

Attachment 3

**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.**

Annual Report Template

Gill Ranch Storage, LLC

Natural Gas Leakage Abatement Report

In partial fulfillment of

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.

And In Response to Data Request
Gill Ranch Storage, LLC - R15-01-008 2019
Annual Report
By: Richard Gonzalez

Date: 6/17/19

Introduction

The following data¹ have been prepared to comply with Senate Bill 1371 (Leno, 2014), Section 2, Article 3, Order Instituting Rulemaking (OIR) 15-01-008, and to provide our responses to Data Requests [Company Name] R15-01-008 2019 Annual Report.

Pursuant to SB 1371, Leno - Natural gas: leakage abatement, the California Public Utilities Commission (CPUC) requests that the following information be transmitted to the CPUC and the State Air Resources Board (ARB):

- (1) A summary of changes to utility leak and emission management practices from January 1st, 2018 to December 31st, 2018. The report must include a detailed summary of changes, including the reasoning behind each change and an explanation of how each change will reduce methane leaks and emissions.

Response:

No changes were made in 2018

¹ As described in Data Request [Company Name] R15-01-008 2018 Annual Report

- (2) A list of new graded and ungraded gas leaks discovered, tracked by geographic location in a Geographic Information System (GIS) or best equivalent, by grade, component or equipment, pipe size, schedule and material, pressure, age, date discovered and annual volume of gas leaked for each, by month, from January 1st, 2018 through December 31st, 2018.

Response:

See Appendices

- (3) A list of graded and ungraded gas leaks repaired, tracked by geographic location in a Geographic Information System (GIS) or best equivalent, by month, from January 1st, 2018 through December 31st, 2018. Include the grade, component or equipment, pipe size, schedule and material, pressure, age, date discovered, date of repair, annual volume of gas leaked for each and the number of days from the time the leak was discovered until the date of repair.

Response:

See Appendices

- (4) A list of ALL open graded and ungraded leaks, regardless of when they were found, tracked by geographic location in a Geographic Information System (GIS) or best equivalent that are being monitored, or are scheduled to be repaired, by month, from January 1st, 2018 through December 31st, 2018. Include the grade, component or equipment, pipe size, schedule and material, pressure, age, date discovered, scheduled date of repair, and annual volume of gas leaked for each.

Response:

See Appendices

- (5) System-wide gas leak and emission rate data, along with any data and computer models used in making that calculation, for the 12 months ending December 31st, of the reporting year.

Response:

See Appendices

- (6) Calculable or estimated emissions and non-graded gas leaks, as defined in Data Request [Company Name] R15-01-008 2018 Annual Report for the 12 months ending December 31st, 2018.

Response:

See Appendices

(END OF ATTACHMENT 3)

GILL RANCH STORAGE, June 17, 2019

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 2019 June Report Appendix 6; Rev. 03/29/2019

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.

Response:

Customer Meter Total Leaks and Emissions:

Number of Meters	Meter Type	Emission Factor (Mscf/yr)	Annual Emissions (Mscf)
NA	NA	NA	NA

Sum Total 0

GILL RANCH STORAGE, June 17, 2019

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 2019 June Report
Appendix 6; Rev. 03/29/2019

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.

Response:

Damage to MSAs (Customer, third party, natural disasters, etc.):

ID	Geographic Location	Damage Type	Meter Type	Leak Classification (Grade)	Discovery Date (DD/MM/YY)	Leak Repair Date (MM/DD/YY)	If not repaired by 12/31/xx List the Scheduled Date of Repair (DD/MM/YY)	Reason for Not Scheduling a Repair	Number of Days Leaking	Engineering Estimate (Mscf/Day)	Annual Emissions (Mscf)	Explanatory Notes / Comments
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Sum Total

-

 Provided as an example.

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In Response to Data Request, R15-01-008 2019 June Report
Appendix 6; Rev. 03/29/2019

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.

Include items like the following in this tab (Note whether emissions are included in the MSA EF used to estimate emissions for the MSA population and show only the event count.):

Gas vented during all Regulator Change outs due to other than vent leakage.

Large Customer MSA Regulator Inspection - External Regulator Inspections. List avg. amount vented.

Large Customer MSA Regulator Inspection - Regulator change out & Internal Reg Inspection. List avg. amount vented.

Diaphragm - CSF Read & Verify - List amount vented thru meter during read & verify order for decreased usage.

