

April 26, 2022

Re: TC Energy - Rutledge Compressor Station
Annual Leak Monitoring Survey Report

TC Energy's Columbia Pipeline Group operates the Rutledge Compressor Station in Fallston, Maryland. Per 26.11.41.03B(3)(a) the Rutledge Compressor Station conducted its annual leak detection monitoring survey on March 28, 2022. In accordance with COMAR 26.11.41.07, each leak monitoring survey is required to be posted on a publicly available website for a period of two years from the survey date.

TC Energy - Rutledge Compressor Station
Leak Detection and Repair Report

EMISSION DETAIL REPORT

Company:	TC Energy USA	Facility:	Rutledge	Start Date:	3/28/2022	Technician:	Nicholas Santmyer	Leaks	LDAR Leak Count:	12	Vents	Repair Required:	0	REPAIR STATUS				
District:	CPG North	Location:	39.561770 / -76.477239	End Date:	3/28/2022	Technician:	Zachary Hudecek		Non-LDAR Leak Count:	0		Mandatory Emission Tests	Total:				0	Repaired:
Assessment Comments:	MDE Survey at Rutledge Compressor Station conducted on 03-28-2022. All Units are Dry Seal Centrifugal Compressors and were Standby/ Pressurized. Station and Unit Blowdowns are Combined. VPAC was Inconclusive, HiFlow Rates Were Split Between Blowdown Valves.											Unsuccessful At:	0					

