

Rulemaking (R.) 15-01-008 to Adopt Rules and Procedures Governing Commission Regulated Natural Gas Pipelines and Facilities to Reduce Natural Gas Leaks Consistent with Senate Bill 1371, Leno.
In Response to Data Request, R15-01-008 - 2018 June Report
Appendix 3 - Rev. 03/31/18

Notes:

Use a formula-derived value with the formula used in the Annual Emissions column. Do not use a copy and paste-as-value.

At the end of Annual Emissions Column, add a summation total in a cell for a column total, and then highlight orange.

The emissions captured on this tab represent the emissions associated with the operational design and function of the compressor. Any intentional release of natural gas for safety or maintenance purposes should be included on the Blowdowns worksheet.

ID	Geographic Location	Compressor Type	Prime Mover	Number of Cylinders	Number of Seals	Seal Type	Operating Mode:			Emission Factor: Pressurized Operating (scf/hr)	Emission Factor: Pressurized Idle (scf/hr)	Emission Factor: Depressurized Idle (scf/hr)	Annual Emissions (Mscf)	Explanatory Notes / Comments
							Pressurized Operating (hours)	Pressurized Idle (hours)	Depressurized Idle (hours)					
C1	92555	R	C	4	N/A	N/A	858	7,189	364	17.07	0	N/A	14.64	GHG Subpart W data
C2	92555	R	C	4	N/A	N/A	650	5,080	527	8.67	0	N/A	5.63	GHG Subpart W data
C3	92555	R	C	4	N/A	N/A	967	5,261	300	64.41	0	N/A	62.25	GHG Subpart W data
S4	92555	C	C	N/A	1	W	1,619	2	7,138	15.13	N/A	0	24.50	GHG Subpart W data
S5	92555	C	C	N/A	1	W	1,435	5	7,318	0.69	N/A	0	1.00	GHG Subpart W data
S6	92555	C	C	N/A	1	W	2,019	3	6,738	4.84	N/A	0	9.78	GHG Subpart W data
S7	92555	C	C	N/A	1	W	1,614	2	7,141	4.60	N/A	0	7.43	GHG Subpart W data
8	92555	R	C	2	N/A	N/A	592	7,367	799	3.00	0	N/A	1.78	GHG Subpart W data
9	92555	R	C	2	N/A	N/A	712	6,494	607	4.90	0	N/A	3.48	GHG Subpart W data
10	92555	R	C	4	N/A	N/A	4,440	3,735	581	133.24	0	N/A	591.57	GHG Subpart W data
Sum Total													722.06	

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Transmission Compressor Station Blowdowns:

ID	Geographic Location	Number of Blowdown Events	Annual Emissions (Mscf)	Explanatory Notes / Comments
N/A	92555	5	1,815.41	Station ESD
N/A	92028	1	2.70	Station purging for decommissioning
N/A	92555	260	1,825.64	Blowdown for Maintenance
N/A	92004	1	6.83	Blow down for valve changes at LNG facility
N/A	92004	1	44.38	Total Gas Lost Due to Filling operations at LNG facility
Sum Total			3,694.95	

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At the end of Annual Emissions Column, add a summation total in a cell for a column total, and then highlight orange.

The emissions captured on this tab represent the emissions associated with the operational design and function of the component. Any intentional release of natural gas for safety or maintenance purposes should be included on the Blowdowns worksheet.

Transmission Compressor Station Component Vented Emissions:

ID/Number of Devices	Geographic Location	Device Type	Bleed Rate	Manufacturer	Engineering or Manufacturer's based Estimate of Emissions (Mscf/day/dev)	Annual Emissions (Mscf)	Explanatory Notes / Comments
41	92555	P	I	Misc.	0.0576	861.98	Valve Actuators
2	92555	P	L	Misc.	0.0336	24.53	Controllers
Sum Total						887	

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The emissions captured on this tab represent the emissions associated unintentional leaks that if repaired would not leaking. If the component is releasing gas or "bleeding" as a result of its design or function then it is not to be captured in this tab.

Transmission Compressor Station: Compressor and Component Fugitive Leaks:

