite 505
Spokane, WA 99201
509-533-2832
dan_maguire@tcenergy.com

Facility

Support Contractor: Montrose Environmental Group
412 Darby Way
Bridgeville, PA

Jeffrey Tuskin, District Manager, US-OGI
412-715-5459
jtuskin@montrose-env.com

Michael Kupper, Director of Operations, US-OGI
724-630-7528
mikupper@montrose-env.com

EPA Inspectors:

John Pavitt
U.S. EPA Region 10
Enforcement and Compliance Assurance Division (ECAD)
Air and Toxics Enforcement Section (ATES)
Alaska Operations Office
222 W 7th Ave, M/S 19
Anchorage, AK 99513
907-271-3688
Pavitt.john@epa.gov

Daniel Heins
U.S. EPA Region 10
ECAD, ATES (*on detail*)
312-353-6704
Heins.Daniel@epa.gov

**Oregon DEQ Team
Members:**

Becka Puskas
ODEQ Office of Compliance and Enforcement
503-979-5421
Becka.Puskas@deq.oregon.gov

Doug Welch
ODEQ, Pendleton Office
541-278-4621
doug.welch@deq.oregon.gov

Anna Loyd
Environmental Engineer
ODEQ, Eastern Region Air Quality
The Dalles, OR 97058
541-241-0122 (cell)
Anna.LOYD@deq.oregon.gov

Walt West
ODEQ Senior Engineer- Permit Writer
Walt.West@deq.oregon.gov
541-633-2020

Ken Hanna
ODEQ AQ Permit Writer & Inspector
541-633-2009
Kenneth.Hanna@deq.oregon.gov

Matt Steele
ODEQ
Office of GHG Programs
503-893-0698
Matt.Steele@deq.oregon.gov

I. Introduction

The United States Environmental Protection Agency (EPA) inspected three pipeline compressor stations owned and operated by Gas Transmission Northwest LLC (“GTN”) in eastern Oregon over two days. The Oregon Department of Environmental Quality (ODEQ) also participated for on-the-job training. The inspection was conducted to check on compliance with regulations under the Clean Air Act (CAA). Specifically, they focused on compliance with **New Source Performance Standards (NSPS) Subpart OOOOa – Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015**. Compliance with Title V air permits for each facility was also reviewed in the context of emission sources observed during the inspections.

On June 10, 2022 the EPA notified GTN of the CAA inspection via MS Teams teleconference and email and it was then scheduled to take place on July 19 - 20, 2022. GTN arranged to meet EPA and ODEQ on-site and also have their support contractor, Montrose, there as well. The email notification is attached to this report. (Attachment 1) EPA requested a copy of the facility’s *Fugitive Emissions Monitoring Plan*, which the facility provided in advance of the inspections.

(Attachment 2) After the on-site portion of the inspection EPA requested additional records. (See Records Review, below.)

Summary of the Facilities

TC Energy owns and operates a number of gas pipelines across North America, including the Gas Transmission Northwest (“GTN”) gas pipeline, which runs 1,377 miles from Canada to the northern California border, through Idaho, Washington and Oregon. The pipeline has been operating since 1961 and has a capacity of up to 2.7 billion cubic feet per day.¹ GTN has an office in Spokane, Washington; TC Energy has offices in Canada and Houston, Texas. There are twelve compressor stations located along the GTN pipeline and they are designed to be operated remotely from a control center in Portland, Oregon.

Permitting

All three compressor stations covered by this inspection were constructed prior to September 18, 2015. Each is a major source for criteria air pollutants for nitrogen oxides (NOx) and carbon monoxide (CO) and was issued a Title V operating permit by ODEQ. Each is an area source for Hazardous Air Pollutants (HAP).²

- **Compressor Station 10 (Air Permit No. 28-0007-TV-01).** The air permit for this facility was modified on 10/11/2021 to authorize the removal of emission unit (EU) 10-B (a 14,300 horsepower (hp) compressor turbine), replacing it with EU 10-D, (a 20,880 hp turbine). Under subpart OOOOa, a “modification” of a compressor station occurs when an additional compressor is installed, or one or more compressors is replaced with a compressor of greater hp. (40 CFR §60.5365(j)) The new air permit identifies subpart OOOOa as an applicable requirement because of the modification.

Overall, the air permit identifies the following permitted EUs and pollution control devices:

- Gas Turbine Compressors: 3
 - Total hp =54,480
 - Emergency Engines: 1, subject to 40 CFR Part 63, Subpart ZZZZ
 - Aggregate Insignificant Units (the units in this group are not specified)
 - Pollution control devices: “SoLoNOx” on new compressor turbine 10-D
-
- **Compressor Station 11 (Air Permit No. 16-0026-TV-01).** The air permit was issued on 8/20/2020. Subpart OOOOa is not identified as an applicable requirement. Overall, the air permit identifies the following permitted EUs:
 - Gas Turbine Compressors: 2
 - Total hp = 29,100
 - Emergency Engines: 0
 - Aggregate Insignificant Units (not specified)
 - Pollution control devices: none

¹ For more details and a map, see <https://www.tcenergy.com/operations/natural-gas/gas-transmission-northwest/>

² An Area Source for HAP emits less than 10 tons of any single HAP and less than 25 tons of HAPs combined.

