

Southwest Gas Corporation

R.15-01-008 Annual Report Natural Gas Leakage Abatement

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:

**Safety Policy Division Data Request
Southwest Gas R15-01-008 2024 Annual Report**

By:

Southwest Gas Corporation

Reporting Period:

January 1, 2023 through December 31, 2023

Date:

June 14, 2024

**Southwest Gas Corporation
Response to
Safety Policy Division Data Request
Southwest Gas R15-01-008 2024 Annual Report**

EXECUTIVE SUMMARY

Southwest Gas Corporation (Southwest Gas) is a multi-jurisdictional natural gas local distribution company, engaged in the retail transmission, distribution, transportation, and sale of natural gas for domestic, commercial, agricultural, and industrial uses. Southwest Gas serves approximately 200,000 California customers.

Southwest Gas was a named respondent in Rulemaking 15-01-008 (Rulemaking), opened in January 2015 by the California Public Utilities Commission (Commission) pursuant to Senate Bill (SB) 1371¹, which requires, "...the adoption of rules and procedures to minimize natural gas leakage from Commission-regulated natural gas pipeline facilities consistent with Public Utilities Code Section 961(d), §192.703(c) of Subpart M of Title 49 of the Code of Federal Regulation, the Commission's General Order 112-E, and the state's goal of reducing greenhouse gas emissions."^{2,3}

On June 15, 2017, the Commission approved Decision (D.) 17-06-015, which adopted ongoing annual reporting and timelines in accordance with SB 1371. Ordering Paragraph (OP) 1 in D.17-06-015 states in pertinent part:

The Natural Gas Leak Abatement Program Annual Reporting Framework contained in Section 5.2 and Appendix A (Definitions) of this decision is adopted consistent with the process detailed below:

The Commission's Safety and Enforcement Division (SED), in consultation with the Air Resources Board (ARB), shall direct the annual report process as follows:

- ...
- b) SED shall submit annual data requests to Respondents consistent with Public Utilities Code Section 975 (c) and SED advice by March 31 that covers the previous calendar year;
 - c) Respondents shall submit to SED and ARB Staff a response to the data request with populated excel spreadsheet templates via DVD by June 15;
 - d) Respondents shall submit responses through the "Supporting Documents" Feature on the Commission's Electronic Filing System by June 15 of each year;
 - e) Respondents shall submit responses consistent with the Commission's confidentiality rules and guidance in this decision;
 - f) Respondents shall post public versions of these reports on Respondents' websites and shall include all templates and associated data that are not confidential according to this decision;...

¹ SB 1371 became effective January 1, 2015, and added Article 3, §§975, 977 and 978 to the Public Utilities Code. All code references herein pertain to the Public Utilities Code.

² Order Instituting Rulemaking (OIR), at p.1.

³ General Order (GO) 112-F, adopted in Decision 15-06-044, on June 25, 2015, supersedes GO 112-E.

**Southwest Gas Corporation
Response to
Safety Policy Division Data Request
Southwest Gas R15-01-008 2024 Annual Report**

On January 31, 2024, the Commission's Safety Policy Division (SPD) issued by email the 2024 annual data request, including revised annual reporting templates for the 2023 reporting year as presented at the February 5, 2024 Winter Workshop. Southwest Gas submits its 2024 Natural Gas Leakage Abatement Report (Annual Report) responding to the six questions in the "Supplemental Questionnaire R.15-01-008 2024 Annual Report", and utilizing the reporting templates, including emission factors, definitions and instructions issued in the SPD data request.

Pursuant to OP 1(f) in D.17-06-015, Southwest Gas' 2024 Annual Report has been made available on its website at the following link: <https://www.swgas.com/en/california-rates-and-regulation>.

Southwest Gas Corporation
Response to
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Southwest Gas R15-01-008 2024 Annual Report

INTRODUCTION

The following data 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 responses to Data Request R.15-01-008 2023 Annual Report.

1. Please provide the following for the period from January 1, 2023 to December 31, 2023:

a. Describe any current projects or studies related to SB 1371.

Southwest Gas Response: Southwest Gas is currently involved in several Research and Development (R&D) Projects related to emissions reduction. Reference Staff Attachment A Southwest Gas Research Participation Projects.

b. Describe the activity changes between the previous year's reporting and the current year's reporting that affected the change in the total emissions. For example, changes in maintenance activities may have changed blowdown emissions from previous years and resulted in changes to total emissions.

Southwest Gas Response: Southwest Gas has implemented or revised the following procedures or processes in 2023 to help reduce emission:

- Revised its Main and Service Policy to state that facilities should be designed to minimize the release of emissions during and after installation where possible. A list of examples are included in the policy.
- Revised its Pressure Regulation Procedure to reduce station pressure by equalizing with the downstream system before internal inspections of station filters and pilot regulator filters to minimize emissions released to the atmosphere.

1. Additionally, the procedure lists the use of nitrogen as the preferred method over natural gas for testing relief valve operation during inspections.

2. The procedure was also revised to instruct personnel to combine work at stations to minimize the release of emissions during inspections, repairs, or replacement of components, whenever possible.

c. Describe advances in abatement efforts, similar to the executive summary in the best practices reporting.

Southwest Gas Response: Southwest Gas continues to seek additional opportunities to reduce emissions, which is demonstrated in its list of R&D projects the Company has been or is currently a participating entity. As mentioned in Southwest Gas' 2024-2025 Emissions Abatement Compliance Plan, the Company

**Southwest Gas Corporation
Response to
Safety Policy Division Data Request
Southwest Gas R15-01-008 2024 Annual Report**

is funding these efforts through its general Commission-approved R&D budgets and not part of the SB 1371 efforts. These projects include evaluation and/or development of new laser methane detectors, advance unmanned aerial system (UAS or drone) mounted reporting sensing technologies, methane quantification methods, advanced tools for methane rate estimation, hydrogen blending methods and technical projects, and Company-specific emission factor evaluation for commercial/industrial meters. The results of these projects could provide additional emissions abatement opportunities in the future.

- d. Describe improvements in reporting that are not discernable by reviewing the reporting data. For example, report the installation of a new data management or leak tracking system.

Southwest Gas Response: Southwest Gas continues to review its internal processes for opportunities to enhance its leak data; however, no enhancements were implemented during the 2023 reporting period.

- e. For smaller utilities, confirm if there were no leaks in distribution mains and services pipelines.