Diaphragm - CSF Clock Test - List amount vented during Clock Test

Diaphragm - CSF Registration Check - List amount ventedn during Registration Checks

Diaphragm Size 1,2,3 Meter Change Out - List avg. gas vented on Size 1 Meter Change Out

All Meter Change Out Size 4 thru 28 - List avg. gas vented for Size 5 to 10 Meter Change outs

Field Meter Test of Diaphragm & Rotary - List avg. gas vented for Size 9 Meters

Customer Orifice Meter Plate Insp. - Orifice Plate Inspected Monthly. List avg. amount vented

Response:

Customer Meter Blowdowns:

Number of Blowdowns	Meter Type	Emission Factor (Mscf/yr)	Annual Emissions (Mscf)	Explanatory Notes / Comments
NA	NA	NA	NA	
				Accounted for in the MSA EF - Gas vented during all Regulator Change outs due to other than vent leakage & vent leakage. 1 scf vented /reg chg out.
				Large Customer MSA Regulator Inspection - External Regulator Inspections @ 2 scf/insp.
				Large Customer MSA Regulator Inspection - Regulator change out & Internal Reg Inspection @ 6 scf/insp.
				Diaphragm - CSF Read & Verify - Vent 20 cf thru meter during read & verify order for decreased usage.
				Diaphragm - CSF Clock Test - Vent 0.625 scf/inspection during Clock Test and Registration Checks
				Diaphragm - CSF Registration Check - Vent 0.625 scf/inspection during Clock Test and Registration Checks
				Diaphragm Size 1,2,3 Meter Change Out - Use avg. gas vented of 1 scf on Size 1 Meter Change Out
				All Meter Change Out Size 4 thru 28 - Use avg. gas vented of 5 scf for Size 5 to 10 Meter Change outs
				Field Meter Test of Diaphragm & Rotary - Use avg. gas vented of 5 scf for Size 9 Meters
				Customer Orifice Meter Plate Insp. - Orifice Plate Inspected Monthly. Avg. Size = 20" @ 300 psig
Sum Total			0	

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In Response to Data Request, R15-01-008 2019 June Report
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Notes:

The intent of this worksheet is to capture event data that represent the fugitive leaks on MSA assets that if repaired would cease leaking. If the equipment or component is releasing gas or "bleeding" as a result of its design or function, then it is not to be captured in this tab and should be entered into the Component Emissions tab.

No emissions estimates from this worksheet should be included in Appendix 8, as this is being collected for informational purposes at this time.

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.

Response:

Customer Meter Fugitive Leaks:

ID	Geographic Location	Meter Classification (Commercial/Industrial or Residential)	Leak Classification (Grade)	Discovery Date (DD/MM/YY)	Leak Repair Date (MM/DD/YY)	If not repaired by 12/31/xx List the Scheduled Date of Repair (DD/MM/YY)		Reason for Not Scheduling a Repair	Number of Days Leaking	Number of Days to Repair	Comments or Additional Information
											(If you are able to quantify the leak rate by bubble pattern or other methods please include this volumetric data, and state what method was used to determine the flow/leak rate in these columns.)
NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	

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Notes:

This worksheet is intended to capture the actual number of equipment and components in this asset category that vent emissions as a part of their design and normal function. By listing the number and types of components (not captured elsewhere in other templates) that vent emissions we hope to obtain information that may provide insight into how to evolve to a method of reporting emissions based on the actual number of units and types emitting rather than a crude population based estimate.

Currently, the component related leaks are accounted for in the population based estimate for MSAs and any estimate of emissions associated with this list of equipment and components will not be added to that total. This tab is not intended to replace or supplant the Vented and Blowdown Emissions tab which are activity based emissions.

No emissions estimates from this worksheet should be included in Appendix 8, as this is being collected for informational purposes at this time.

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.

Response:

Customer Meter Component/Equipment Vented Emissions:

ID	Geographic Location	Device Type	Bleed Rate	Manufacturer	Number of Days Emitting	Engineering or Manufacturer's based Estimate of Emissions	Annual Emissions (Mscf)	Explanatory Notes / Comments
NA	NA	NA	NA	NA	NA	NA	NA	NA

Sum Total **0**

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Appendix 6 - Rev. 03/29/19

Header column "Comment" boxes displayed below for reference.