- **Compressor Station 12 (Air Permit No. 09-0084-TV-01).** The air permit was issued on 8/10/2017. Subpart OOOOa is not identified as an applicable requirement. Overall, the air permit identifies the following permitted EUs:
 - Gas Turbine Compressors: 3
 - Total hp = 53,000
 - Emergency Engines: 1, subject to Part 63, Subpart ZZZZ.
 - Aggregate Insignificant Units (not specified)
 - Pollution control devices: none

II. Compliance History

ECHO Database

A review of EPA's database, Enforcement and Compliance History Online (ECHO)³ shows the following **air compliance activities** over the last five years at the three gas compressor stations inspected for this report:

	Compressor Station 10	Compressor Station 11	Compressor Station 12
Formal Enforcement Actions	0	0	0
Informal Enforcement Actions	10/21/19: State Warning Letter; recordkeeping for emergency generator.	0	0
Full Compliance Evaluations (FCE)	3	3	2
Partial Compliance Evaluations (PCE)	8	5	5
Calendar quarters with Noncompliance (out of 12)	1 (QTR3 2019)	0	0
FRV ⁴	1	0	0
HPV ⁵	No	No	No
Stack Tests Performed	3 (Pass)	0	0

Annual Compliance Certifications (ACC)

ACC reports are required by each Title V air permit as a standard permit requirement (40 CFR §70.6(c)(5)(iii)). The three compressor stations covered in this report reported continuous compliance with all permit terms and conditions over the last five years.

³ See <https://echo.epa.gov/>, a publicly available database.

⁴ FRV: EPA policy for Federally Reportable Violations, reportable by state, local and tribal agencies to EPA. See: <https://www.epa.gov/compliance/guidance-federally-reportable-violations-stationary-air-sources>

⁵ HPV: EPA policy for High Priority Violations. See: [Revision of US EPA's ERP for High Priority Violations of the CAA: Timely and Appropriate Enforcement Response to High Priority Violations - 2014](#)

Environmental Justice (EJ) Screening

Of the three locations inspected, only Compressor Station 11 is in a US Census Block area which scores above the 80th percentile for one or more criteria used by EPA for EJ screening purposes.⁶ The other two stations are not.

III. NSPS Subpart OOOOa Annual Reports

Annual Reports are required for facilities subject to Subpart OOOOa (§60.5420a(b)). At the time of the inspection none of the three compressor stations had submitted an Annual Report yet. An Annual Report will not be required until 90 days after the initial compliance period (which is one year after initial startup) (§60.5410a). The initial Annual Report must include the date of startup or modification of the facility, along with other required information. (§60.5420(b)(7))

IV. On Site Inspection

A. Day 1: Compressor Station 10, Grass Valley, OR (aka Kent) (7/19/22)

This was an announced inspection. EPA Inspector Heins and I arrived at Compressor Station 10 (Grass Valley, OR) at about 8:50 am. We parked on the side of the road and took a photo of the front gate, followed by another photo closer to the front gate showing the facility sign. The weather was very sunny, 79 degrees Fahrenheit with light winds. Inspector Heins calibrated a ThermoFisher Toxic Vapor Analyzers 2020 (TVA 2020) for Method 21 leak detection. Calibration gases were: Air zero grade THC < 1ppm; Methane in air 500 ppm; and Methane in air 10,000 ppm. In addition, for Optical Gas Imaging (OGI), we brought a FLIR camera, Model GF320, serial number 44401715 and EPA Tag ID: C13227FLIR 320. We used both the TVA 2020 and the FLIR camera to check for vapor leaks from facility components during the three on-site inspections described in this report.

We drove through the open gate and parked at the facility control room/office and met ODEQ inspection team members Doug Welch and Becka Puskas in the parking lot. We entered the building together.

Opening Conference

This was an announced inspection. In the control room we met GTN representatives Melinda Holdsworth (of the TC Energy Houston office), Dan Maguire (TC Energy Spokane office) and Site Operator Eric Dainty. We also met support Montrose representatives Jeffrey Tuskin and Michael Kupper. The Montrose contractors also had a FLIR OGI camera to check for vapor leaks. We introduced ourselves and Mr. Heins and I presented our inspector credentials.

Mr. Dainty asked to see our training certifications for their course, “HSE Orientation: External Contractors” which we showed him. This training is available online and the EPA and ODEQ inspection team members took it in advance of arriving as requested. Mr. Dainty then gave us a safety overview of Compressor Station 10. His overview included telling us about the muster

⁶ See: <https://www.epa.gov/ejscreen>

points in case of emergency; plunger buttons which are emergency shutdown buttons located across the facility; that we might hear very loud gas venting which is a normal part of the process he said; shutdown procedures (controlled locally); do not use cell phones on site, and personal protective equipment (PPE). We told me Dainty we would be taking photos with a digital camera and the FLIR camera which *are not* intrinsically safe, and we would also use the TVA 2020 which *is* intrinsically safe.