Southwest Gas Response: During the 2023 reporting period, Southwest Gas discovered 63 distribution main leaks and 102 leaks on service pipelines. The leaks are included in Southwest Gas' reporting appendices.

- f. Identify any additional tables to be included in the Joint Report. Staff will place these tables in an appendix.

Southwest Gas Response: Southwest Gas does not have any suggested new tables to be included in the Joint Report.

2. Does the utility propose a 2015 baseline adjustment or emission factor change? If so, please describe. Can the utility adhere to the following timeline?

- a. Solicit Baseline Proposals: February 5 through April 30, 2024.
b. Agency Review Meetings: April 30 through July 31, 2024.
c. Final Decision by August 31, 2024.

Southwest Gas Response: Southwest Gas is not proposing a 2015 baseline adjustment or emission factor change during this reporting period.

Appendix 1
Transmission Pipelines

SOUTHWEST GAS CORPORATION, JUNE 14, 2024
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 - 2024 June Report
Appendix 1; Rev. 03/29/2024

Notes:

Emissions included in the Report are based on miles of transmission pipeline. Therefore provide the miles of transmission pipeline in your system here.
 The following data on transmission pipeline leaks is **for information purposes** and will not be used to report transmission pipeline leak emissions this year.
 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.

Transmission Pipeline Leaks:

ID	Geographic Location	Pipe Material	Pipe Size (nominal)	Pipe Age (months)	Pressure (psi)	Leak Grade	Above Ground or Below Ground	Discovery Date (MM/DD/YY)	Repair Date (MM/DD/YY)	Scheduled Repair Date (MM/DD/YY)	Reason for Not Scheduling a Repair	Number of Days Leaking	Emission Factor (Mscf/Day)	Annual Emissions (Mscf)	Explanatory Notes / Comments
12TVE5002827	92392	PC	1"	383	782	3	B	11/16/2023	N/A	11/16/2024	N/A	46	0.1572	7.231	GRADE 3 LEAK ON VALVE
													Total	7.2312	

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Appendix 1; Rev. 03/29/2024

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

Transmission Pipeline Damage (3rd party dig-ins, natural disasters, etc.):

ID	Geographic Location	Damage Type	Pipe Material	Pipe Size (nominal)	Pipe Age (months)	Pressure (psi)	Leak Grade	Above Ground or Below Ground	Discovery Date (MM/DD/YY)	Repair Date (MM/DD/YY)	Number of Days Leaking	Emission Factor (Mscf/Day)	Annual Emissions (Mscf)	Explanatory Notes / Comments
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Southwest Gas did not have any damages on Transmission pipelines in 2023.

Total 0

SOUTHWEST GAS CORPORATION, JUNE 14, 2024
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In Response to Data Request, R15-01-008 - 2024 June Report
Appendix 1; Rev. 03/29/2024

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 reported under the column Methane Abatement (Mscf) are for information purposes only, and should be seperated from the emissions reported under the column for Annual Emissions (Mscf).

Transmission Pipeline Blowdowns:

ID	Geographic Location	Number of Blowdown Events	Reason	Emission Reduction Strategy	Annual Emissions (Mscf)	Explanatory Notes / Comments	Methane Abatement (Mscf)
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Southwest Gas did not have any blowdowns on Transmission pipelines in 2023.

Total 0

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Appendix 1; Rev. 03/29/2024

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 in the Blowdowns worksheet.

Transmission Pipeline Component Vented Emissions:

Total Number of Devices	Device Type	Bleed Rate	Manufacturer	Emission Factor (Mscf/day)	Annual Emission (Mscf)	Explanatory Notes / Comments
Southwest Gas did not have any Transmission pipeline component vented emissions in 2023						
					Total	0

SOUTHWEST GAS CORPORATION, JUNE 14, 2024
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In Response to Data Request, R15-01-008 - 2024 June Report
Appendix 1; Rev. 03/29/2024

\ 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 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 Pipeline Component Fugitive Leaks:

ID	Geographic Location	Device Type	Bleed Rate	Manufacturer	Discovery Date (MM/DD/YY)	Repair Date (MM/DD/YY)	Number of Days Leaking	Emission Factor (Mscf/day)	Annual Emission (Mscf)	Explanatory Notes / Comments
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Southwest Gas did not have any Transmission pipeline component fugitive emissions in 2023.

Total 0

SOUTHWEST GAS CORPORATION, JUNE 14, 2024

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 - 2024 June Report
Appendix 1; Rev. 03/29/2024**

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.

Transmission Pipeline Odorizers:

ID	Geographic Location	Number of Units	Emission Factor (Mscf/yr)	Annual Emission (Mscf)	Explanatory Notes / Comments
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Southwest Gas did not have any Odorizer Emissions to report for 2023.

Total **0**

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Appendix 2
Transmission M&R Stations

SOUTHWEST GAS CORPORATION, JUNE 14, 2024
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 - 2024 June Report
Appendix 2; Rev. 03/29/2024

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.

Facilities emissions that are based on a population count times an emission factor (See Appendix 9 for guidance).

Transmission M&R Station Total Leaks and Emissions:

Number of Stations	Station Classification	Emission Factor (Mscf/yr)	Annual Emission (Mscf)	Explanatory Notes / Comments
7	T	1554.8	10883.60	Appendix 9 Emission Factor
Total			10883.60	

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Appendix 2; Rev. 03/29/2024

Note:
 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.

Transmission M&R Station Blowdowns:

ID	Geographic Location	Number of Blowdown Events	Annual Emissions (Mscf)	Explanatory Notes / Comments	
12TR15007210	92347	2	1.075	1 Inspection & 1 Maintenance	
12TS10023140	92392	2	1.075	1 Inspection & 1 Maintenance	Formula: Gas loss due to flow lock ups + de-gassing (Purge Line ID)^2*(Avg PSI)*(Blow Time) + (Pipe Dia)^2*(AVG PSI)*(0.372)*(Pipe Length)
12TS15007090	92392	1	0.538	1 Inspection	
12TS15007091	92392	1	0.538	1 Inspection	
12TS15007094	92307	1	0.538	1 Inspection	
12TS15010691	92356	1	0.538	1 Inspection	
12TS15010692	92301	6	3.226	6 Inspections	
		Total	7.528		

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In Response to Data Request, R15-01-008 - 2024 June Report
Appendix 2; Rev. 03/29/2024

Notes:

The data collected on this sheet is for informational purposes and may not be included in the emissions inventory for 2023. The worksheet is designed to track actual emissions for future reference and to determine if an actual leak based emission accounting is feasible for M&R stations.