Column Heading	Description and Definition of Required Contents (If not self-explanatory)
Meter Leaks (Population Based)	
Number of Meters	
Meter Type	CI = commercial or industrial meter R = residential meter
Emission Factor (Mscf/yr)	
Annual Emissions (Mscf)	
All Damages	
ID	
Geographic Location	GIS, zip code, or equivalent
Damage Type	E = Excavation Damage N = natural force damage O = other outside force damage
Meter Type	CI = commercial or industrial meter R = residential meter
Leak Classification (Grade)	AH = Above Ground Hazardous AN = Above Ground Non-hazardous AM = Above Ground Non-hazardous Minor
Discovery Date (DD/MM/YY)	
Leak Repair Date (MM/DD/YY)	Use the date the leak ceases emitting NG. The final repair may be completed after the leak has been stopped.
If not repaired by 12/31/xx List the Scheduled Date of Repair (DD/MM/YY)	If leak is open, specify the scheduled date of repair. Otherwise type "M," signifying that the leak is being monitored with no scheduled date of repair. Then, provide the reason for not scheduling a repair in the Column provided.
Reason for Not Scheduling a Repair	Provide the reason for not scheduling a repair.
Number of Days Leaking	If date and time stamp are reliable and used consistently by respondent, then emissions may be calculated based on actual time leaking. E.G. Repair time - damage event time = duration of event. If respondent has average or historical leak duration based on the nature and circumstances of damages, then these may be applied to like damage events. The emissions factors should be adequately supported and explained in the filing. If actual time stamps and historical averages are not available, then whole days should be used in the engineering calculation. The leak begins with the damage event date thru repair date or December 31st of subject year, whichever is later. E.G. Days Leaking = Repair date - date of damage + 1 day.
Engineering Estimate (Mscf/Day)	
Annual Emissions (Mscf)	
Explanatory Notes / Comments	
Vented and Blowdown Emissions	
Number of Blowdowns	For metering set assembly (MSA)
Meter Type	CI = commercial or industrial meter R = residential meter
Emission Factor (Mscf/event)	
Annual Emissions (Mscf)	
Explanatory Notes / Comments	

Column Heading		Description and Definition of Required Contents (IF not self-explanatory)
Identified MSA Leaks		
ID		
Geographic Location		GIS, zip code, or equivalent
Meter Classification (Commercial/Industrial or Residential)		If available, indicate whether the meter is commercial or industrial "CI", or a residential "R" meter. If that information is not available then note as "N/A". CI = Commercial or Industrial R = Residential N/A = not available
Leak Classification (Grade)		AH = Above Ground Hazardous AN = Above Ground Non-hazardous AM = Above Ground Non-hazardous Minor If Below ground and not included in DM&S, then use the following: 1 = grade 1 2 = grade 2 3 = grade 3 N = Non-Graded
Discovery Date (DD/MM/YY)		
Leak Repair Date (MM/DD/YY)		Use the date the leak ceases emitting NG. The final repair may be completed after the leak has been stopped.
If not repaired by 12/31/xx List the Scheduled Date of Repair (DD/MM/YY)		-If leak is open, specify the scheduled date of repair -Otherwise type "M," signifying that the leak is being monitored with no scheduled date of repair -Then, provide the reason for not scheduling a repair in Comments column.
Reason for Not Scheduling a Repair		If no repair scheduled, then provide the reason for not scheduling a repair in the comments column.
Number of Days Leaking		Column G minus Column H plus 1 = number of days to repair. Addition of 1 day to include the date repaired.
Number of Days Leaking		If the leak was discovered by survey in the year of interest, then assume leaking from January 1st of subject year thru repair date or December 31st of subject year, which ever is earlier. (E.G. Days Leaking = Repair - Jan 1st + 1 day.) (For days leaking for leaks carried over use January 1st as start date for emissions calculations.) For O&M discovered leaks, assume that the leak begins with the discovery date thru repair date or December 31st of subject year, whichever is earlier.
Comments or Additional Information		
Component Emissions		
ID		
Geographic Location		GIS, zip code, or equivalent
Device Type		C = connector OE = open-ended line M = meter P = pneumatic device PR = pressure relief valve V = valve O = other devices
Bleed Rate		L = low bleed I = intermittent bleed H = high bleed NA = not applicable
Manufacturer		
Number of Days Emitting		Because the emissions are a factor of design or function, these emissions counted for the entire year.
Engineering or Manufacturer's based Estimate of Emissions		
Annual Emissions (Mscf)		The emissions should be based on 365 days times the actual volume emitting if known, or the approved Emissions Factor. Note whether the emissions are based on actual volumetric measures in the next column.
Explanatory Notes / Comments		

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In Response to Data Request, R15-01-008 2019 June Report
Appendix 7; Rev. 03/29/19

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

Use the Population based emission factor if facility is not surveyed. Use Leaker based emission factor if facility is surveyed, and report only the found leaking components.

Underground Storage Facility Leaks and Emissions:

[illegible]

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.

Underground Storage Facility Compressor Vented Emissions (see note above):

[illegible]

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**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 2019 June Report

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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

Underground Storage Blowdowns:

ID	Geographic Location	Source	Compressor Type	Number of Blowdown Events	Annual Emissions (Mscf)	Explanatory Notes / Comments
NA	93637	NA	NA	NA	NA	

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In Response to Data Request, R15-01-008 2019 June Report

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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 component. Any intentional release of natural gas for safety or maintenance purposes should be included on the Blowdowns worksheet.