I asked the TC Energy representatives to describe the general operation of the gas pipeline. They said the gas comes from Canada and they operate a series of compressor stations along the route: in Canada, ID, WA Tri Cities, to OR, to the CA border. They said the first major compressor station in OR is in Ione (Compressor Station 9). They said they move about three billion cubic feet of gas daily through the pipeline. They said they have expansion plans in Athol, ID and Coyote, OR (which has not expanded yet, they said). The compressor station at Starbuck, WA has expanded, they said. (See Attachment 3, GTN Tariff Map for pipeline facility locations.)

Facility Tour Compressor Station #10

We began a tour of the facility at about 10:00 am. Over the course of the day, the EPA inspectors and Montrose contractors looked for fugitive emissions from compressor station components. ODEQ inspection team members and TC Energy representatives joined us during our observations. We followed the “observation path” as shown in the facility’s Emissions Monitoring Plan (Attachment 2, Appendix B - Site Maps). Mr. Dainty escorted us and carried a four-gas monitor. He provided information about the equipment we examined throughout the tour.

Overall, EPA and Montrose identified 36 fugitive emissions from facility components over the course of the day. EPA Inspector Pavitt operated the FLIR camera using the visible light mode, the high sensitivity IR mode (HSM), and the fully automatic IR mode (Auto). EPA Inspector Heins used the TVA 2020 to measure the concentration of methane and VOCs in ppm. EPA and Montrose shared information when leaks were found.

Montrose tagged the locations with green tags as leaks were found. The tags had the following information filled in: emissions ID, Component ID, Source (Flange, Threading, Union, Valve Stem, Valve Body, Open-Ended Line, PRV, Meter, Other), PPM, TECH (Name), Date.

In some cases, leaking components were repaired on the spot by Mr. Dainty and the repairs were verified using Method 21 (soap bubbles) or OGI.

Montrose documented the leaks in their own tracking system and took photos of tagged locations. (See Attachment 5-D, 7/19/2022 Survey Details.) EPA documented leak locations in their field notes and took video and photo images. (See Attachment 6, EPA LDAR Data and Photo Log.)

Following is a brief description of the areas observed during the inspection of Compressor Station 10.

Compressor 10-B Building, Demolished. We confirmed that compressor turbine 10-B has been removed. The building housing the unit was demolished and is no longer on site. I asked if the building and turbine compressor 10-B had been tested for asbestos prior to demolition. Mr. Maguire said that an asbestos survey was done in advance, and that they assumed that gaskets in the building were positive for asbestos. (Note that **State Title V Air Permit Condition G9** requires the facility to comply with State asbestos requirements, as well as federal air rule for asbestos, 40 CFR Part 61, subpart M. Among other requirements, facility owners and operators are required to conduct a thorough inspection for asbestos and notify the State prior to starting such a demolition project.)

Delay of Repair (DOR) Tags Applied. Montrose contractors placed blue, “LDAR Program DOR” tags on several leaking components which had been identified in the April 2022 fugitive emissions survey. A list of all leaking components on a DOR schedule was provided by the facility and is Attachment 5-A to this report. EPA Inspectors observed the tagged items and confirmed they were still leaking at the time of the inspection.

Gas Cooler. Natural gas coming through the facility becomes heated when it is compressed. Before leaving the facility, gas is cycled through a cooling system which resembles a large radiator cooled with roof fans. See Figure 1, below. 11 vapor leaks were found on components of the Gas Cooler system using Method 21. The leaks were found coming from valves installed in vertical pipe runs of the cooling system. See Figure 2, below. VOC concentrations measured by the TVA 2020 ranged from 2,000 – 50,000 ppm. At one or more locations the TVA 2020 “flamed out” while getting a reading. “Flame out” also occurred at times while monitoring other locations at Compressor Station 10 that day. The first seven leaks were not visible while using OGI by either EPA Inspector Pavitt or Montrose contractors. Bright sunshine reflecting off of the shiny metallic surface of the cooling pipes made viewing more difficult. It is the understanding of the EPA inspectors that after they departed at the end of the day, Montrose re-monitored the leaking components which EPA had discovered using Method 21 at the Gas Cooler and that Montrose confirmed the vapor leaks. The last four leaks, on the shaded side of the gas cooler, were found by Montrose using OGI. The four leaks were found to be coming from threaded connectors underneath insulation.

Valve Shelters. Compressor station valves are housed in sheds for weather protection. Before stepping inside the shelters, Site Operator Dainty and EPA Inspector Heins measured ambient VOC levels, which was elevated in some locations. EPA inspectors waited with doors open for the air to ventilate briefly before entering. See Figures 1 and 2, below. At some shelters, we found leaks from components inside the shelters and also from pressure relief valves connected to them and venting outdoors.



Figure 1: Gas Cooler System. EPA Inspector Heins (foreground) checking for fugitive emissions using a TVA 2020 instrument (Method 21), while EPA Inspector Pavitt (background) uses a FLIR Camera (OGI).



Figure 2: Example of leaking valve on the Gas Cooler found using Method 21. A tag was applied to the location by Montrose. All 11 leaks from the Gas Cooler were repaired by 8/9/22 according to facility records. (See Attachment 5-D, 7/19/2022 OOOOa Survey Details.)



Figure 3: Shelter for Valve 65 B (B-Line Blowdown Valve). One of multiple shelters that are part of the facility's monitoring plan for undergoing quarterly Leak Detection and Repair (LDAR).