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.

Transmission M&R Station Component Vented Emissions:

ID	Geographic Location	Station Classification	Device Type	Bleed Rate	Manufacturer	Number of Days Emitting	Annual Emissions (Mscf)	Explanatory Notes / Comments
12TS10023140	92395	A3	O	L	SpectraSensor	365	17.520	Manufacturer's based Estimate of Emissions (1-2 cubic Feet per hour: $2 \text{ ft}^3/\text{hr} * 24\text{hrs}/\text{day} * 365 \text{ days} = 17,520 \text{ ft}^3$)
12TR15007210	92311	A3	O	L	SpectraSensor	365	17.520	Manufacturer's based Estimate of Emissions (1-2 cubic Feet per hour: $2 \text{ ft}^3/\text{hr} * 24\text{hrs}/\text{day} * 365 \text{ days} = 17,520 \text{ ft}^3$)
Total							35.040	

SOUTHWEST GAS CORPORATION, JUNE 14, 2024
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In Response to Data Request, R15-01-008 - 2024 June Report
Appendix 2; Rev. 03/29/2024

Notes:
 The data collected on this sheet is for informational purposes and may not be included in the emissions inventory for 2023. The worksheet is designed to track actual leaks for future reference and to determine if an actual leak based emission accounting is feasible for M&R stations.
 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 unintentional leaks that if repaired would not be 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 M&R Station Component Fugitive Leaks:

ID	Geographic Location	Station Classification	Device Type	Bleed Rate	Manufacturer	Discovery Date (MM/DD/YY)	Repair Date (MM/DD/YY)	Number of Days Leaking	Emission Factor (Mscf/day/dev)	Annual Emissions (Mscf)	Explanatory Notes / Comments
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Southwest Gas did not have any Transmission M&R Station component fugitive leaks in 2023.

Total 0

Appendix 3
Transmission Compressor Stations

SOUTHWEST GAS CORPORATION, JUNE 14, 2024

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 - 2024 June Report Appendix 3, Rev. 03/29/2024

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.

Transmission Compressor Vented Emissions:																													
ID	Geographic Location	Compressor Type	Prime Mover	Number of Cylinders	Number of Stalls	Seal Type	Measurement Frequency	Emission Factor: Measurement Date Pressurized Operations	Operating Mode: Pressurized Operating (hours)	Operating Mode: Pressurized Idle (hours)	Operating Mode: Depressurized Idle (hours)	Operating Mode: Offline (hours)	Emission Factor: Pressurized Operating (ccf/hr)	Emission Factor: Pressurized Idle (ccf/hr)	Emission Factor: Depressurized Idle (ccf/hr)	Emission Factor: Offline (ccf/hr)	Emission Factor: Pressurized Operating - Rod Packing (ccf/hr)	Emission Factor: Pressurized Operating - Blowdown Valve (ccf/hr)	Emission Factor: Pressurized Operating - Wet Seal Oil Degassing Vent (ccf/hr)	Emission Factor: Pressurized Operating - Wet Seal (ccf/hr)	Emission Factor: Pressurized Operating - Dry Seal (ccf/hr)	Emission Factor: Pressurized Idle - Rod Packing (ccf/hr)	Emission Factor: Pressurized Idle - Blowdown (ccf/hr)	Emission Factor: Pressurized Idle - Wet Seal Oil Degassing Vent (ccf/hr)	Emission Factor: Pressurized Idle - Wet Seal (ccf/hr)	Emission Factor: Pressurized Idle - Dry Seal (ccf/hr)	Emission Factor: Pressurized Idle - Isolation Valve (ccf/hr)	Annual Emissions (Mscf)	Explanatory Notes / Comments
Southwest Gas does not have any Transmission Compressor Stations in California																													
																										Total 0.00			

SOUTHWEST GAS CORPORATION, JUNE 14, 2024

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 - 2024 June Report
Appendix 3; Rev. 03/29/2024**

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.

Transmission Compressor Station Blowdowns:

ID	Geographic Location	Number of Blowdown Events	Annual Emissions (Mscf)	Explanatory Notes / Comments
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Southwest Gas does not have any Transmission Compressor Stations in California.

Total 0.00

SOUTHWEST GAS CORPORATION, JUNE 14, 2024

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In Response to Data Request, R15-01-008 - 2024 June Report

Appendix 3; Rev. 03/29/2024

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.

Transmission Compressor Station Component Vented Emissions:

ID	Geographic Location	Device Type	Bleed Rate	Manufacturer	Engineering or Manufacturer's based Estimate of Emissions	Annual Emissions (Mscf)	Explanatory Notes / Comments
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Southwest Gas does not have any Transmission Compressor Stations in California.

Total **0.00**

SOUTHWEST GAS CORPORATION, JUNE 14, 2024

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 - 2024 June Report Appendix 3; Rev. 03/30/2024

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 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.
 Please include emissions from leaks found with concentrations below 10,000ppm, and add them in the total emissions column. Please use the associated emission factors provided in Appendix 9, Emission Factors.

Transmission Compressor Station: Compressor and Component Fugitive

12/31/23 01/01/23

ID	Geographic Location	Facility/Device Type	Emission Factor: Mscf/day/dev	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
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Southwest Gas does not have any Transmission Compressor Stations in California.

Total **0.00**

SOUTHWEST GAS CORPORATION, JUNE 14, 2024

**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 - 2024 June Report
Appendix 3; Rev. 03/29/2024**

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.

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)
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Southwest Gas does not have any Transmission Compressor Stations in California.

Total 0.00

Appendix 4
Distribution Mains and Services

SOUTHWEST GAS CORPORATION, JUNE 14, 2024
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, 2024 June Report
Appendix 4; Rev. 03/29/2024

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.
If all the mains and services are not surveyed annually, use the tab "Unsurveyed Pipeline Leaks" to estimate emissions.
Do not record above ground MSA leaks on this tab. Use Appendix 6 instead. Do continue to list above ground leaks associated with the Distribution Main & Services pipeline system.
After completing the tab on "Pipeline Leaks" and "Unsurveyed Pipeline Leaks," fill in the table for "Pipeline Leak Summary."

Note: No change to O&M leak duration for this reporting year.