Underground Storage Component Vented Emissions (See note above):

ID	Geographic Location	Device Type	Bleed Rate	Manufacturer	Pressure (psi)	Survey Date (MM/DD/YY)	Number of Days Emitting	Emission Factor, Engineering or Manufacturer's based Estimate of Emissions (Mscf/day)	Annual Emissions (Mscf)	Explanatory Notes / Comments
PCV-8110	93637	P	L	FISHER	110		365	0.216	78.84	MANUFACTURER'S ESTIMATE
PCV-8210	93637	P	L	FISHER	110		0	0.216	0	MANUFACTURER'S ESTIMATE
PCV-8310	93637	P	L	FISHER	110		365	0.216	78.84	MANUFACTURER'S ESTIMATE
PCV-8410	93637	P	L	FISHER	110		365	0.216	78.84	MANUFACTURER'S ESTIMATE
PCV-7710	93637	P	L	FISHER	110		365	0.216	78.84	MANUFACTURER'S ESTIMATE
PCV-7810	93637	P	L	FISHER	110		365	0.216	78.84	MANUFACTURER'S ESTIMATE
PCV-7510	93637	P	L	FISHER	110		365	0.216	78.84	MANUFACTURER'S ESTIMATE
PCV-7610	93637	P	L	FISHER	110		365	0.216	78.84	MANUFACTURER'S ESTIMATE
PCV-7110	93637	P	L	FISHER	110		365	0.216	78.84	MANUFACTURER'S ESTIMATE
PCV-7210	93637	P	L	FISHER	110		365	0.216	78.84	MANUFACTURER'S ESTIMATE
PCV-7310	93637	P	L	FISHER	110		365	0.216	78.84	MANUFACTURER'S ESTIMATE
PCV-7410	93637	P	L	FISHER	110		365	0.216	78.84	MANUFACTURER'S ESTIMATE

[illegible]

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**In Response to Data Request, R15-01-008 2019 June Report
Appendix 7; Rev. 03/29/19**

Pursuant to SB 1371, Leno - Natural gas: leakage abatement, the California Public Utilities Commission (CPUC) requests that the following information be transmitted to the CPUC and the State Air Resources Board (ARB):

Note - Definitions in Data Request, R15-01-008 2018 June Report

The following question in the above mentioned data request is answered using the spreadsheets in this Appendix (#7):

(6) Calculable or estimated emissions and non-graded gas leaks, as defined in Data Request R15-01-008 2018 June Report.

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

Underground Storage Dehydrator Vented Emissions:

ID	Geographic Location	Type of Dehydrator (Glycol or Desiccant)	Vapor Recovery Unit or Thermal Oxidizer (Y/N)	Annual Volume of Gas Withdrawn (Mscf)	Emission Factor (Y/N)	Engineering Estimate (Y/N)	Annual Emissions (Mscf)	Explanatory Notes / Comments
DEHY 1/DEHY 2	93637	GLYCOL	Y	16,359,021	N	N	NA	

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Header column "Comment" boxes displayed below for reference.	
Column Heading	Description and Definition of Required Contents (IF not self-explanatory)
Storage Leaks & Emissions	
ID	
Geographic Location	GIS, zip code, or equivalent
Source	W/C = wellhead connector W/V = wellhead valve W/PRV = wellhead pressure relief valve W/OEL = wellhead open-ended line W/F = wellhead flange W/O = wellhead other C = casing P = pipeline O = other
Number of Sources	
Discovery Date	Report Discovery Date if calculating wellhead component emissions using Leaker EFs
Repair Date	Report Discovery Date if calculating wellhead component emissions using Leaker EFs
Number of Days Leaking	Calculate Number of Days Leaking using the formula: Repair Date minus Discovery Date + 1 day
Emission Factor (Mscf/yr)	
Annual Emissions (Mscf)	
Explanatory Notes / Comments	

Compressor Vented Emissions	
ID	
Geographic Location	GIS, zip code, or equivalent
Compressor Type	C = centrifugal R = reciprocating
Prime Mover	E = electric motor C = internal combustion engine
Number of Cylinders in Compressor	
Number of Seals	
Seal Type	W = wet D = dry O = other
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)	
Emissions (Mscf)	
Explanatory Notes / Comments	

Column Heading		Description and Definition of Required Contents (IF not self-explanatory)
		Blowdowns
ID		
Geographic Location		GIS, zip code, or equivalent
Source		W = wellhead rework C = compressor P = pipeline O = other
CompressorType		C = centrifugal R = reciprocating
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 OE = open-ended line M = meter P = pneumatic device PR = pressure relief valve V = valve O = other devices
Bleed Rate		L = low bleed I = intermittent bleed H = high bleed NA = not applicable
Manufacturer		
Pressure (psi)		MOP = maximum operating pressure over the past year
Survey Date (MM/DD/YY)		
Number of Days Emitting		Because the emissions are a factor of design or function, these emissions counted for the entire year.
Emission Factor, Engineering or Manufacturer's based Estimate of Emissions (Mscf/day)		Explain in the comment column the basis for your emission estimate.
Annual Emissions (Mscf)		
Explanatory Notes / Comments		