Figure 4: Inside Valve 65 B Shelter. A leak was found on this valve regulator. Montrose tagged the leaking component upon discovery. Tag No. 60525062. Source: Open-Ended Line. This leak was repaired on 8/9/22 according to facility records. (See Attachment 4-D, 7/19/2022 OOOOa Survey Details.)

Gas Heater. At least one leak was found coming from a on a valve on the fuel gas heater.

Compressor Buildings A, C, D. Compressor Turbines 10-A, 10-C and 10-D are housed in individual buildings. Leaks were found coming from components in each building.

Instrument Building. A leak was found coming from a connector in the instrument building, which is housed separately from the compressors and valve shelters.

Emergency Generator. Three leaks were found coming from the emergency generator, which was not operating at the time of the inspection. The leaking components were the air filter and two threaded connections of the fuel gas inlet line. Mr. Dainty said he thought the leaks might be caused by a problem with a solenoid on the unit.

Blowdowns. The blowdown stack is located outside the fence line of the facility. EPA Inspector Pavitt observed it using OGI. No vapors were visible at the time of the inspection. Mr. Dainty said the stack receives natural gas from valves 61 and 65, but not from the compressor buildings. He said they do a scheduled blowdown demonstration once a year as required by the US DOT, Pipeline and Hazardous Materials Safety Administration (PHMSA), which oversees pipeline safety. He said that overall, the compressor station increases pressure of incoming gas, from about 600 – 750 PSI to an outgoing pressure of about 911 psi.

Pigging.⁷ Compressor Station #10 does not have a pigging operation. Mr. Dainty said compressor station #9 (to the north) and #11 (south) have pigging stations.

Scrubber Vent. I observed vapors coming from a scrubber vent. Mr. Dainty said when they do maintenance on the scrubber they usually find a very small amount of oil (about a cup or less), so he wasn't sure why we were seeing vapors now. He explained that the scrubber is connected to a part of the line where pressure changes.

Closing Conference, Day 1

Before leaving, we met in the control room/office to discuss the inspection so far and confirm plans for the next day.

I said that my review of the facility's Fugitive *Emissions Monitoring Plan* shows that it might be out of date or inaccurate in some ways. (Attachment 2) For example, the List of Affected Facilities in Table A-1 of their plan lists 56 compressor stations, which includes Coyote Springs, OR which I understood has not yet been constructed. In addition, Section 4 of their plan refers to a 30-day deadline to make repairs or replace leaking components, (40 CFR §60.5397a(h)(1)). However, that part of the rule was revised in September 2020, and I believe the deadline was changed to requiring a "first attempt at repair" within 30 days. I recommended that they check on that requirement and consider revising the plan accordingly. I said Section 4 of their plan has language stating they may delay repairs for up to two years if "parts are needed." (§60.5397a(h)(3)) I said I did not believe that such an exemption for replacement parts exists in the rule. I said I would check on that issue at EPA and get back to them with a clarification if possible.

I said that during the inspection today we observed a scrubber vent releasing vapors, which is a source of emissions that may need to be accounted for in their State Title V air permit. If the vapors are routine, then the permit may need to identify that as a regular emission source. If there is some sort of malfunction causing the vapors, they may need to report it as a permit deviation or as excess emission. I recommended they work with their State permit writer, Doug Welch about this (Doug had to leave early and was not present for the exit meeting). The

⁷ A pipeline "pig" is a device inserted into a pipeline for cleaning, maintenance or to collect data.

Montrose contractors said that the scrubber vent emissions already go into their Greenhouse Gas (GHG) reporting, under Subpart W.

CBI

I informed the facility representatives that if they believe that information they are providing during this inspection is Confidential Business Information (CBI), they can claim it as SBI. I said EPA has a process to receive and store CBI when claimed. I said EPA may ask them to justify their claim.

I asked if they had any questions for EPA at this time. The facility representatives did not.

The Montrose contractors said they would stay longer at Compressor Station 10 today and do their own Method 21 monitoring of the Gas Cooler, to confirm the leaks EPA found this morning. EPA let the Montrose contractors use our calibration gases to help them get ready.

For tomorrow, we agreed to meet at Compressor Station 12 at about 8:30 am and would spend a half day there and then move on to Compressor Station 11.

We left Compressor Station 10 at about 5:30 pm.

B. Day 2: Compressor Station 12, Bend, OR (7/20/22)

EPA Inspector Heins and I arrived at Compressor Station 12 at about 8:45 am. We were joined by ODEQ inspection team members Anna Loyd, Walt West and Matt Steele. We met with GTN representatives and their contractor Montrose in the control room/office to start the inspection. The GTN representatives were Melinda Holdsworth and Dan Maguire, plus Technician Paul Payne. Mr. Payne would be our escort while on-site today. The Montrose representatives were Jeffrey Tuskin and Michael Kupper.

The weather was warm, sunny at about 75 °F. Winds were approximately 5 mph

Mr. Payne asked to see our training certifications for their course, "HSE Orientation: External Contractors" which we showed him. I asked about the operating status of the facility today. Mr. Payne said they were stack testing the compressors. He said Compressor B was testing now, and Compressor A would take place next.

