

September 14, 2023

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 July 21, 2023. 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 DI	TAIL REP	ORT					
Company:	TC Energy	y USA	Facility:	Rutledge	5	Start Date:	7/21/2023	Technician: Zachary D	Zachary Deckert		LDAR Leak Count:	1		REPAIR STATUS	
			-		_					Leaks	Non-LDAR Leak Count:	0	Repaired:	Delay of Repair:	Unsuccessful Att:
District:	CPG No	orth	Location:	39.561770 / -76.477	239	End Date:	7/21/2023	Technician: Blake Mu	lherin		Total Leak Count:	1	0	1	0
Assessment Comments:													d on Unit Blowdown Valves. VPAC deter		
Faci	ility	Assesr Type (s		Emission ID #	Emission Ty	pe Dete	ection Date	Component			LEL +/or Safety Hazard*	Repair Status	Repair Status Date	Final Attempt Due Date	DOR End Date
Rutle	dge	MDE, S W (GHO		1039100023	Leak	7/	/21/2023	Open-Ended Line - Subpart W (GHG), MDE		led Line on Combined Station Vent Stack	No	Delay of Repair	8/21/2023	8/20/2023	7/21/2024

Comments: The leak has been placed on Delay of Repair due to repair requiring a blowdown. A request was made to the Maryland Department of Environment on September 13th, 2023.

LEL +/or Safety Hazard*

The following risk matrix is used to 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 ocation 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

ż			Consequences				Proba	bility	
Severity					LEL/Toxic	Α	В	С	D
Se	People	Assets	Environment	Reputation	Gas Level	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 Oppm 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	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, 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



													E	MISS	ION DET	AIL RE	PORT											
Company:	TC Eno	rgy USA	Facility:		Rutledge		Start Date:	3/28/2022 Te	echnician:	Nick	nolas San	atmyor			LDAR Leak Count:	12	Vents	Repair Required: Total:	0							REPAIR S	STATUS	
Company.	TO LITE	igy USA	r active.		Kulleuge		Start Date.	3/20/2022	cillician.	MICI	iolas Sali	itiliyei	Leak	۹.	Non-LDAR Leak Count:	0		Leak Tests:	3			Repair	red:		Delay o	of Repair:	Unsuc	cessful At
District:	CPG	North	Location:		39.561770 / -76.47	7239	End Date:	3/28/2022 To	echnician:	Zac	hary Huc	decek	Louis	ŭ			Mandatory Emission Tests	Vent Tests: No Emission Tests:	0			порин	Ju .		Doing C	тторин	0.1000	,000.a. 7 a
District.	0.0	North	Location.		00.0011107-10.41	1200	Liiu Dute.	0/20/2022 T	cimician.	200	ondry muc	uccon			Total Leak Count:	12	Lillission rests	Total Tests	5								i	
Assessment Comments		at Rutledge C	Compressor S	tation condu	cted on 03-28-2022	. All Units are Dry S	Seal Centrifug	al Compressors	and were S	Standby/ F	Pressuriz	ed. Station	and Unit Blo	wdowns	are Combined. V	PAC was Ir	conclusive, HiFlov	w Rates Were Spl	it Between Blowd	lown Valves.		0				0	<u> </u>	0
Emission ID #	Emission Type	Detection Date	Process Block	Field Equipment Designation	Component	Sub Source	Operating Mode	Emission Des	cription		mission severity	Gas Type	Previous Leak (emission id)	Rate (cfm)	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 Reason	DOR Approver Name	Final PPM Reading	Repair Confimation Method
85610103	Leak	03/28/2022	Compressor Cent. Dry Seal	Unit 3	Connector - MDE	Flange Connection	Standby/Pressuriz ed	Flange on Cooling Gas 3, Floor Level.	Inlet Line, Unit	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/Pressuriz ed	Suction Bypass Line, U Level.	nit 3, Floor	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/Pressuriz ed	Union North of 90 on St Unit 2.	art Gas Line,	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/Pressuriz ed	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 Conn Valve on Level Switch, I 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 Connect Below South Transmitte 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 North Level Switch, Eas 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 Conne Valve on Cooling Gas S 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 Le Cooling Gas 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	-	-
85610113	Leak	03/28/2022	Separator/Filter	Main discharge scrubber	Connector - MDE	Threaded Connection	N/A	Top Threaded Connect Switch, South of Main E 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/Pressuriz ed	OEL Units 1, 2, and 3 B Valves.	lowdown	No M	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	-	-

The following risk matrix is used to 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 executor reads any LLL (Redoing,
 Personal detector reads any NE or any NES leak
 Personal detector eads any NES reads. Low O.2, etc.1
 Emission is found near any possible ignition source (i.e. bumer, 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.