Column Heading		Description and Definition of Required Contents (IF not self-explanatory)
Compressor and Component Leaks		
ID		
Geographic Location		GIS, zip code, or equivalent
Device Type		C = connector OE = open-ended line M = meter P = pneumatic device PR = pressure relief valve V = valve O = other devices
Bleed Rate		L = low bleed I = intermittent bleed H = high bleed NA = not applicable
Manufacturer		
Pressure (psi)		MOP = maximum operating pressure over the past year
Discovery Date (MM/DD/YY)		List the actual discovery date. If the leak was discovered in the year of interest, then we will assume the component was leaking from the beginning of the year for emissions reporting purposes.
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)		Before the discovery date of the leak, there was a "Prior Survey Date" when the compressor station was tested and no leak was found. 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. Note, a facility level survey date is sufficient to establish the prior survey date.
Number of Days Leaking		The algorithm that is used for determining the number of days leaking should conform to the following guidance: 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.] $(\text{Discovery Date} - \text{Prior Survey Date})/2$ 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.* $(\text{Repair Date} - \text{Discovery Date}), \text{ unless repair date greater than } 12/31/XX \text{ then use } 12/31/XX$ --- $\text{Days Leaking} = (\text{Repair Date} - \text{Discovery Date}) + (\text{Discovery Date} - \text{Prior Survey Date})/2 + 1$ * [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.]
Emission Factor or Engineering Estimate (Mscf/day)		
Emissions (Mscf)		
Explanatory Notes / Comments		

Column Heading		Description and Definition of Required Contents (IF not self-explanatory)
Dehydrator Vented Emissions		
ID		
Geographic Location		GIS, zip code, or equivalent
Type of Dehydrator (Glycol or Desiccant)		
Vapor Recovery Unit OR Thermal Oxidizer (Y/N)		In order to claim 0 emissions, a Vapor Recovery Unit OR thermal oxidizer must be used 100% of the time during operation
Annual Volume of Gas Withdrawn (Mscf)		
Emission Factor (Y/N)		<p>If the glycol dehydrator has a Vapor Recovery Unit (VRU) or a thermal oxidizer, the emission factor is 0.</p> <p>If using a desiccant dehydrator, the emission factor is 2.23E-03 mt CH₄/MMscf</p>
Engineering Estimate (Y/N)		If using an engineering estimate, please include an attachment of methodology or software used as a separate document. Record the annual emissions
Annual Emissions (Mscf)		<p>For dehydrators using an emission factor, annual emissions are calculated by multiplying annual volume of gas withdrawn and the emission factor</p> <p>For dehydrators using an engineering estimate, record the annual emissions</p>
Explanatory Notes / Comments		

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In Response to Data Request, R15-01-008 2019 June Report
Appendix 8; Rev. 03/29/19

Summary Tables:

System Categories	Emission Source Categories	Fugitive or Vented	For Reference Only: 2015 Baseline Emissions (Mscf)	2017 Total Annual Volume of Leaks & Emissions (Mscf)	2017 Total Annual Count of Leak & Emission Items	2018 Total Annual Volume of Leaks & Emissions (Mscf)	2018 Total Annual Count of Leak & Emission Items	Emission Change for Year Over Year Comparison from 2017 to 2018 (Mscf)	Percentage Change for Year Over Year Comparison from 2017 to 2018	Count Change for Year Over Year Comparison from 2017 to 2018	Percentage Change for Year Over Year Comparison from 2017 to 2018	Emission Change for Year Over Year Comparison from 2015 to 2018 (Mscf)	Percentage Change for Year Over Year Comparison from 2015 to 2018	Explanation for Significant Percentage Change for Year Over Year Comparison from 2017 to 2018
Transmission Pipelines	Pipeline Leaks	Fugitive		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
	All Damages	Fugitive		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
	Blowdowns	Vented		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
	Component Emissions	Vented		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
	Component Leaks	Fugitive		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
Transmission M&R Stations	Odorizers	Vented		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
	Station Leaks & Emissions	Fugitive		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
	Blowdowns	Vented		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
Transmission Compressor Stations	Compressor Emissions	Vented		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
	Compressor Leaks	Fugitive		0	5	159.9239333	5	160	#DIV/0!	-	0.0%	160	#DIV/0!	
	Blowdowns	Vented		4227.37	12	8912.532	18	4,685	110.8%	6	50.0%	8,913	#DIV/0!	
	Component Emissions	Vented		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
	Component Leaks	Fugitive		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
	Storage Tank Leaks & Emissions	Vented		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
Distribution Main & Service Pipelines	Pipeline Leaks	Fugitive		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
	All Damages	Fugitive		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
	Blowdowns	Vented		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
	Component Emissions	Vented		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
	Component Leaks	Fugitive		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
Distribution M&R Stations	Station Leaks & Emissions	Fugitive		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
	All Damages	Fugitive		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
	Blowdowns	Vented		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
Customer Meters	Meter Leaks	Fugitive		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
	All Damages	Fugitive		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
	Vented Emissions	Vented		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
Underground Storage	Storage Leaks & Emissions	Fugitive		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
	Compressor Emissions	Vented		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
	Compressor Leaks	Fugitive		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
	Blowdowns	Vented		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
	Component Emissions	Vented		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
	Component Leaks	Fugitive		867.24	11	867.24	11	-	0.0%	-	0.0%	867	#DIV/0!	
	Dehydrator Vent Emissions	Fugitive		0	0	0	0	-	#DIV/0!	-	#DIV/0!	0	#DIV/0!	
	(Description)			0	0	0	0	-	#DIV/0!	0%	#DIV/0!	0	#DIV/0!	
Unusual Large Leaks														
Total			0	5094.61	NA	9939.695933	NA	4,845	95%	NA	NA	9,940	#DIV/0!	