I told the facility representatives that the purpose of our inspection today was to check on applicability of Subpart OOOOa and to check for fugitive emissions. I said that unlike Compressor Station 10 which went through a modification, this facility (Station 12) has not been identified by GTN as being subject to Subpart OOOOa (had not modified). I asked Mr. Payne to give us a tour of the facility. To check for leaks, EPA Inspector Pavitt used a FLIR camera for OGI observations. EPA did not use Method 21 at this site. Montrose representatives did not operate their FLIR camera at this site at the time of the inspection, but later returned to the site to confirm the leaks. EPA inspectors documented seven leak locations from this site in their field notes and took video and photo images. (See Attachment 6, LDAR Data and Photo Log.)

Compressor A Building. We examined the building inside and out. A leak from a fuel regulator was found outside the building, in a shed which Mr. Payne called the “doghouse.” The location was PCV#135. Inside, a leak was found coming from a flow transmitter valve, lower rack, third from the left.

Natural Gas Heater, A and C Units. Incoming fuel gas is heated to a temperature above 90 °F, Mr. Payne said. At cooler temperatures, solids might form and clog the system, he said. No leaks were observed at these two locations.

Gas Coolers. No leaks were observed at this location.

Blowdown Station, A and B Lines. Vapors were observed coming from the Blowdown A Line, which Mr. Payne said could be caused by a worn valve. Vapors were also observed coming from the A Unit Stack, where the compressor vents. Mr. Payne said that might also be caused by a leaking valve (different valve from the Blowdown A Line).

A Line Pig Launcher. Mr. Payne said the equipment is both a pig launcher and a receiver. He said it’s used about once every five years and is required by regulation. He said the launcher is “full of gas and under pressure.” No leaks were observed at this location.

Valve-25, B-Line Bypass Valve Shelter. Mr. Payne said the valve was being used earlier this morning which switching over from Unit B to Unit A compressors. He said there are three bleed valves emerging from a side wall which run up to the roof. All three valves were white, but two were dark black at the tips. Vapors were observed coming from the northernmost valve tip, above the roofline. Mr. Payne said those were residual vapors or bleeding after venting took place from the switch-over. We also found a leak inside the shelter which was already tagged with two yellow tags labeled, “Caution – Leak Detected.” One was dated 5/11/21 and the other was dated 4/29/22.

An oily stain was visible on the ground (crushed rocks form the ground surface here), directly below the bleed valves. The oily stain measured approximately three feet across. I did not see vapors coming from the oily stain on the ground. Mr. Payne said they check this location on a monthly basis for oil on the ground and when they see it, they shovel the oily rocks into a 55-gallon drum for pick up and disposal. He said this was Marinus Actuator oil, similar to hydraulic oil.

Compressor B Building. We examined the building inside and out. It was not operating at the time of the inspection. No leaks were observed indoors at this location. A leak was observed outside the building at Unit B fuel gas meter bypass, at a connector flange.

Before leaving, we returned to the control room/office to let facility representatives know we were heading out and would meet them at Compressor Station 11 after lunch. We left Station 12 at about 11:34 am.

C. Day 2: Compressor Station 11, Madras, OR (7/20/22)

EPA Inspector Heins and I arrived at Compressor Station 11 at about 1:25 pm. We were joined again by ODEQ team members Anna Loyd, Walt West and Matt Steele. We parked at the control room/office and met with GTN representatives Dan Maguire and Eric Dainty, who had been our escort the day before at Compressor Station 12. Mr. Dainty was our escort again today. Montrose representatives Jeffrey Tuskin and Michael Kupper were also on site to participate.

The weather was hot, sunny at about 95 °F. Winds were approximately 5 mph.

Mr. Dainty asked to see our training certifications for their course, “HSE Orientation: External Contractors” which we showed him. He gave us a brief safety overview of the facility. This compressor station has two Solar Mars turbines. Mr. Dainty said Unit A is the “north” unit and was offline and Unit B is “south” and was running. He said the Blowdown Stack is in the southeast corner of the property. He said they have a first aid kit and AED on site. He said the valve shelters can vent gas to the roof and could be venting with a pressure of 700-800 pounds.

I asked about the overall pressure change to gas in the pipeline at this station. Mr. Dainty said incoming gas is approximately 795 psi and outgoing gas is approximately 856 psi. He said the temperature also increases from about 78 °F to about 83 °F (but those temperatures can change).

We toured the facility with Mr. Dainty, starting at about 2:10 pm. I used a FLIR camera for OGI observations, checking for fugitive emissions.

Emergency Engine. The facility has a spark-ignition emergency power generator which was not operating at the time of the inspection. It is included with Aggregate Insignificant emission units in the air permit. No leaks were observed at this location.

Boiler. The gas-fired boiler on site is included with Aggregate Insignificant emission units in the air permit and is used for building heating. No leaks were observed at this location.

Fuel Gas Building. Five leaks were found coming from components inside the building. Of these, four were already tagged as leaks, and the tags were dated between May 2019 – May 2021 (one tag was not dated). A new leak was discovered coming from a weep hole. Montrose tagged this item upon discovery. One of the known leaks was from PSV-8, with the gas flowing through a pipe to the outside of the building, to the roofline where the vapors were visible using OGI.