Distribution Main & Service Pipeline Leaks:

ID	Geographic Location	Pipe Classification	Pipe Material	Pipe Size (nominal)	Pipe Age (months)	Pressure (psi)	Leak Grade	Upgraded Leak Grade or Downgraded Leak Grade	Above Ground or Below Ground	Leak Discovery Method	Discovery Date (MM/DD/YY)	Re-Grade Date (MM/DD/YY)	Repair Date (MM/DD/YY)	Scheduled Repair Date (MM/DD/YY)	Reason for Not Scheduling a Repair	Number of Days Leaking	Number of Days to Repair	Emission Factor (Mscf/Day)	Annual Emissions (Mscf)	Explanatory Notes / Comments	
4532381	96145	MB	PC	2"	684	43	3	N/A	B	O	1/1/2023	N/A	Pending	6/17/2024	N/A	365	N/A	0.0612	22.338	Will be repaired in 2024	
4586889	92344	MB	P	2"	224	60	3	N/A	B	M	12/21/2022	N/A	02/01/2023	N/A	N/A	31	43	0.2988	9.263		
4297990	92301	MB	PC	8"	353	240	3	N/A	B	M	10/20/2020	N/A	3/22/2024	N/A	N/A	365	1250	0.0612	22.338		
Total Emissions from leaks carried over from before 2023																			53.94		
4505936	96150	MB	P	2"	492	35	3	N/A	B	S	6/16/2022	N/A	8/3/2023	N/A	N/A	214	413	0.2998	64.157		
4561900	96161	MB	PC	3/4"	324	60	3	N/A	B	S	11/21/2022	N/A	10/12/2023	N/A	N/A	284	325	0.0612	17.381		
4681320	96150	DB	P	1/2"	336	35	1	N/A	B	S	5/23/2023	N/A	5/23/2023	N/A	N/A	1	1	0.0089	0.009		
4710098	96150	DB	P	3/4"	360	60	1	N/A	B	S	7/31/2023	N/A	7/31/2023	N/A	N/A	1	1	0.0089	0.009		
4730710	96161	DB	P	1/2"	324	60	3	N/A	B	S	7/7/2023	N/A	9/12/2023	N/A	N/A	67	67	0.0089	0.596		
4735324	96150	MB	PC	4"	Unknown	35	2	N/A	B	S	8/22/2023	N/A	9/13/2023	N/A	N/A	22	22	0.0612	1.346		
4744695	96150	DB	P	1/2"	276	60	1	N/A	B	S	10/10/2023	N/A	10/10/2023	N/A	N/A	1	1	0.0089	0.009		
4753680	96145	DB	P	1"	60	43	1	N/A	B	S	11/2/2023	N/A	11/2/2023	N/A	N/A	1	1	0.0089	0.009		
4775868	96150	DB	PC	3/4"	Unknown	35	1	N/A	B	S	12/11/2023	N/A	12/11/2023	N/A	N/A	1	1	0.0276	0.028		
4786333	96145	DB	PC	5/8"	516	43	3	N/A	B	S	5/25/2023	N/A	7/12/2023	N/A	N/A	48	48	0.0276	1.325		
4617744	92345	MB	P	2"	566	40	3	N/A	B	S	02/14/2023	N/A	03/16/2023	N/A	N/A	75	31	0.2988	22.111		
4651588	92345	DB	P	1/2"	546	40	2	N/A	B	S	04/12/2023	N/A	04/13/2023	N/A	N/A	103	2	0.0089	0.908		
4675811	92345	DB	P	1"	423	40	2	N/A	B	S	05/16/2023	N/A	05/25/2023	N/A	N/A	145	10	0.0089	1.282		
4731256	92307	DB	P	1/2"	524	40	3	N/A	B	S	09/07/2023	N/A	09/14/2023	N/A	N/A	257	8	0.0089	2.278		
4773380	92344	MB	P	6"	35	60	3	N/A	B	S	12/4/2023	N/A	N/A	5/4/2025	N/A	27	N/A	0.2988	8.068		
4777878	92392	DB	P	2"	438	60	2	N/A	B	S	12/18/2023	N/A	N/A	12/18/2025	N/A	13	N/A	0.0089	0.116		
Total Emissions from leaks discovered in 2023																			119.63		
4595235	92363	MB	P	1"	270	55	3	N/A	B	O	1/2/2023	N/A	1/2/2023	N/A	N/A	1	1	0.0089	0.0089		
4611327	96161	DB	P	1"	12	60	1	N/A	B	M	1/31/2023	N/A	1/31/2023	N/A	N/A	1	1	0.0089	0.0089		
4661286	96150	DB	P	1/2"	360	60	1	N/A	B	M	4/25/2023	N/A	4/25/2023	N/A	N/A	1	1	0.0089	0.0089		
4661841	96161	DB	P	1/2"	324	60	1	N/A	B	M	3/15/2023	N/A	3/15/2023	N/A	N/A	1	1	0.0089	0.0089		
4689568	96150	DB	P	1/2"	360	60	1	N/A	B	M	6/10/2023	N/A	6/10/2023	N/A	N/A	1	1	0.0089	0.0089		
4787335	96145	DB	P	1"	60	43	1	N/A	B	M	11/2/2023	N/A	11/2/2023	N/A	N/A	1	1	0.0089	0.0089		
4595427	92301	DB	P	1/2"	361	60	1	N/A	B	M	01/04/2023	N/A	01/04/2023	N/A	N/A	1	1	0.0089	0.0089		