GILL RANCH STORAGE, June 17, 2019

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,
In Response to Data Request, R15-01-008 2019 June Report
Appendix 8; Rev. 03/29/19

System Wide Leak Rate Data

1/1/2018 - 12/31/2018

The highlighted cells show the volumes that are summed together as the throughput for calculating the system wide leak rate.

Gas Storage Facilities:

Average Close of the Month Cushion Gas Storage Inventory (Mscf)	Average Close of the Month Working Gas Storage Inventory (Mscf)	Total Annual Volume of Injections into Storage (Mscf)	Total Annual Volume of Gas Used by the Gas Department (Mscf)	Total Annual Volume of Withdrawals from Storage (Mscf)	Explanatory Notes / Comments
3,543,307	11,865,688	5,526,844	22,779	16,359,021	

Transmission System:

Total Annual Volume of Gas Used by the Gas Department (Mscf)	Total Annual Volume of Gas Transported to or for Customers* in State (Mscf)	Total Annual Volume of Gas Transported to or for Customers* out of State (Mscf)	Total Annual Volume of Gas Transported to utility-owned or third-party storage fields for injection into storage (Mscf)	Explanatory Notes / Comments

Distribution System:

Total Annual Volume of Gas Used by the Gas Department (Mscf)	Total Annual Volume of Gas Transported to or for Customers* in State (Mscf)	Total Annual Volume of Gas Transported to or for Customers* out of State (Mscf)	Explanatory Notes / Comments

*The term customers includes anyone that the utility is transporting gas for, including customers who purchase gas from the utility.

Customers can be anyone including residential, businesses, other utilities, gas transportation companies, etc.

GILL RANCH STORAGE, June 17, 2019

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,

In Response to Data Request, R15-01-008 2019 June Report

Appendix 8; Rev. 03/29/19

Summary Tables:

Natural Gas Properties	Average Mole Percent	Explanatory Notes / Comments
Methane	93	
Carbon Dioxide	0.8	
Ethane	3.673	
C3+	0.2683	
C6+	0.0076	
Oxygen	0.1	
Hydrogen	1.5	
Sulfur	0.000015	
Water	NA	
Carbon Monoxide	0.1	
Particulate Matter	NA	
Inert Gas	NA	
Odorant	0.00008	