12/31/17

01/01/17

ID	Geographic Location	Device Type	Bleed Rate	Manufacturer	Discovery Date (MM/DD/YY)	Repair Date (MM/DD/YY)	Prior Survey Date (MM/DD/YY)	Number of Days Leaking	Annual Emissions (Mscf)	Explanatory Notes / Comments	Emission Factor (Mscf/day/dev)
N/A	92555	C	N/A	N/A	08/29/17	N/A	12/07/16	258	34.55	GHG Subpart W data - Table 3 for Compressor - Connector component (5.59 scfh). Compressor, 1" Reducer - Connector	0.1342
N/A	92555	C	N/A	N/A	08/29/17	N/A	12/08/16	257	34.48	GHG Subpart W data - Table 3 for Compressor - Connector component (5.59 scfh). Compressor, 1/2" Plug - Connector	0.1342
N/A	92555	C	N/A	N/A	08/29/17	N/A	12/11/16	256	34.28	GHG Subpart W data - Table 3 for Compressor - Connector component (5.59 scfh). Compressor, 1" Flange - Connector	0.1342
N/A	92555	C	N/A	N/A	08/29/17	N/A	12/14/16	254	34.08	GHG Subpart W data - Table 3 for Compressor - Connector component (5.59 scfh). Compressor, 1" Reducer - Connector	0.1342
N/A	92555	C	N/A	N/A	08/28/17	10/18/17	12/02/16	187	26.09	Appendix 9 EF. Non-compressor, 1" Threaded - Connector	0.1399
N/A	92555	C	N/A	N/A	08/29/17	N/A	12/05/16	259	36.16	Appendix 9 EF. Non-compressor, 3/4" Plug - Connector	0.1399
N/A	92555	C	N/A	N/A	08/29/17	10/18/17	12/15/16	180	25.11	Appendix 9 EF. Non-compressor, 2" Plug - Connector	0.1399
N/A	92555	C	N/A	N/A	08/30/17	N/A	12/16/16	253	35.32	Appendix 9 EF. Non-compressor, 2" Union - Connector	0.1399
N/A	92555	C	N/A	N/A	08/30/17	N/A	12/17/16	252	35.25	Appendix 9 EF. Non-compressor, 2" Hose - Connector	0.1399
N/A	92555	C	N/A	N/A	08/30/17	10/18/17	12/18/16	178	24.83	Appendix 9 EF. Non-compressor, 3" Union - Connector	0.1399
N/A	92555	C	N/A	N/A	08/30/17	10/18/17	12/19/16	177	24.76	Appendix 9 EF. Non-compressor, 2" Union - Connector	0.1399
N/A	92555	C	N/A	N/A	08/30/17	10/18/17	12/21/16	176	24.62	Appendix 9 EF. Non-compressor, 1" Union - Connector	0.1399
N/A	92555	C	N/A	N/A	08/30/17	10/18/17	12/22/16	176	24.55	Appendix 9 EF. Non-compressor, 1" Threaded - Connector	0.1399
N/A	92555	C	N/A	N/A	08/30/17	10/18/17	12/24/16	175	24.41	Appendix 9 EF. Non-compressor, 3/4" Plug - Connector	0.1399
N/A	92555	V	N/A	N/A	08/28/17	N/A	12/01/16	261	41.03	Appendix 9 EF. Non-compressor, 3" Ball - Valve	0.1572
N/A	92555	V	N/A	N/A	08/29/17	10/18/17	12/03/16	186	29.16	Appendix 9 EF. Non-compressor, 3/4" Needle - Valve	0.1572
N/A	92555	V	N/A	N/A	08/29/17	N/A	12/04/16	259	40.71	Appendix 9 EF. Non-compressor, 3/4" Ball - Valve	0.1572
N/A	92555	V	N/A	N/A	08/30/17	10/18/17	12/20/16	177	27.75	Appendix 9 EF. Non-compressor, 1" Regulator - Valve	0.1572
N/A	92555	V	N/A	N/A	08/30/17	10/18/17	12/23/16	175	27.51	Appendix 9 EF. Non-compressor, 3/4" Needle - Valve	0.1572
N/A	92555	V	N/A	N/A	08/29/17	N/A	12/06/16	258	91.89	GHG Subpart W data - Table 3 for Compressor - Valve component (14.84 scfh). Compressor, 1" Needle - Valve	0.3562
N/A	92555	V	N/A	N/A	08/29/17	N/A	12/09/16	257	91.36	GHG Subpart W data - Table 3 for Compressor - Valve component (14.84 scfh). Compressor, 1" Control - Valve	0.3562
N/A	92555	V	N/A	N/A	08/29/17	N/A	12/10/16	256	91.18	GHG Subpart W data - Table 3 for Compressor - Valve component (14.84 scfh). Compressor, 4" Control - Valve	0.3562
N/A	92555	V	N/A	N/A	08/29/17	10/18/17	12/12/16	181	64.46	GHG Subpart W data - Table 3 for Compressor - Valve component (14.84 scfh). Compressor, 10" Control - Valve	0.3562
N/A	92555	V	N/A	N/A	08/29/17	10/18/17	12/13/16	181	64.29	GHG Subpart W data - Table 3 for Compressor - Valve component (14.84 scfh). Compressor, 4" Control - Valve	0.3562
Sum Total									988		

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Notes:

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At the end of Annual Emissions Column, add a summation total in a cell for a column total, and then highlight orange.