Emission ID #	Emission Type	Detection Date	Process Block	Field Equipment Designation	Component	Sub Source	Operating Mode	Emission Description	LEL Toxic Subst Hazard	Emission Severity	Gas Type	Previous Leak (emission id)	Rate (cfm)	Detection Method / Quantification Method	NA	Repair Recommendation	Initial PPM Reading	LDAR Tag ID	Bubble Test	Repair Status	Repair Status Date	First Attempt Due Date	Final Attempt Due Date	DOR Reason	DOR Approver Name	Final PPM Reading	Repair Confirmation Method	
85610103	Leak	03/28/2022	Compressor Cent. Dry Seal	Unit 3	Connector - MDE	Flange Connection	Standby/Pressurized	Flange on Cooling Gas Inlet Line, Unit 3, Floor Level.	No	LOW	Sweet Gas		0.07	Optical Gas Imaging/ Optical Gas Imaging		Replace gasket/seal and tighten connection	-	-	Yes	Delay of Repair	03/28/2022	-	04/27/2022	Shutdown required	Murali Ramamoorthy	-	-	
85610104	Leak	03/28/2022	Compressor Cent. Dry Seal	Unit 3	Connector - MDE	Flange Connection	Standby/Pressurized	Suction Bypass Line, Unit 3, Floor Level.	No	LOW	Sweet Gas		0.05	Optical Gas Imaging/ Optical Gas Imaging		Replace gasket/seal and tighten connection	-	-	Yes	Delay of Repair	03/28/2022	-	04/27/2022	Shutdown required	Murali Ramamoorthy	-	-	
85610105	Leak	03/28/2022	Compressor Cent. Dry Seal	Unit 2	Connector - MDE	Threaded Connection	Standby/Pressurized	Union North of 90 on Start Gas Line, Unit 2.	No	LOW	Sweet Gas		0.04	Optical Gas Imaging/ Optical Gas Imaging		Tighten connection	-	-	Yes	Delay of Repair	03/28/2022	-	04/27/2022	Shutdown required	Murali Ramamoorthy	-	-	
85610106	Leak	03/28/2022	Compressor Cent. Dry Seal	Unit 2	Connector - MDE	Threaded Connection	Standby/Pressurized	Plug on Southwest Side of Unit 2.	No	LOW	Sweet Gas		0.06	Optical Gas Imaging/ Optical Gas Imaging		Reseal connection and tighten	-	-	Yes	Delay of Repair	03/28/2022	-	04/27/2022	Shutdown required	Murali Ramamoorthy	-	-	
85610107	Leak	03/28/2022	Separator/Filter	Main suction scrubber	Connector - MDE	Threaded Connection	N/A	Bottom Threaded Connection of Vent Valve on Level Switch, East of Main Suction Scrubber.	No	LOW	Sweet Gas		0.06	Optical Gas Imaging/ Optical Gas Imaging		Reseal connection and tighten	-	-	Yes	Delay of Repair	03/28/2022	-	04/27/2022	Shutdown required	Murali Ramamoorthy	-	-	
85610108	Leak	03/28/2022	Separator/Filter	Main suction scrubber	Connector - MDE	Threaded Connection	N/A	Top Threaded Connection of Bottle Below South Transmitter, East of Main Suction Scrubber.	No	LOW	Sweet Gas		0.08	Optical Gas Imaging/ Optical Gas Imaging		Reseal connection and tighten	-	-	Yes	Delay of Repair	03/28/2022	-	04/27/2022	Shutdown required	Murali Ramamoorthy	-	-	
85610109	Leak	03/28/2022	Separator/Filter	Main suction scrubber	Connector - MDE	Threaded Connection	N/A	Top Hammer Union on Top Line of North Level Switch, East of Main Suction Scrubber.	No	LOW	Sweet Gas		0.09	Optical Gas Imaging/ Optical Gas Imaging		Tighten connection	-	-	Yes	Delay of Repair	03/28/2022	-	04/27/2022	Shutdown required	Murali Ramamoorthy	-	-	
85610110	Leak	03/28/2022	Separator/Filter	South cooling gas scrubber, unit 1	Connector - MDE	Threaded Connection	N/A	South Threaded Connection of Check Valve on Cooling Gas Scrubber Drain Line, Unit 1.	No	LOW	Sweet Gas		0.06	Optical Gas Imaging/ Optical Gas Imaging		Reseal connection and tighten	-	-	Yes	Delay of Repair	03/28/2022	-	04/27/2022	Shutdown required	Murali Ramamoorthy	-	-	
85610112	Leak	03/28/2022	Separator/Filter	North cooling gas scrubber, unit 3	Connector - MDE	Threaded Connection	N/A	Union on Top Line of Level Switch, Cooling Gas Scrubber, Unit 3.	No	LOW	Sweet Gas		0.09	Optical Gas Imaging/ Optical Gas Imaging		Tighten connection	-	-	Yes	Delay of Repair	03/28/2022	-	04/27/2022	Shutdown required	Murali Ramamoorthy	-	-	
85610113	Leak	03/28/2022	Separator/Filter	Main discharge scrubber	Connector - MDE	Threaded Connection	N/A	Top Threaded Connection of Level Switch, South of Main Discharge Scrubber.	No	LOW	Sweet Gas		0.06	Optical Gas Imaging/ Optical Gas Imaging		Reseal connection and tighten	-	-	Yes	Delay of Repair	03/28/2022	-	04/27/2022	Shutdown required	Murali Ramamoorthy	-	-	
85610114	Leak	03/28/2022	Compressor Cent. Dry Seal	Unit 1	Open-ended Line - MDE	Valve Seat	Standby/Pressurized	OEL Units 1, 2, and 3 Blowdown Valves.	No	MEDIUM	Sweet Gas		0.39	Optical Gas Imaging/ HiFlow		Replace seal(s)	-	-	No	Delay of Repair	03/28/2022	-	04/27/2022	Shutdown required	Murali Ramamoorthy	-	-	
TOTAL													1.51															

LEL +/or Safety Hazard*

The following risk matrix is used to risk rank any possible leak/vent safety hazards. The LEL/Safety Hazard Checkbox must be checked if a leak (or group of leaks) poses any significant hazard. Examples of this may be:

- Personal detector reads any LEL reading
- Personal detector reads any H2S or any H2S leak
- Personal detector alarms for any reason (toxic, low O2, etc.)
- Emission is found near any possible ignition source (i.e. burner, electrical conduit, exposed wiring, etc.)
- Emission rate is so high that it poses a hazard
- Emission source location may cause inhalation hazard to facility personnel or public

The severity is primarily based on the LEL reading or ppm for any toxic gases (see fifth column under "Consequences"). The total leak rate is also taken into account on the severity.