GILL RANCH STORAGE, June 17, 2019

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 2019 June Report

Appendix 9; Rev. 03/29/19

System Categories	Emission Source Categories	Emission Factor Sources	Description [in natural gas volume]
Transmission Pipeline	Transmission Pipeline Leaks	Engineering Estimate	Emissions estimated from size of breach / pressure / duration calculation
	All damages (as defined by PHMSA)	Engineering Estimate	Emissions estimated either from modelling or size of breach / pressure / duration
	Transmission Pipeline Blowdowns	Engineering Estimate	Unique equipment volume (corrected for pressure and temperature)
	Pneumatic Devices - Pneumatic/Hydraulic Valve Operators, and Turbine Valve Operators	MRR	Low Continuous Bleed = 0.0336 Mscf/day/dev Intermittent Bleed = 0.0576 Mscf/day/dev High Continuous Bleed = 0.4457 Mscf/day/dev Hydraulic Valve Operator = TBD Turbine Valve Operator = TBD
	Pressure Relief Valves	MRR	Pressure relief valve = 0.9518 Mscf/day/dev
	Odorizer (Odorizer and Gas Sampling Vents)	TCR	1.27 Mscf/yr/odorizer (if manufacturing specs are available, use the manufacturing specs instead of the default emission factor)
Transmission M&R	M&R Stations - Farm Taps & Direct Industrial Sales	MRR	# of leaks > 10,000 ppm x Subpart W EF (ref: Table W-3 of Subpart W of Part 98) Farm Tap / Direct Sale = 12.2 Mscf/yr/station Non-compressor components Valve = 0.1572 Mscf/day/dev Connector = 0.1399 Mscf/day/dev Open-ended line = 0.276 Mscf/day/dev Pressure relief valve = 0.0492 Mscf/day/dev Meter = 0.0728 Mscf/day/dev
	M&R Stations - Transmission-to-Transmission Company Interconnect	MRR	# of leaks > 10,000 ppm x Subpart W EF (ref: Table W-3 of Subpart W of Part 98) Trans-to-trans = 1,554.8 Mscf/yr/station Non-compressor components Valve = 0.1572 Mscf/day/dev Connector = 0.1399 Mscf/day/dev Open-ended line = 0.276 Mscf/day/dev Pressure relief valve = 0.0492 Mscf/day/dev Meter = 0.0728 Mscf/day/dev
	Transmission M&R Leaks	MRR	# of leaks > 10,000 ppm x Subpart W EF (ref: Table W-3 of Subpart W of Part 98) Non-compressor components Valve = 0.1572 Mscf/day/dev Connector = 0.1399 Mscf/day/dev Open-ended line = 0.276 Mscf/day/dev Pressure relief valve = 0.0492 Mscf/day/dev Meter = 0.0728 Mscf/day/dev
	Transmission M&R blowdown	Engineering Estimate	Unique equipment volume (corrected for pressure and temperature)
Transmission Compressor Stations	Compressor station - Equipment leaks from valves, connectors, open ended lines, pressure relief valves, and meters (using leak detection)	MRR	Leaker EFs-Compressor Station (Component Leaks identified per survey use the following EFs) # of leaks > 10,000 ppm x Subpart W EF (ref: Table W-3 of Subpart W of Part 98) Compressor Components Valve = 0.3562Mscf/day/dev Connector = 0.1342 Mscf/day/dev Open-Ended Line = 0.4145 Mscf/day/dev Pressure Relief Valve = 0.9518 Mscf/day/dev Meter = 0.4639 Mscf/day/dev Other = 0.0984 Mscf/day/dev Non-compressor components Valve = 0.1541 Mscf/day/dev Connector = 0.1370 Mscf/day/dev Open-ended line = 0.2705 Mscf/day/dev Pressure relief valve = 0.0482 Mscf/day/dev Meter = 0.0703 Mscf/day/dev Other = 0.0984 Mscf/day/dev
	Compressor Station - Transmission storage tanks	MRR	Direct measurement of tank vapor vent stack + operating hours (pg 218-219 of Regulation for MRR)
	Compressors (Centrifugal) - Transmission--data collection will require time spent in modes (active, pressurized idle, de-pressurized idle), compressor venting	MRR	Direct measurement x operating hours (operating mode)
	Compressors (Reciprocating) - Transmission--data collection will require time spent in modes (active, pressurized idle, de-pressurized idle)compressor rod packing venting	MRR	Direct measurement x operating hours (operating mode)
	Compressor station - Equipment and pipeline blowdowns	MRR	Eq. W - 14A # of blowdowns * piping volume
	Compressor Station - Natual gas pneumatic device venting	MRR	Low Continuous Bleed = 0.0336 Mscf/day/dev Intermittent Bleed = 0.0576 Mscf/day/dev High Continuous Bleed = 0.4457 Mscf/day/dev