Scrubber. Vapor was observed coming from the scrubber stack. In addition, we observed oil dripping from the base of the scrubber and was creating an oily stain on the ground below, approximately three feet in diameter. The oily stain was damp. I did not see vapors coming from it.

Valve Shelter, VLV- 15. This is a suction valve for the B-Line. No vapors were observed at this location. However, a black widow spider was seen in the doorway.

B-Line Pig Launcher. No vapors were observed at this location.

Valve Shelter, B-Line Bypass. No vapors were observed at this location.

Valve Shelter, VLV-55. This is a B-Line discharge valve. A leak was observed at this location, coming from the most southern of three vents coming through the shed wall. A yellow tag was already applied at this location which noted, “roof vent for controllers.”

Blowdown Stacks. Vapors were observed coming from the largest of a group of three blowdown stacks.

Instrument Building. Vapors were observed coming from a component inside the building. The leak was already tagged with a yellow tag dated 9/20/2018.

Compressor Building, Units A, B. Unit B was operating at the time of the inspection. Inside the building we found three tags on components that identified leaks, but when viewed with the FLIR camera were found not to be leaking. One was a yellow tag # 11714 and was not dated. I used the FLIR camera to observe this item but did not see a vapor leak at the time of the inspection. Two additional tags were dated 3/19/2002 which identified leaking components “measured at roofline.” I stepped outside to look at the discharge pipes which ran to the roofline from the components but did not see vapors coming from them.

We found another tag, # 17120099, dated 5/10/21 identifying a leak from a connection. Using the FLIR camera, I did observe an active leak at this location. Close by this connection, I observed a new leak using the FLIR camera. Montrose tagged the leak.

At the highest point of the roofline, we saw continuous venting from a pipe using the FLIR camera, which Mr. Dainty said was “seal gas” coming from a seal vent for the B Compressor. He said the plume of emissions were probably not “fugitive” emissions because they are conveyed through a pipe.

V. Closing Conference

We had a closing conference to review both days of the inspection, covering three compressor stations. It started at about 4:20 pm at the Compressor Station #11 control room/office. Some participants joined via a MS Teams connection that GTN made available. Attending were:

TC Energy: Trevor Galle, Melinda Holdsworth, Dan Maguire, Murali Ramamoorthy,
Eric Dainty
Montrose: Jeffrey Tuskin, Michael Kupper
EPA R10: John Pavitt, Dan Heins
ODEQ: Walt West, Anna Loyd, Matt Steele, Becka Puskas, Ken Hanna

I thanked the TC Energy and Montrose representatives for their time during the two days of inspections. I summarized our observations at the compressor stations.

On Tuesday at Station #10 - which is subject to NSPS Subpart OOOOa because of a modification - EPA and Montrose used OGI cameras and found VOC and methane leaks. In addition, EPA used a TVA 2020 analyzer for Method 21 measurements and found leaks. Overall, the combined effort identified 36 leaks at Station #10. On Wednesday at Stations #11 and #12 which have not been identified as subject to Subpart OOOOa EPA used an OGI camera and found a number of leaks as well.

I said Montrose promptly tagged the identified leaks at each station and I saw they were logging the information into their tracking system. I said that Subpart OOOOa requires that leaks be repaired, and the repairs verified. Their *Monitoring Plan* states that they may delay repairs up to two years if parts are needed. I said I'm not aware of Subpart OOOOa allowing Delay-of-Repair for that reason, but I would research that and let them know what I find out. Mr. Maguire said that sometimes replacement parts have to be rebuilt. He said some of their parts come from Rolls Royce in Scotland and the delays can be quite long with overseas shipping. Mr. Ramamoorthy said the compressor stations are old and the parts may not be available because the manufacturers have gone out of business in some cases, and therefore they have to have the parts redesigned.

I said their *Monitoring Plan* may also need to be revised because it lists 56 compressor stations nationwide as affected facilities, but at least one of the sites has not yet been constructed.

Regarding the Emergency Engine at Station #10, I said we found three leaking components from the engine and I noted that may be a safety issue considering that the engine is in an enclosed building. The facility representatives pointed out that the generator building is ventilated on two sides.

I said Subpart OOOOa applies to pneumatic controllers as well as fugitive emissions and asked if they have pneumatic controllers subject to the rule. I said at least one pipeline company in Region 10 added new pneumatic controllers and became subject to the rule. Mr. Galle asked if it makes a difference whether the pneumatic controllers are intermittent vs continuous bleed. I said I would have to check the rule.

I said I would send a records request for this inspection to Ms. Holdsworth tomorrow. I said I would appreciate getting the records in about two weeks if possible. The facility representatives said they may need additional time. (See Records Review, below.)

I said if the company believes any records they provide are CBI, they can claim them as such and to please let me know.

I asked if anyone had questions for me about the inspection. No one had a question.

This concluded our meeting. EPA Inspector Heins and I left the facility at 5:15 pm.

VI. Records Review

On 7/21/22, EPA requested records from TC Energy related to the inspections, via email. (Attachment 4). On August 11th, TC Energy began uploading electronic records to an EPA OneDrive folder created by EPA Inspector Pavitt. The records took overnight to upload (Attachment 5). The records include a narrative response to EPA's request plus Attachments A-F. The records are described below.