Transmission Compressor Station Storage Tank Emissions:

Total Number	Discovery Date (DD/MM/YY)	Repair Date (DD/MM/YY)	Number of Days Emitting	Emission Factor (Mscf/yr)	Annual Emissions (Mscf)	Explanatory Notes / Comments
1	1/4/2017	1/4/2017	1	N/A	0.0216	LNG Tank Pressure Release Due to Temperature Fluctuation
1	1/13/2017	1/13/2017	1	N/A	0.0315	LNG Tank Pressure Release Due to Temperature Fluctuation
1	1/20/2017	1/20/2017	1	N/A	0.0874	LNG Tank Pressure Release Due to Temperature Fluctuation
1	1/27/2017	1/27/2017	1	N/A	0.0709	LNG Tank Pressure Release Due to Temperature Fluctuation
1	2/13/2017	2/13/2017	1	N/A	0.0424	LNG Tank Pressure Release Due to Temperature Fluctuation
1	2/17/2017	2/17/2017	1	N/A	0.0233	LNG Tank Pressure Release Due to Temperature Fluctuation
1	3/1/2017	3/1/2017	1	N/A	0.0977	LNG Tank Pressure Release Due to Temperature Fluctuation
1	3/14/2017	3/14/2017	1	N/A	0.1144	LNG Tank Pressure Release Due to Temperature Fluctuation
1	3/22/2017	3/22/2017	1	N/A	0.0884	LNG Tank Pressure Release Due to Temperature Fluctuation
1	4/5/2017	4/5/2017	1	N/A	0.0826	LNG Tank Pressure Release Due to Temperature Fluctuation
1	6/27/2017	6/27/2017	1	N/A	0.0396	LNG Tank Pressure Release Due to Temperature Fluctuation
1	7/7/2017	7/7/2017	1	N/A	0.0430	LNG Tank Pressure Release Due to Temperature Fluctuation
1	7/10/2017	7/10/2017	1	N/A	0.0451	LNG Tank Pressure Release Due to Temperature Fluctuation
1	7/15/2017	7/15/2017	1	N/A	0.0574	LNG Tank Pressure Release Due to Temperature Fluctuation
1	7/18/2017	7/18/2017	1	N/A	0.0504	LNG Tank Pressure Release Due to Temperature Fluctuation
1	7/21/2017	7/21/2017	1	N/A	0.0304	LNG Tank Pressure Release Due to Temperature Fluctuation
1	7/24/2017	7/24/2017	1	N/A	0.0168	LNG Tank Pressure Release Due to Temperature Fluctuation
1	7/28/2017	7/28/2017	1	N/A	0.0330	LNG Tank Pressure Release Due to Temperature Fluctuation
1	8/1/2017	8/1/2017	1	N/A	0.0631	LNG Tank Pressure Release Due to Temperature Fluctuation
1	8/7/2017	8/7/2017	1	N/A	0.0295	LNG Tank Pressure Release Due to Temperature Fluctuation
1	8/13/2017	8/13/2017	1	N/A	0.0682	LNG Tank Pressure Release Due to Temperature Fluctuation
1	8/24/2017	8/24/2017	1	N/A	0.0195	LNG Tank Pressure Release Due to Temperature Fluctuation
1	8/29/2017	8/29/2017	1	N/A	0.0198	LNG Tank Pressure Release Due to Temperature Fluctuation
1	8/30/2017	8/30/2017	1	N/A	0.0350	LNG Tank Pressure Release Due to Temperature Fluctuation
1	9/5/2017	9/5/2017	1	N/A	0.0375	LNG Tank Pressure Release Due to Temperature Fluctuation
1	11/7/2017	11/7/2017	1	N/A	0.0728	LNG Tank Pressure Release Due to Temperature Fluctuation
1	11/14/2017	11/14/2017	1	N/A	0.0497	LNG Tank Pressure Release Due to Temperature Fluctuation

Total Number	Discovery Date (DD/MM/YY)	Repair Date (DD/MM/YY)	Number of Days Emitting	Emission Factor (Mscf/yr)	Annual Emissions (Mscf)	Explanatory Notes / Comments
1	11/14/2017	11/14/2017	1	N/A	0.0495	LNG Tank Pressure Release Due to Temperature Fluctuation
1	11/18/2017	11/18/2017	1	N/A	0.0633	LNG Tank Pressure Release Due to Temperature Fluctuation
1	11/29/2017	11/29/2017	1	N/A	0.0828	LNG Tank Pressure Release Due to Temperature Fluctuation
1	11/29/2017	11/29/2017	1	N/A	0.0192	LNG Tank Pressure Release Due to Temperature Fluctuation
1	12/8/2017	12/8/2017	1	N/A	0.0442	LNG Tank Pressure Release Due to Temperature Fluctuation
1	12/26/2017	12/26/2017	1	N/A	0.0745	LNG Tank Pressure Release Due to Temperature Fluctuation
Sum Total					1.7043	