4595442	92394	MB	P	1"	268	40	1	N/A	B	M	01/04/2023	N/A	01/04/2023	N/A	N/A	1	1	0.2988	0.2988		
4596624	92301	DB	P	1/2"	366	60	1	N/A	B	M	01/06/2023	N/A	01/06/2023	N/A	N/A	1	1	0.0089	0.0089		
4598484	92395	DB	P	1"	213	40	1	N/A	B	M	01/11/2023	N/A	01/11/2023	N/A	N/A	1	1	0.0089	0.0089		
4598684	92311	MB	P	2"	544	40	2	N/A	B	M	01/11/2023	N/A	01/17/2023	N/A	N/A	7	7	0.2988	2.0916		
4599165	92311	MB	P	2"	410	40	3	N/A	B	M	01/11/2023	N/A	01/11/2023	N/A	N/A	1	1	0.2988	0.2988		
4599256	92392	DB	P	1/2"	344	60	1	N/A	B	M	01/12/2023	N/A	01/12/2023	N/A	N/A	1	1	0.0089	0.0089		
4599404	92308	MB	P	4"	306	40	3	N/A	B	M	01/12/2023	N/A	02/23/2023	N/A	N/A	43	43	0.2988	12.8484		
4599452	92345	DB	P	1"	501	40	2	N/A	B	M	01/12/2023	N/A	01/12/2023	N/A	N/A	1	1	0.0089	0.0089		
4600790	92301	DB	P	1/2"	366	60	1	N/A	B	M	01/17/2023	N/A	01/17/2023	N/A	N/A	1	1	0.0089	0.0089		
4601233	92314	MB	P	2"	116	40	2	N/A	B	M	01/17/2023	N/A	01/17/2023	N/A	N/A	1	1	0.2988	0.2988		
4601725	92392	DB	P	1/2"	470	60	3	N/A	B	M	01/19/2023	N/A	01/19/2023	N/A	N/A	1	1	0.0089	0.0089		
4604267	92308	MB	P	2"	525	40	3	N/A	B	M	01/23/2023	N/A	01/27/2023	N/A	N/A	5	5	0.2988	1.4940		
4604332	92311	MB	P	2"	531	40	2	N/A	B	M	01/23/2023	N/A	02/01/2023	N/A	N/A	10	10	0.2988	2.9880		
4604479	92392	DB	P	1/2"	501	60	1	N/A	B	M	01/21/2023	N/A	01/21/2023	N/A	N/A	1	1	0.0089	0.0089		
4604647	92308	MB	P	2"	507	40	3	N/A	B	M	01/23/2023	N/A	01/23/2023	N/A	N/A	5	5	0.2988	1.4940		
4605751	92345	DB	P	1/2"	385	60	1	N/A	B	M	01/25/2023	N/A	01/25/2023	N/A	N/A	1	1	0.0089	0.0089		
4610423	92301	DB	P	1/2"	367	60	1	N/A	B	M	01/28/2023	N/A	01/28/2023	N/A	N/A	1	1	0.0089	0.0089		
4610492	92345	MB	P	2"	531	40	1	N/A	B	M	01/27/2023	N/A	01/27/2023	N/A	N/A	1	1	0.2988	0.2988		
4612862	92345	DB	P	1"	560	40	2	N/A	B	M	02/02/2023	N/A	02/02/2023	N/A	N/A	1	1	0.0089	0.0089		
4613058	92345	DB	P	1/2"	227	40	1	N/A	B	M	02/05/2023	N/A	02/05/2023	N/A	N/A	1	1	0.0089	0.0089		
4613383	92345	DB	P	1/2"	430	40	3	N/A	B	M	02/06/2023	N/A	02/06/2023	N/A	N/A	1	1	0.0089	0.0089		
4614783	92345	DB	P	1/2"	403	40	1	N/A	B	M	02/06/2023	N/A	02/06/2023	N/A	N/A	1	1	0.0089	0.0089		
4616282	92311	MB	P	2"	538	40	3	N/A	B	M	02/10/2023	N/A	03/28/2023	N/A	N/A	47	47	0.2988	14.0436		
4616290	92311	MB	P	2"	538	40	3	N/A	B	M	02/13/2023	N/A	03/28/2023	N/A	N/A	44	44	0.2988	13.1472		
4618044	92395	DB	P	1/2"	223	40	1	N/A	B	M	02/14/2023	N/A	02/14/2023	N/A	N/A	1	1	0.0089	0.0089		
4620837	92395	DB	P	1/2"	519	40	1	N/A	B	M	02/17/2023	N/A	02/17/2023	N/A	N/A	1	1	0.0089	0.0089		
4621059	92392	MB	P	2"	407	60	3	N/A	B	M	02/21/2023	N/A	03/03/2023	N/A	N/A	11	11	0.2988	3.2868		
4621689	92345	MB	P	2"	10	40	1	N/A	B	M	02/22/2023	N/A	02/22/2023	N/A	N/A	1	1	0.2988	0.2988		
4623333	92311	MB	P	2"	532	40	3	N/A	B	M	02/23/2023	N/A	03/28/2023	N/A	N/A	34	34	0.2988	10.1592		
4623435	92311	MB	P	2"	532	40	3	N/A	B	M	02/27/2023	N/A	03/28/2023	N/A	N/A	30	30	0.2988	8.9640		
4623835	92311	MB	P	2"	557	40	2	N/A	B	M	02/28/2023	N/A	03/28/2023	N/A	N/A	29	29	0.2988	8.6652		
4623843	92311	MB	P	2"	557	40	2	N/A	B	M	02/28/2023	N/A	03/28/2023	N/A	N/A	29	29	0.2988	8.6652		
4630361	92311	MB	P	2"	557	40	2	N/A	B	M	03/03/2023	N/A	03/28/2023	N/A	N/A	26	26	0.2988	7.7688		
4630378	92307	MB	P	2"	449	40	3	N/A	B	M	03/03/2023	N/A	03/09/2023	N/A	N/A	7	7	0.2988	2.0916		
4631834	92																				