System Categories	Emission Source Categories	Emission Factor Sources	Description [in natural gas volume]
Distribution Mains and Services Pipelines	Distribution Mains (Below-Ground Leaks)	GRI (1996)	Unprotected Steel Main = 0.1548 Mscf/day/leak Protected Steel Main = 0.0612 Mscf/day/leak Plastic Main = 0.2988 Mscf/day/leak
	Distribution Mains (Above Ground Leaks) - Not MSA	GRI (1996)	Unprotected Steel Main = 0.1548 Mscf/day/leak Protected Steel Main = 0.0612 Mscf/day/leak Plastic Main = 0.2988 Mscf/day/leak
	Distribution Service (Below-Ground Leaks)	GRI (1996)	Copper = 0.0226 Mscf/day/leak Unprotected Steel Service = 0.0600 Mscf/day/leak Protected Steel Service = 0.0276 Mscf/day/leak Plastic Service = 0.0089 Mscf/day/leak
	Distribution Service (Above-Ground Leaks) - Not MSA	GRI (1996)	Copper = 0.0226 Mscf/day/leak Unprotected Steel Service = 0.0600 Mscf/day/leak Protected Steel Service = 0.0276 Mscf/day/leak Plastic Service = 0.0089 Mscf/day/leak
	Distribution Main, Pressure Relief Valves	MRR	Pressure relief valve = 0.00696 Mscf/day/dev
	Distribution Mains and Services blowdown	MRR	Equation W-14A , Eq. W-35 , Eq. W-36
	All damages (as defined by PHMSA)	MRR	Equation W-14A , Eq. W-35 , Eq. W-36
	Pneumatic Devices - Pneumatic/Hydraulic Valve Operators, and Turbine Valve Operators	Engineering Estimate	Manufacturer Supplied Information (e.g., Bristol, Becker, Moore, etc)
Distribution M&R Stations	Distribution Above grade M&R Station Leaks (> 300 psi)	GRI (1996)	1,684.5 Mscf/yr/station
	Distribution Above grade M&R Station Leaks (100 - 300 psi)	GRI (1996)	896.5 Mscf/yr/station
	Distribution Above grade M&R Station Leaks (< 100 psi)	GRI (1996)	40.6 Mscf/yr/station
	Distribution Below grade M&R Station Leaks (> 300 psi)	GRI (1996)	12.176 Mscf/yr/station
	Distribution Below grade M&R Station Leaks (100 - 300 psi)	GRI (1996)	1.840 Mscf/yr/station
	Distribution Below grade M&R Station Leaks (< 100 psi)	GRI (1996)	0.964 Mscf/yr/station
	Distribution M&R Station Blowdowns	Engineering Estimate	Average Pressure x Average Volume x # of inspections & Maintenance Activities
	Distribution M&R Station Pneumatics	Engineering Estimate	Manufacturer Supplied Information (e.g., Bristol, Bettis Actuators, etc)
Commercial, Industrial and Residential Meters	Residential Meters	GRI (1996)	0.148 Mscf/yr/meter
	Commercial and Industrial Meters	GRI (1996)	0.051 Mscf/yr/meter
	Vented Emission from MSA	Engineering Estimate	Estimated volume release by MSA and activity type
Underground Storage	Dehydrator Vents - Storage	GRI (1996)	One of the following three cases per dehydrator facility 1. Glycol dehydrator with VRU and thermal oxidizer = 0 Mscf 2. Glycol dehydrator with no control device = Engineering Estimate 3. Desiccant dehydrator = 2.23E-03 mt CH4/MMscf (Alternative: Eq. 5 in MRR)
	Storage - piping leakage	MRR	<u>Leaker EFs-Storage Station, Gas Service</u> (Component Leaks identified per survey use the following EFs) Connector = 0.1342 Mscf/day/dev Valve = 0.3562 Mscf/day/dev Pressure Relief Valve = 0.9518 Mscf/day/dev Open-Ended Line = 0.4145 Mscf/day/dev Meter = 0.4639 Mscf/day/dev Other = 0.0984 Mscf/day/dev <u>Population EFs-Storage Wellheads, Gas Service</u> (For all un-surveyed components use the following EFs) Connector = 0.0002 Mscf/day/dev Valve = 0.0024 Mscf/day/dev Pressure Relief Valve = 0.0041 Mscf/day/dev Open Ended Line = 0.0007 Mscf/day/dev
	Storage - surface casing leakage	Engineering Estimate	TBD
	Storage - Wellhead leakage	MRR	<u>Leaker EFs-Storage Wellheads, Gas Service</u> (Component Leaks identified per survey use the following EFs) Connector (other than flanges) = 0.0288 Mscf/day/dev Valve = 0.1080 Mscf/day/dev Pressure Relief Valve = 0.0984 Mscf/day/dev Open-Ended Line = 0.0600 Mscf/day/dev Flange = 0.0912 Mscf/day/dev Other = 0.0984 Mscf/day/dev <u>Population EFs-Storage Wellheads, Gas Service</u> (For all un-Surveyed components, use the following EFs) Connector = 0.0002 Mscf/day/dev Valve = 0.0024 Mscf/day/dev Pressure Relief Valve = 0.0041 Mscf/day/dev Open-Ended Line = 0.0007 Mscf/day/dev
	Storage - Compressor & blowdowns	Engineering Estimate	Eq. 13 of MRR (piping volume x # of blowdowns)
	Storage - Wellhead Rework blowdown and bring-in	Engineering Estimate	Eq. 9,10,11,12 of MRR
	Pressure Relief Valves	MRR	Pressure relief valve = 0.9518 Mscf/day/dev.
	Pneumatic Devices - Pneumatic/Hydraulic Valve Operators, and Turbine Valve Operators	MRR	Low Continuous Bleed = 0.0336 Mscf/day/dev Intermittent Bleed = 0.0576 Mscf/day/dev High Continuous Bleed = 0.4457 Mscf/day/dev Hydraulic Valve Operator = TBD Turbine Valve Operator = TBD