	EPA Request	GTN Response
1	EPA requested records related to three topics: -Pneumatic controllers -Compressor Stations -Asbestos NESHAP	GTN provided a narrative response to go along with Attachments A-F, described below. Regarding pneumatic controllers, GTN stated they only operate <u>intermittent bleed</u> pneumatic controllers at the three compressor stations. EPA Comment: Subpart OOOOa applies to each "pneumatic controller...which is a single <u>continuous bleed</u> natural gas-driven pneumatic controller operating at a natural gas bleed rate greater than 6 standard cubic feet per hour (scfh)." (§60.5365a(d))
		Regarding compressor stations, GTN provided the following information. GTN stated there has been no replacement of compressor turbines in the last five years at Stations #11 and #12 and horsepower remained the same. GTN stated the new Compressor Station #10 unit 10-D started up on 11/18/2021, and the initial monitoring was on 1/11/2022. GTN provided the dates of quarterly surveys for fugitive emissions.
		Regarding the Asbestos NESHAP, GTN has not yet provided a copy of a notice of demolition activity as requested. As of the date of this report, GTN was still looking for a copy. The record provided by GTN is correspondence from ODEQ to the company, which is a State Order/approval for a demolition. The Order itself does not confirm that an asbestos notification was submitted to the State.
A	Records for each fugitive emissions monitoring survey	OOOOa Summary Report was provided.

	EPA Request	GTN Response
	since startup of Turbine Compressor 10-D at Compressor Station 10.	The record summarizes quarterly leak detection and repair (LDAR) inspections in January, April and July 2022. Inspections were performed by contractor Montrose. This includes survey start dates and times, end dates and times, technician name, technician experience, weather conditions, LDAR instrument used, deviations (none identified), leaking components placed on a Delay of Repair (DOR) schedule, the reason for a DOR, resurvey dates and the method used to confirm repairs. Note that because Compressor Station #10 has not yet completed its initial one-year compliance period, an Annual Report is not due yet. Therefore, this record is a summary of monitoring to date, not an Annual Report as described at §60.5420a(b)(7). Dates of Surveys and Results: 1/11/22: 8 leaks were identified, 1 was placed on a DOR schedule. 4/28/22: 6 leaks were identified, 5 were placed on a DOR schedule. 7/19/22: This was the inspection performed during EPA’s on-site inspection. <u>29</u> leaks are described in this document. 2 were placed on a DOR schedule. As noted above, overall, EPA and Montrose identified <u>36</u> fugitive emissions (leaks) from facility components over the course of the day. The additional 7 leaks identified by EPA using a TVA 2020 (Method 21) are missing from the report. When the facility completes its initial compliance period, the corresponding Annual Report will be required to include the “number and type of components for which fugitive emissions were detected.” (§60.5420a(b)(7)(ii)(D)). The monitoring records do not include the operating status of the compressors at the facility being monitored as required. (§60.5420a(c)(15)(vii)(F))
B	January 2022 LDAR Survey Details	Provides detailed description of leaking components, repair dates, repair confirmation method and a photo of each component.

	EPA Request	GTN Response
C	April 2022 LDAR Survey Details	Provides detailed description of leaking components, repair dates, repair confirmation method and a photo of each component.
D	July 2022 LDAR Survey Details	Provides detailed description of leaking components (but not the 7 leaks found by EPA using Method 21 that day), repair dates, repair dates, repair confirmation method and a photo of each component.
E	Shutdown date for Compressor Station #10 (Grass Valley, aka, Kent, OR)	The station had a planned shutdown on 4/5/2022. Note that any leaking components on a DOR schedule prior to the planned shutdown were required to be repaired during this shutdown event, or within two years whichever is earliest. (§60.5397a(h)(3)) Records provided by GTN show the leaking component identified in January 2022 and put on a DOR schedule was subsequently repaired as required.
F	Asbestos records for the demolition of building which housed Compressor 10-B.	Records provided include an asbestos lab report dated 4/3/2020 which show the results for 4 samples collected at Compressor Station #10, all of which were non-detect for asbestos. However, GTN has not yet provided a copy of a demolition notification to ODEQ as requested.

EPA reviewed TC Energy’s *Fugitive Emissions Monitoring Plan*, originally finalized on March 6, 2018 and last updated in July 2022 (Attachment 2 to this report). Subpart OOOOa requires affected facilities to develop and follow a monitoring plan which covers the collection of fugitive emissions components at well sites and compressor stations at a company-defined area. (§60.5397a(b)) TC Energy defined the “company-defined area” as a list of 56 compressor stations in the United States, which includes the GTN pipeline on Oregon and other pipelines. (See Appendix A of the Plan.)