Severity	Consequences				Probability				
	People	Assets	Environment	Reputation	LEL/Toxic Gas Level	A	B	C	D
0	No injury or health effect	No Damage	No effect (<0.01 cfm)	No impact	0% LEL and Open Toxics within 0.5 m of source	Low	Slight	Mod.	High
1	Slight inhalation/odor risk	Slight wear	Slight effect (0.01 - 0.05 cfm)	Slight impact	0% LEL and Open Toxics within 0.5 m of source				
3	Minor fire/explosion injury risk or exposure risk	Minor Damage	Minor effect (0.05 - 1.0 cfm)	Minor impact	1-5% LEL and below alarm level Toxics within 0.5 m of source				
4	Moderate fire/explosion injury risk or exposure risk	Moderate Damage	Moderate Effect (1.0 - 10 cfm)	Moderate impact (Regulator involvement)	Cause of LEL or 1-5% and alarm level Toxics in building				
6	Extreme fire/explosion or toxic exposure fatality risk	Major Damage	Major Effect (>10.0 cfm)	Major impact (Regulator enforcement)	Cause of LEL 10% and over and above alarm level Toxics in building				

LOW RISK	The risk is not serious. It does not require immediate action, but should be periodically revisited to ensure that risks remains acceptably low
MODERATE RISK	The risk is moderate. It requires further review of controlled responses to determine the potential for escalation and to ensure risk is within acceptable limits
HIGH RISK	The risk is high. It requires immediate action and prompt review of control and mitigation measures.

April 26, 2021

Re: TC Energy - Rutledge Compressor Station
Annual Leak Monitoring Survey Report

TC Energy's Columbia Pipeline Group operates the Rutledge Compressor Station in Fallston, Maryland. Per 26.11.41.03B(3)(a) the Rutledge Compressor Station conducted its initial leak detection monitoring survey on March 2, 2021. In accordance with COMAR 26.11.41.07, each leak monitoring survey is required to be posted on a publicly available website for a period of two years from the survey date. This posting fulfills TC Energy's obligation to meet that requirement.

TC Energy - Rutledge Compressor Station
Leak Detection and Repair Report April 2021

EMISSION DETAIL REPORT

Company: TC Energy USA	Facility: Rutledge	Start Date: 3/2/2021	Technician: Sebastian Smith	Leaks	LDAR Leak Count: 13	Vents	Repair Request: 0	REPAIR STATUS						
District: CPG North	Location: 39.561776 / -76.477239	End Date: 3/2/2021	Technician: Matthew Fuller		New LDAR Leak Count: 0	Mandatory Emission Tests	Test: 0	Leak Tests: 0	Vent Tests: 0	Not Emission Tests: 0	Total Tests: 0	Repaired: 11	Delay of Repair: 2	Unsuccessful Attempt: 0
					Total Leak Count: 13									

Assessment Comments: MDE Survey at Rutledge on 03/02/2021. All Units are Dry Seal Centrifugal Compressors and were standby Pressurized. Station and Unit Blowdowns are combined. Station Blowdown Valves are Buried. Acoustic VPAC was used to identify leaking Unit Isolation Valves; all Unit Blowdowns were identified as leaking.