>				Consequ	uences			Probability						
Severity							LEL/Toxic	Α	В	C	D			
Se	People	Assets		Environmen		Reputation	Gas Level	Low	Slight	Mod.	High			
0	No injury or health effect		No mage	No eff (<0.01 d		No impact	0% LEL and 0ppm Toxics within 0.5 m of source							
1	Slight inhalation/odor risk		light rear	Slight e (0.01 –	0.05	Slightimpact	0% LEL and Oppm Toxics within 0.5 m of Source							
3	Minor fire/explosion injury risk or exposure risk	nor plosion Minor Minor effect Minor impact lew within		1-5% LEL and below alarm level Toxics within 0.5 m of source										
4	Moderate fire/explosion injury risk or exposure risk	relexplosion Moderate Moderate njury risk or Damage (1.0 – 10			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		lajor mage	Major E (>10.0 c		Major impact (Regulator enforcement)	Cause of LEL 10% and over and above alarm level Toxics in building							
				LOW			is. It does not requi sited to ensure that							
				DERATE RISK			It requires further re ential for escalation acceptable li	n and to						
				HIGH RISK	Ther	isk is high. It req	uires immediate ac	tion and		iew of con	ntrol			



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



													EMIS	SION	DETAIL R	EPORT												
Company:	TC Ener	rgy USA	Facility:		Rutledge		Start Date:	3/2/2021 Technician:	Sebastian	Smith			LDAR Leak Count:	13	Vents	Repair Required: Total:	0									REPAIR	STATUS	i
District:	CPG N	North	Location:		39.561770 / -76.47	77239	End Date:	3/2/2021 Technician:	Matthew	Fuller	Leal	(S	Non-LDAR Leak Count:	0	Mandatory Emission Tests	Leak Tests: Vent Tests: No Emission Tests:	0			Repair	red:			Delay o	f Repair:			Unsuccessful Attempt:
								by Pressurized. Station and Un			and Station I	Blowdow	Total Leak Count:	ried Acquet		Total Tests	o Unit Isolation V	alves: all		11					2			0
Comments:	Unit Blowdow	wns were Ider	ntified as leak	ing.	bry ocur ocuring	jai compressors ar	ia were stane	aby i ressurized. Olddorraild on	iit Biowdowii	o ure combi	icu. Otation i	3.0114011	ii vaives are bai	neu. Acoust	ic vi Ao was asce	to identity icakii	ng omit isolution v	urves, un										
Emission ID #	Emission Type	Detection Date	Process Block	Field Equipment Designation	Component	Sub Source	Operating Mode	Emission Description	Emission Severity	Gas Type	Previous Leak (emission id)	Rate (cfm	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 Confination Method
35611076	Leak	03/02/2021	Separator/Filter	Main suction scrubber	Connector - MDE	Threaded Connection	NA	Bottom Threading to Pressure Transmitter, Suction Line to Inlet Scrubber.	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 Thread to East Level Switch on Hydrocarbon Tank, Main Suction Scrubber.	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.	LOW	Sweet Gas		0.08	Optical Gas Imaging/ Optical Gas Imaging		Tighten connection	-	-	Yes	Repaired	03/17/2021	-	04/01/2021		-	-	-	-	Bubble Test
36611079	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 3" Valve to South Cooling Gas Scrubber, Unit 1. No	LOW	Sweet Gas		0.08	Optical Gas Imaging/ Optical Gas Imaging		Replace gasket/seal 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/Pressurio ed	West Threading to Differential Pressure Meter, South Cooling Gas Scrubber, Linit 1.	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	04/01/2022	Shutdown Required	Wayne Cook	-	-
35611081	Leak	03/02/2021	Compressor Cent. Dry Seal	North cooling gas scrubber, unit 2	Valve - MDE	Grease Fitting	Standby/Pressurio ed	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/Pressurio ed	Top Tubing Union on Unit side of Pressure Differential Line over Suction Loading Valve, Unit 2.	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/Pressurio ed	Tubing Union to Elbow North of Pressure Differential Meter over Suction Loading Valve, Unit 2.	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/Pressurb ed	Suction Loading Valve, Unit 2.	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/Pressurio ed	Top Union, Filter 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 Stern	Standby/Pressurized		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	04/01/2022	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.	LOW	Sweet Gas		0.08	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.	LOW	Sweet Gas		0.08	Optical Gas Imaging/ Optical Gas Imaging		Tighten connection	-	-	Yes	Repaired	03/17/2021	-	04/01/2021		-	-	-		Bubble Test

The following risk matrix is used to 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:

Provated detector reads any LEL resulting
Provated detector reads any CSCS are set YSCS below.
Provated detector reads any CSCS are set YSCS below.
Continues to the other deservation of the detector for any Lecture detector and the detector of the detec

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.

			Consequences				Prob	ability	
Severity					LEL/Toxic	Α	В	С	D
ŝ	People	Assets	Environment	Reputation	Gas Level	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)	Slightimpact	0% LEL and Oppm Toxics within 0.5 m of Source				
3	Minor fire/explosion injury risk or exposure risk	Minor Damage	Minor effect (0.05 – 1.0 c/m)	Minorimpact	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	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	The risk is high. It requires immediate action and prompt review of control and mitigation measures.