Distribution Main & Service Pipeline Leaks:

Note: No change to O&M leak duration for this reporting year.

ID	Geographic Location	Pipe Classification	Pipe Material	Pipe Size (nominal)	Pipe Age (months)	Pressure (psi)	Leak Grade	Upgraded Leak Grade or Downgraded Leak Grade	Above Ground or Below Ground	Leak Discovery Method	Discovery Date (MM/DD/YY)	Re-Grade Date (MM/DD/YY)	Repair Date (MM/DD/YY)	Scheduled Repair Date (MM/DD/YY)	Reason for Not Scheduling a Repair	Number of Days Leaking	Number of Days to Repair	Emission Factor (Mscf/Day)	Annual Emissions (Mscf)	Explanatory Notes / Comments
4658126	92301	DB	P	1"	551	60	1	N/A	B	M	04/17/2023	N/A	04/17/2023	N/A	N/A	1	1	0.0089	0.0089	
4659625	92307	DB	P	1/2"	512	40	1	N/A	B	M	04/20/2023	N/A	04/20/2023	N/A	N/A	1	1	0.0089	0.0089	
4660646	92301	DB	P	1/2"	382	60	1	N/A	B	M	04/25/2023	N/A	04/25/2023	N/A	N/A	1	1	0.0089	0.0089	
4660954	92311	DB	P	1/2"	472	40	1	N/A	B	M	04/25/2023	N/A	04/25/2023	N/A	N/A	1	1	0.0089	0.0089	
4672766	92301	DB	P	1/2"	190	60	1	N/A	B	M	05/08/2023	N/A	05/08/2023	N/A	N/A	1	1	0.0089	0.0089	
4674349	92394	MB	PC	2"	794	40	3	N/A	B	M	05/12/2023	N/A	05/25/2023	N/A	N/A	14	14	0.0612	0.8568	
4674739	92311	DB	P	1"	236	40	1	N/A	B	M	05/13/2023	N/A	05/13/2023	N/A	N/A	1	1	0.0089	0.0089	
4675096	92394	MB	PC	2"	794	40	3	N/A	B	M	05/15/2023	N/A	05/23/2023	N/A	N/A	9	9	0.0612	0.5508	
4675249	92344	DB	P	1"	1	60	1	N/A	B	M	05/15/2023	N/A	05/15/2023	N/A	N/A	1	1	0.0089	0.0089	
4675255	92345	DB	P	1/2"	492	40	1	N/A	B	M	05/12/2023	N/A	05/12/2023	N/A	N/A	1	1	0.0089	0.0089	
4675354	92392	DB	P	1/2"	374	60	1	N/A	B	M	05/15/2023	N/A	05/15/2023	N/A	N/A	1	1	0.0089	0.0089	
4676582	92394	DB	PC	1/2"	552	40	3	N/A	B	M	05/17/2023	N/A	05/25/2023	N/A	N/A	9	9	0.0276	0.2484	
4677337	92394	MB	PC	2"	794	40	3	N/A	B	M	05/18/2023	N/A	05/23/2023	N/A	N/A	6	6	0.0612	0.3672	
4679584	92307	MB	PC	2"	802	40	3	N/A	B	M	04/17/2023	N/A	05/16/2023	N/A	N/A	30	30	0.0612	1.8360	
4679731	92395	DB	P	1/2"	441	40	1	N/A	B	M	05/23/2023	N/A	05/23/2023	N/A	N/A	1	1	0.0089	0.0089	
4680065	92307	DB	P	1/2"	285	40	1	N/A	B	M	05/25/2023	N/A	05/25/2023	N/A	N/A	1	1	0.0089	0.0089	
4680898	92392	DB	P	1/2"	199	60	1	N/A	B	M	06/09/2023	N/A	06/09/2023	N/A	N/A	1	1	0.0089	0.0089	
4690174	92345	DB	P	1/2"	493	40	1	N/A	B	M	06/11/2023	N/A	06/11/2023	N/A	N/A	1	1	0.0089	0.0089	
4690177	92301	DB	P	1/2"	16	60	1	N/A	B	M	06/12/2023	N/A	06/12/2023	N/A	N/A	1	1	0.0089	0.0089	
4690266	92398	DB	P	1/2"	264	40	1	N/A	B	M	06/10/2023	N/A	06/10/2023	N/A	N/A	1	1	0.0089	0.0089	
4692466	92345	DB	P	1/2"	318	40	1	N/A	B	M	06/16/2023	N/A	06/16/2023	N/A	N/A	1	1	0.0089	0.0089	
4693466	92345	DB	P	1/2"	201	40	1	N/A	B	M	06/19/2023	N/A	06/19/2023	N/A	N/A	1	1	0.0089	0.0089	
4693536	92395	DB	P	1/2"	526	40	1	N/A	B	M	06/21/2023	N/A	06/21/2023	N/A	N/A	1	1	0.0089	0.0089	
4693980	92345	MB	P	4"	535	40	1	N/A	B	M	06/20/2023	N/A	06/20/2023	N/A	N/A	1	1	0.2988	0.2988	
4695887	92395	MB	P	1"	532	40	3	N/A	B	M	06/27/2023	N/A	06/27/2023	N/A	N/A	1	1	0.2988	0.2988	
4700602	92345	MB	P	2"	189	40	1	N/A	B	M	07/03/2023	N/A	07/03/2023	N/A	N/A	1	1	0.2988	0.2988	
4701283	92345	DB	P	1/2"	241	40	1	N/A	B	M	07/03/2023	N/A	07/03/2023	N/A	N/A	1	1	0.0089	0.0089	
4701586	92314	DB	P	1/2"	227	40	1	N/A	B	M	07/06/2023	N/A	07/06/2023	N/A	N/A	1	1	0.0089	0.0089	
4702376	92315	DB	P	1"	249	40	1	N/A	B	M	07/07/2023	N/A	07/07/2023	N/A	N/A	1	1	0.0089	0.0089	
4703738	92395	DB	P	1/2"	476	40	1	N/A	B	M	07/12/2023	N/A	07/12/2023	N/A	N/A	1	1	0.0089	0.0089	
4708674	92395	MB	P	1"	533	40	3	N/A	B	M	07/26/2023	N/A	07/26/2023	N/A	N/A	1	1	0.2988	0.2988	
4708834	92395	MB	P	1"	533	40	3	N/A	B	M	07/26/2023	N/A	07/26/2023	N/A	N/A	1	1	0.2988	0.2988	
4709097	92395	MB	P	1"	533	40	3	N/A	B	M	07/27/2023	N/A	07/27/2023	N/A	N/A	1	1	0.2988	0.2988	