Emission ID #	Emission Type	Detection Date	Process Block	PLM Equipment Designation	Component	Sub Source	Operating Mode	Emission Description	LEL Tox / Safety Hazard	Emission Severity	Gas Type	Previous Leak (emission lb)	Rate (cm)	Detection Method	Quantification Method	N/A	Repair Recommendation	Initial PPM Reading	LDAR Tag ID	Bubble Test	Repair Status	Repair Status Date	First Attempt Due Date	Final Attempt Due Date	DOR Start Date	DOR End Date	DOR Reason	DOR Approver Name	Final PPM Reading	Repair Completion Method		
35611076	Leak	03/02/2021	Separator/Filter	Main suction scrubber	Connector - MDE	Threaded Connection	NA	Bottom Threading to Pressure Transmitter, Suction Line to Heat Scrubber	No	LOW	Sweet Gas		0.02	Optical Gas Imaging/Optical Gas Imaging			Tighten connection	-	-	Yes	Repaired	03/17/2021	-	04/01/2021	-	-	-	-	-	-	Bubble Test	
35611077	Leak	03/02/2021	Separator/Filter	Main suction scrubber	Connector - MDE	Threaded Connection	NA	Top Threading to East Level Switch on Hydrocarbon Tank, Main Suction Scrubber	No	LOW	Sweet Gas		0.03	Optical Gas Imaging/Optical Gas Imaging			Tighten connection	-	-	Yes	Repaired	03/17/2021	-	04/01/2021	-	-	-	-	-	-	Bubble Test	
35611078	Leak	03/02/2021	Compressor Cent. Dry Seal	North cooling gas scrubber, unit 1	Connector - MDE	Threaded Connection	Standby/Pressurized	South Threading to Union on Drain Line from North Cooling Gas Scrubber, Unit 1	No	LOW	Sweet Gas		0.08	Optical Gas Imaging/Optical Gas Imaging			Tighten connection	-	-	Yes	Repaired	03/17/2021	-	04/01/2021	-	-	-	-	-	-	Bubble Test	
35611079	Leak	03/02/2021	Compressor Cent. Dry Seal	South cooling gas scrubber, unit 1	Connector - MDE	Flange Connection	Standby/Pressurized	South Flange, Valve 108, Bottom Horizontal 2" Valve to South Cooling Gas Scrubber, Unit 1	No	LOW	Sweet Gas		0.08	Optical Gas Imaging/Optical Gas Imaging			Replace gasket and tighten connection	-	-	Yes	Repaired	03/17/2021	-	04/01/2021	-	-	-	-	-	-	Bubble Test	
35611080	Leak	03/02/2021	Compressor Cent. Dry Seal	South cooling gas scrubber, unit 1	Connector - MDE	Flange Connection	Standby/Pressurized	West Threading to Differential Pressure Meter, South Cooling Gas Scrubber, Unit 1	No	LOW	Sweet Gas		0.05	Optical Gas Imaging/Optical Gas Imaging			Tighten connection	-	-	Yes	Delay of Repair	04/01/2021	-	04/01/2021	04/01/2021	04/01/2021	Shutdown Required	Wayne Cook	-	-		
35611081	Leak	03/02/2021	Compressor Cent. Dry Seal	North cooling gas scrubber, unit 2	Valve - MDE	Grease Fitting	Standby/Pressurized	Grease Fitting, Unit 2 Cooling Gas Line Valve	No	LOW	Sweet Gas		0.01	Optical Gas Imaging/Optical Gas Imaging			Tighten valve packing	-	-	No	Repaired	03/02/2021	-	04/01/2021	-	-	-	-	-	-	OGI	
35611082	Leak	03/02/2021	Compressor Cent. Dry Seal	Unit 2	Connector - MDE	Threaded Connection	Standby/Pressurized	Top Tapping Union on Unit side of Pressure Differential Line over Suction Loading Valve, Unit 2	No	LOW	Sweet Gas		0.01	Optical Gas Imaging/Optical Gas Imaging			Tighten connection	-	-	Yes	Repaired	03/02/2021	-	04/01/2021	-	-	-	-	-	-	-	OGI
35611083	Leak	03/02/2021	Compressor Cent. Dry Seal	Unit 2	Connector - MDE	Threaded Connection	Standby/Pressurized	Tapping Union to Elbow North of Pressure Differential Meter over Suction Loading Valve, Unit 2	No	LOW	Sweet Gas		0.01	Optical Gas Imaging/Optical Gas Imaging			Tighten connection	-	-	Yes	Repaired	03/02/2021	-	04/01/2021	-	-	-	-	-	-	-	OGI
35611084	Leak	03/02/2021	Compressor Cent. Dry Seal	Unit 2	Connector - MDE	Threaded Connection	Standby/Pressurized	Tapping Union to Elbow Below of Pressure Differential Meter over Suction Loading Valve, Unit 2	No	LOW	Sweet Gas		0.01	Optical Gas Imaging/Optical Gas Imaging			Tighten connection	-	-	Yes	Repaired	03/02/2021	-	04/01/2021	-	-	-	-	-	-	-	OGI
35611085	Leak	03/02/2021	Compressor Cent. Dry Seal	Unit 3	Connector - MDE	Threaded Connection	Standby/Pressurized	Top Union, Fiber Dump, Cooling Gas System, Unit 3	No	LOW	Sweet Gas		0.03	Optical Gas Imaging/Optical Gas Imaging			Tighten connection	-	-	Yes	Repaired	03/17/2021	-	04/01/2021	-	-	-	-	-	-	-	Bubble Test
35611086	Leak	03/02/2021	Compressor Cent. Dry Seal	Unit 3	Valve - MDE	Valve Stem	Standby/Pressurized	Packing, Discharge Valve, Unit 3	No	MEDIUM	Sweet Gas		0.12	Optical Gas Imaging/Optical Gas Imaging			Tighten valve packing	-	-	Yes	Delay of Repair	04/01/2021	-	04/01/2021	04/01/2021	04/01/2021	Shutdown Required	Wayne Cook	-	-		
35611087	Leak	03/02/2021	Separator/Filter	Main discharge scrubber	Connector - MDE	Threaded Connection	NA	Top Threading Connection to South Level Switch, Hydrocarbon Tank, Main Discharge Scrubber	No	LOW	Sweet Gas		0.06	Optical Gas Imaging/Optical Gas Imaging			Tighten connection	-	-	Yes	Repaired	03/17/2021	-	04/01/2021	-	-	-	-	-	-	Bubble Test	
35611088	Leak	03/02/2021	Separator/Filter	Unit 3	Connector - MDE	Threaded Connection	NA	Top Threading Connection to North Level Switch, Hydrocarbon Tank, Main Discharge Scrubber	No	LOW	Sweet Gas		0.08	Optical Gas Imaging/Optical Gas Imaging			Tighten connection	-	-	Yes	Repaired	03/17/2021	-	04/01/2021	-	-	-	-	-	-	Bubble Test	
TOTAL													0.61																			