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Header column "Comment" boxes displayed below for reference.	
Column Heading	Description and Definition of Required Contents (IF not self-explanatory)
Compressor Vented Emissions	
ID	
Geographic Location	GIS, zip code, or equivalent
Compressor Type	C = centrifugal R = reciprocating
Prime Mover	
Number of Cylinders	
Number of Seals	
Seal Type	W = wet D = dry NA = not applicable
Operating Mode: Pressurized Operating (hours)	
Operating Mode: Pressurized Idle (hours)	
Operating Mode: Depressurized Idle (hours)	
Emission Factor: Pressurized Operating (scf/hr)	
Emission Factor: Pressurized Idle (scf/hr)	
Emission Factor: Depressurized Idle (scf/hr)	
Annual Emissions (Mscf)	

Column Heading	Description and Definition of Required Contents (IF not self-explanatory)
Explanatory Notes / Comments	

Blowdowns	
ID	
Geographic Location	GIS, zip code, or equivalent
Number of Blowdown Events	
Annual Emissions (Mscf)	
Explanatory Notes / Comments	

Component Vented Emissions	
ID	
Geographic Location	GIS, zip code, or equivalent
Device Type	C = connector O = open-ended line M = meter P = pneumatic device PR = pressure relief valve V = valve
Bleed Rate	L = low bleed I = intermittent bleed H = high bleed NA = not applicable
Manufacturer	
Engineering or Manufacturer's based Estimate of Emissions	
Annual Emissions (Mscf)	
Explanatory Notes / Comments	

Compressor & Component Leaks

Column Heading	Description and Definition of Required Contents (IF not self-explanatory)
ID	
Geographic Location	GIS, zip code, or equivalent
Device Type	C = connector O = open-ended line M = meter P = pneumatic device PR = pressure relief valve V = valve
Bleed Rate	L = low bleed I = intermittent bleed H = high bleed NA = not applicable
Manufacturer	
Discovery Date (MM/DD/YY)	<p>List the actual discovery date.</p> <p>If the leak was discovered in the year of interest or carried over from prior year, then we will assume the component was leaking from the beginning of the year for emissions reporting purposes, or prior survey date if surveyed previously within the year of interest.</p>
Repair Date (MM/DD/YY)	Date that the component repair stopped the leak. Any associated blowdowns as a result of the repair should be included in the blowdowns tab.
Prior Survey Date (MM/DD/YY)	<p>Before the discovery date of the leak, there was a "Prior Survey Date" when the compressor station was tested and no leak was found.</p> <p>There should be records as to when the compressor station was last surveyed. If the survey spanned two or more days, enter the final date.</p> <p>Note, a facility level survey date is sufficient to establish the prior survey date.</p>

Column Heading	Description and Definition of Required Contents (IF not self-explanatory)
Number of Days Leaking	<p>The algorithm that is used for determining the number of days leaking should conform to the following guidance:</p> <p>For the number days leaking prior to the date of discovery (survey date in the year of interest), calculate the number of days between the Discovery Date and the Prior Survey Date then divided by 2. [Dividing by 2 approximates the average time leaking between the leak discovery and the prior survey date. See below guidance when a leak is discovered in a prior period and repaired in the year of interest.]</p> <p>$(\text{Discovery Date} - \text{Prior Survey Date})/2$</p> <p>Calculate the number of days leaking after discovery (survey) date, by subtracting the discovery date from the repair date, unless the leak has not been repaired, where the number of days should be calculated by subtracting the discovery date from December 31 of the year of interest.*</p> <p>$(\text{Repair Date} - \text{Discovery Date})$, unless repair date greater than 12/31/XX then use 12/31/XX</p> <p>---</p> <p>$\text{Days Leaking} = (\text{Repair Date} - \text{Discovery Date}) + (\text{Discovery Date} - \text{Prior Survey Date})/2 + 1$</p> <p>* [This requires tracking the leak across different years, because the leak could be minor and conceivably span more than year before getting repaired. Therefore, in the cases where a leak is carried over to a subsequent year, an annual calculation should be made to reflect that the number of days leaking in the prior year have already been reported in the annual emissions inventory. In subsequent years the carried over leaks should reflect a beginning date of January 1 of the year of interest.]</p>
Emission Factor (Mscf/day)	
Annual Emissions (Mscf)	
Explanatory Notes / Comments	
Storage Tanks	
Total Number	

Column Heading	Description and Definition of Required Contents (IF not self-explanatory)
Discovery Date (DD/MM/YY)	
Repair Date (DD/MM/YY)	
Number of Days Emitting	Emitting from discovery date thru the repair date (if repaired in year of interest) or December 31 of subject year, whichever is earlier. (Duration of Leak = discovery date - repair date (or December 31) + 1 day.)
Emission Factor (Mscf/yr)	
Annual Emissions (Mscf)	