Overall, the TC Energy Monitoring Plan is a comprehensive description of their quarterly LDAR procedures, using OGI for leak surveys and OGI or Method 21 for verifying repairs. However, the Plan appears to have some inaccurate information, gaps in recordkeeping requirements and some polices that appear to be inconsistent with Subpart OOOOa. For example:

- The List of Affected TC Energy Compressor Stations (Appendix A) includes the Coyote Springs Compressor Station in Oregon, which has not yet been constructed.
- Recordkeeping (Section 6.0) does not include a statement that records will be maintained either onsite or at the nearest local field office for at least 5 years, as required (§60.5420a(c)). The Plan states that TC Energy’s service contractor will maintain records in an electronic format. That does not appear to satisfy the recordkeeping requirement in the rule.
- The Repair Schedule (Section 4.0) states that leaking components “must be repaired within 30 days of identification of the leak unless the leaking component qualifies for

Delay-of-Repair (DOR) (§60.5397a(h)(1)).” This citation and the requirement deadline have changed.⁸ The rule now reads, (1) “A first attempt at repair shall be made no later than 30 calendar days after detection of the fugitive emissions.” And, (2) “Repair shall be completed as soon as practicable, but no later than 30 calendar days after the first attempt at repair as required in paragraph (h)(1) of this section.”

- A list of Inspection Records to be maintained (Section 6.1) includes regulatory citations that changed with the 9/15/20 Final Rule changes (Footnote 8).
- The Site Map for Compressor Station #10 (Appendix B) has a drawing of a Pig Launcher to be constructed in 2019, but which has not been constructed. In addition, the new building for compressor 10-D does not appear on the map.
- The Procedure for Conducting Surveys (Section 3.5) excludes blowdown valves from inspection. It includes a table showing examples of “Fugitive Emissions” and “Normal Operation (non-Emissions).” Included with the “non-Emissions” examples are “blowdown valves, pressure connected to vents.” Blowdown valves do not appear to be exempt from monitoring. Under Subpart OOOOa, the definition of “fugitive emissions components” (§60.5430a) excludes some components that vent as a part of normal operations as not being fugitive emissions. However, the specific example of “blowdown valves, pressure connected to vents” is not included. During the inspection at Compressor Station #10, inspectors observed leaking vapors coming from Valve 65 B (B-Line Blowdown Valve) as shown in Figures 3 and 4, above. In addition, emissions were coming from blowdown stacks at Compressor Stations # 11 and #12 (which are not affected facilities under Subpart OOOOa but illustrate this equipment can have leaks). At the time of the inspection Compressor Stations # 11 and #12 were not undergoing a blowdown activity and operators attributed the vapors to worn or leaking valves, which allowed vapors to flow to the blowdown stacks. Because the facilities were not undergoing a blowdown activity, no vapors should have been flowing to the associated stacks.
- The Plan includes a policy on placing leaking components on a DOR schedule (Section 4.0). The policy includes using a DOR schedule when parts are needed. This specific reason for placing an item on a DOR schedule does not appear in Subpart OOOOa. A review of EPA’s guidance materials, federal register notices for the proposed and final rule and the Applicability Determinations Index (ADI)⁹ have not turned up any references to delaying repairs when parts are needed. This part of the company’s plan appears to be in conflict with rule requirements to make prompt repairs after discovery. (§60.5397a(h)).

VII. Post-Inspection Activity

On 9/9/22 I scheduled a meeting with TC Energy representatives Holdsworth and Ramamoorthy to go over questions I had about the records they provided. (Attachment 7). The company representatives answered all my questions at that time.

⁸ See **Federal Register** / Vol. 85, No. 179 / Tuesday, September 15, 2020. Final Rule.

⁹ <https://cfpub.epa.gov/adi/>

VIII. Areas of Concern

Based on my on-site inspection and review of records, I have identified the following compliance concerns at GTN facilities.

At Compressor Station #10 we observed a scrubber vent releasing vapors, which is a source of emissions that may need to be accounted for in the State Title V air permit or reported as an excess emission or permit deviation.

At Compressor Stations # 11 and #12 we observed vapors coming from Blowdown stacks. A blowdown event was not taking place at either station at the time and operators attributed the vapors to worn or damaged valves. This is a source of emissions that may need to be accounted for in the State Title V air permit or reported as an excess emission or permit deviation.

EPA requested records of all fugitive emissions monitoring at Compressor Station #10 since it was modified in November 2021. The records submitted to EPA do not show that the operating mode of each compressor was being collected at the time of the survey as required. (§60.5420a(c)(15)(vii)(F)) The company may be maintaining such records but has not provided them as requested. The company's *Fugitive Emissions Monitoring Plan* also does not include a commitment to collect this information specifically.

The company's *Fugitive Emissions Monitoring Plan* appears to have some inaccurate information, gaps in recordkeeping requirements and some policies that appear to be inconsistent with Subpart OOOOa. The list of affected facilities includes a compressor station that has not been constructed yet. The Site Map includes infrastructure (pig launcher) which is not yet constructed and does not show a new compressor building. The plan states that leaking components may be placed on a DOR schedule if replacement parts are needed. Subpart OOOOa does not list that as a valid reason to delay repairs. The Plan's Procedure for Conducting Surveys (Section 3.5) excludes blowdown valves from inspection; however, blowdown valves do not appear to be exempt from Subpart OOOOa monitoring. EPA observed leaks from blowdown valves during the inspection. The Plan relies on a 3rd party contractor to maintain field records rather than maintaining records onsite or at the nearest local field office for at least 5 years, as required.

Regarding the Asbestos NESHAP, GTN has not yet provided a copy of a notice of demolition activity (demolition of the building housing unit 10-B) as requested. As of the date of this report, GTN was still looking for a copy.