4709499	92345	DB	P	1/2"	373	40	1	N/A	B	M	07/28/2023	N/A	07/28/2023	N/A	N/A	1	1	0.0089	0.0089	
4710296	92395	MB	P	1"	533	40	2	N/A	B	M	07/31/2023	N/A	07/31/2023	N/A	N/A	1	1	0.2988	0.2988	
4714476	92395	DB	P	1/2"	533	40	2	N/A	B	M	07/31/2023	N/A	08/15/2023	N/A	N/A	16	16	0.0089	0.1424	
4715605	92315	MB	P	2"	479	40	3	N/A	B	M	07/30/2023	N/A	08/01/2023	N/A	N/A	3	3	0.2988	0.8964	
4716100	92392	DB	P	1"	0	60	1	N/A	B	M	08/04/2023	N/A	08/04/2023	N/A	N/A	1	1	0.0089	0.0089	
4717725	92308	DB	P	1/2"	488	40	1	N/A	B	M	08/08/2023	N/A	08/08/2023	N/A	N/A	1	1	0.0089	0.0089	
4722870	92345	DB	P	1/2"	236	40	1	N/A	B	M	08/21/2023	N/A	08/21/2023	N/A	N/A	1	1	0.0089	0.0089	
4724045	92315	DB	P	1/2"	242	40	1	N/A	B	M	08/24/2023	N/A	08/24/2023	N/A	N/A	1	1	0.0089	0.0089	
4724989	92315	DB	P	1/2"	267	40	1	N/A	B	M	08/28/2023	N/A	08/28/2023	N/A	N/A	1	1	0.0089	0.0089	
4725216	92395	MB	P	2"	547	40	3	N/A	B	M	08/29/2023	N/A	09/11/2023	N/A	N/A	14	14	0.2988	4.1832	
4725600	92344	DB	P	1"	2	60	1	N/A	B	M	08/29/2023	N/A	08/29/2023	N/A	N/A	1	1	0.0089	0.0089	
4726621	92301	MB	P	2"	294	60	3	N/A	B	M	08/30/2023	N/A	08/30/2023	N/A	N/A	1	1	0.2988	0.2988	
4730752	92392	DB	P	1"	198	60	1	N/A	B	M	09/06/2023	N/A	09/06/2023	N/A	N/A	1	1	0.0089	0.0089	
4730947	92311	DB	P	1/2"	146	40	1	N/A	B	M	09/04/2023	N/A	09/04/2023	N/A	N/A	1	1	0.0089	0.0089	
4731661	92315	DB	P	1/2"	255	40	1	N/A	B	M	09/08/2023	N/A	09/08/2023	N/A	N/A	1	1	0.0089	0.0089	
4731799	92395	DB	P	1/2"	345	40	1	N/A	B	M	09/10/2023	N/A	09/10/2023	N/A	N/A	1	1	0.0089	0.0089	
4731935	92308	MB	P	2"	521	40	3	N/A	B	M	09/11/2023	N/A	11/02/2023	N/A	N/A	53	53	0.2988	15.8364	
4732545	92392	MB	P	4"	397	60	1	N/A	B	M	09/11/2023	N/A	09/11/2023	N/A	N/A	1	1	0.2988	0.2988	
4733677	92345	DB	P	1"	423	40	2	N/A	B	M	05/25/2023	N/A	05/25/2023	N/A	N/A	1	1	0.0089	0.0089	
4734138	92345	MB	P	2"	554	40	1	N/A	B	M	09/14/2023	N/A	09/14/2023	N/A	N/A	1	1	0.2988	0.2988	
4735175	92345	DB	P	1/2"	439	40	1	N/A	B	M	09/18/2023	N/A	09/18/2023	N/A	N/A	1	1	0.0089	0.0089	
4736397	92333	DB	P	1/2"	229	40	1	N/A	B	M	09/20/2023	N/A	09/20/2023	N/A	N/A	1	1	0.0089	0.0089	
4739470	92311	MB	P	2"	518	40	1	N/A	B	M	09/27/2023	N/A	09/27/2023	N/A	N/A	1	1	0.2988	0.2988	
4742721	92301	MB	PC	1"	393	250	2	N/A	B	M	10/04/2023	N/A	10/11/2023	N/A	N/A	8	8	0.0612	0.4896	
4743029	92345	DB	P	1/2"	548	40	1	N/A	B	M	10/04/2023	N/A	10/04/2023	N/A	N/A	1	1	0.0089	0.0089	
4743647	92308	DB	P	1/2"	464	40	1	N/A	B	M	10/04/2023	N/A	10/04/2023	N/A	N/A	1	1	0.0089	0.0089	
4743916	92314	DB	P	1/2"	506	40	1	N/A	B	M	10/06/2023	N/A	10/06/2023	N/A	N/A	1	1	0.0089	0.0089	
4746030	92311	MB	P	2"	525	40	3	N/A	B	M	10/02/2023	N/A	10/02/2023	N/A	N/A	1	1	0.2988	0.2988	
4746119	92344	DB	P	1/2"	207	60	1	N/A	B	M	10/15/2023	N/A	10/15/2023	N/A	N/A	1	1	0.0089	0.0089	
4747369	92315	DB	P	1/2"	271	40	1	N/A	B	M	04/29/2023	N/A	04/29/2023	N/A	N/A	1	1	0.0089	0.0089	
4748272	92392	DB	P	1/2"	454	60	1	N/A	B	M	10/19/2023	N/A	10/19/2023	N/A	N/A	1	1	0.0089	0.0089	
4752633	92333	DB	P	1/2"	257	40	1	N/A	B	M	10/31/2023	N/A	10/31/2023	N/A	N/A	1	1	0.0089	0.0089	
4754092	92308	MB	P	2"	562	40	3	N/A	B	M	11/03/2023	N/A	12/04/2023	N/A	N/A	32	32	0.2988	9.5616	
4754943	92345	DB	P	1/2"	497	40	1	N/A	B	M	11/06/2023	N/A	11/06/2023	N/A	N/A	1	1	0.0089	0.0089	
4755467	92308	MB	P	2"	352	40	3	N/A	B	M	11/08/2023	N/A	12/12/2023	N/A	N/A	35	35	0.2988	10.4580	
4756175	92395	DB	P	1/2"	454	40	1	N/A	B	M	11/11/2023	N/A	11/11/2023	N/A	N/A	1	1	0.0089	0.0089	
4759337	92392	DB	P	1/2"	275	60	1	N/A	B	M	11/14/2023	N/A	11/14/2023	N/A	N/A	1	1	0.0089	0.0089	
4760213	92301	DB	P	1/2"	531	60	1	N/A	B	M	11/18/2023	N/A	11/18/2023	N/A	N/A	1	1	0.0089	0.0089	
4762472	92345	DB	P	1/2"	5															