LEL, H2S, Safety Hazard

The following risk matrix is used to risk rank any possible leak/vent safety hazards. The LEL/Safety Hazard Checklist must be checked if a leak (or group of leaks) poses any significant hazard. Examples of this may be:

- Personal detector reads any LEL reading
- Personal detector reads any H2S or any CO2 leak
- Personal detector alarms for any methane leak (any PPM over 1)
- Emission is found near any possible ignition source (i.e. burner, electrical conduit, exposed wiring, etc.)
- Emission ends in an both that it poses a hazard
- Emission source location may cause inhalation hazard to facility personnel or public

The severity is primarily based on the LEL reading or ppm for any toxic gases (see fifth column under "Consequences"). The total leak rate is also taken into account on the severity.

Severity	Consequences				Probability				
	People	Assets	Environment	Reputation	LEL/Toxic Gas Level	A	B	C	D
	Low	Slight	Minor	Moderate	High	Low	Slight	Mod.	High
0	No injury or health effect	No Damage	No effect (<0.01 cfm)	No impact	0% LEL and 0ppm Toxics within 0.5 m of source				
1	Slight inhalation/odor risk	Slight wear	Slight effect (0.01 - 0.05 cfm)	Slight impact	0% LEL and 0ppm Toxics within 0.5 m of source				
3	Minor fire/explosion injury risk or exposure risk	Minor Damage	Minor effect (0.05 - 1.0 cfm)	Minor impact	1-5% LEL and below alarm level Toxics within 0.5 m of source				
4	Moderate fire/explosion injury risk or exposure risk	Moderate Damage	Moderate Effect (1.0 - 10 cfm)	Moderate impact (regulator involvement)	Cause of LEL of 1-5% and alarm level Toxics in building				
5	Extreme fire/explosion or toxic exposure fatality risk	Major Damage	Major Effect (>10.0 cfm)	Major impact (regulator enforcement)	Cause of LEL 10% and over and above alarm level Toxics in building				

LOW RISK	The risk is not serious. It does not require immediate action, but should be periodically revisited to ensure that risks remains acceptably low
MODERATE RISK	The risk is moderate. It requires further review of controlled responses to determine the potential for escalation and to ensure risk is within acceptable limits
HIGH RISK	The risk is high. It requires immediate action and prompt review of control and mitigation measures.