SOUTHWEST GAS CORPORATION, JUNE 14, 2024
Rulemaking (R.) 15-01-008 to Adopt Rules and Procedures Governing Commission Regulated Natural Gas Pipelines and Facilities to
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In Response to Data Request, R15-01-008, 2024 June Report
Appendix 4; Rev. 03/29/2024

Notes:
 Definitions in Data Request R15-01-008, 2024 June Report
 If highlighted cells are filled in, the other cells will auto-populate

The number of miles surveyed (Top Table, Column C) should be the number of unique miles surveyed, and should not include any repeated miles surveyed multiple times per year.		
To clarify the the definition of O&M Leaks (Column O), the following criteria for O&M Leaks should be met: (1) occur stochastically across the whole territory, (2) are reported by customers, (3) found quickly after occurring, (4) found independently of survey activities but would have been found later by surveyors, and (5) considered a small number of leaks.		
To clarify the the definition of Survey Leaks (Column G), the following criteria for Survey Leaks should be met: (1) found from company employees or contractors actively searching for leaks (2) including, but not limited to, compliance survey leaks and non-compliance survey leaks (e.g. Super Emitter Programs, Aerial Methane Mapping, Corrosion Surveying.)		

Summary of Data by Pipeline Facility/Material and Results for Annual System Leak Rate and Resulting Number of Unknown Leaks for Each Pipeline Facility/Material

Facility/Material	Total System Miles per material type	Miles on Annual Survey [M _{xA}]	Miles on Multi-Year Survey Cycles [M _{x^{tot}}]	Survey Interval (yrs) [I]	Miles Surveyed Annually from Multi-Year Survey Cycles [M _{xI}]	Total # of Leaks Detected from Survey [N _{xL}]	If using a 3-year trailing leak rate average then include - 2021 Annual Leak Rate [R _{x,1}]	If using a 3-year trailing leak rate average then include - 2022 Annual Leak Rate [R _{x,2}]	2023 Annual Leak Rate [R _{x,3}] $R_{x,3} = \frac{N_{xL}}{M_{xA} + (I \times M_{xI})}$	If applicable, then calculate the 3-year Average Leak Rate [Leaks / Mile / Yr] $\bar{R}_x = \frac{1}{3} \sum_{i=1}^3 R_{x,i}$	# of Unknown Leaks $N_{x,unk} = \bar{R}_x \times (M_x^{Tot} - M_{xI}) \times \frac{I}{2}$	Total # of Leaks Detected from O&M* [N _{xO}]
Main/Vintage* Plastic				1			0.0000	0.0000	-	-	-	
Main/Plastic	2,729.640	203.528	2,526.112	3	942.748	6	0.0033	0.0028	0.00198	0.00271	6.44	50
Main/Plastic				4			0.0000	0.0000	-	-	-	
Main/Plastic				5			0.0000	0.0000	-	-	-	
Main/Unprotected Steel				3			0.0000	0.0000	-	-	-	
Main/Unprotected Steel				4			0.0000	0.0000	-	-	-	
Main/Unprotected Steel				5			0.0000	0.0000	-	-	-	
Main/Vintage* Protected Steel	168.331	155.241	13.090	1			0.0058	0.0000	-	0.00194	0.01	
Main/Protected Steel	340.738	127.588	213.150	3	132.602	2	0.0021	0.0015	0.00381	0.00249	0.30	9
Main/Protected Steel				4			0.0000	0.0000	-	-	-	
Main/Protected Steel				5			0.0000	0.0000	-	-	-	
Service/Vintage* Plastic	1.000	1.000	0.000	1			0.0000	0.0000	-	-	-	
Service/Plastic	2,447.431	135.162	2,312.269	3	894.558	6	0.0056	0.0038	0.00213	0.00385	8.18	90
Service/Plastic				4			0.0000	0.0000	-	-	-	
Service/Plastic				5			0.0000	0.0000	-	-	-	
Service/Unprotected Steel				3			0.0000	0.0000	-	-	-	
Service/Unprotected Steel				4			0.0000	0.0000	-	-	-	
Service/Unprotected Steel				5			0.0000	0.0000	-	-	-	
Service/Vintage* Protected Steel	119.068	11.231	107.837	1	27.571	2	0.0000	0.0000	0.05154	0.01718	0.69	2
Service/Protected Steel				3			0.0000	0.0204	-	0.00678	-	
Service/Protected Steel				4			0.0000	0.0000	-	-	-	
Service/Protected Steel				5			0.0000	0.0000	-	-	-	
Service/Copper				3			0.0000	0.0000	-	-	-	
Service/Copper				4			0.0000	0.0000	-	-	-	
Service/Copper				5			0.0000	0.0000	-	-	-	
Total	5,806.208	633.750	5,172.458	N/A	1,997.479	16	N/A	N/A	N/A	N/A	16	151

***Definitions for "vintage" materials:**

Vintage Plastic For SWG this is PVC and AA Pipe
 Vintage Protected Steel For SWG this is Pre-70's Steel

Estimated Emissions by Pipeline Facility/Material for Each Leakage Category

Leakage Category	Emission Factor (Mscf/day/leak)	2023 Emissions from Leaks detected Prior to 2023 (Mscf)	2023 Emissions from Leaks Detected from 2023 Survey (Mscf)	2023 Emissions from O&M* Leaks Detected in 2023 (Mscf)	2023 Estimated Emissions from Unknown Leaks (Mscf)	Total Estimated 2023 Emissions from Distribution Pipelines (Mscf)
Facility/Material						
Main/Vintage* Plastic	0.2988	0.000	0.0000	0.000	0	0
Main/Plastic	0.2988	9.263	94.3362	177.197	703	983
Main/Plastic	0.2988	0.000	0.0000	0.000	0	0
Main/Plastic	0.2988	0.000	0.0000	0.000	0	0
Main/Unprotected Steel	0.1548	0.000	0.0000	0.000	0	0
Main/Unprotected Steel	0.1548	0.000	0.0000	0.000	0	0
Main/Unprotected Steel	0.1548	0.000	0.0000	0.000	0	0
Main/Vintage* Protected Steel	0.0612	0.000	0.0000	0.000	0	0
Main/Protected Steel	0.0612	44.676	18.7272	16.340	7	86
Main/Protected Steel	0.0612	0.000	0.0000	0.000	0	0
Main/Protected Steel	0.0612	0.000	0.0000	0.000	0	0
Service/Vintage* Plastic	0.0089	0.000	0.0000	0.000	0	0
Service/Plastic	0.0089	0.000	5.2154	1.219	27	33
Service/Plastic	0.0089	0.000	0.0000	0.000	0	0
Service/Plastic	0.0089	0.000	0.0000	0.000	0	0
Service/Unprotected Steel	0.0600	0.000	0.0000	0.000	0	0
Service/Unprotected Steel	0.0600	0.000	0.0000	0.000	0	0
Service/Unprotected Steel	0.0600	0.000	0.0000	0.000	0	0
Service/Vintage* Protected Steel	0.0276	0.000	0.0000	0.000	7	7
Service/Protected Steel	0.0276	0.000	1.3524	0.276	0	2
Service/Protected Steel	0.0276	0.000	0.0000	0.000	0	0
Service/Protected Steel	0.0276	0.000	0.0000	0.000	0	0
Service/Copper	0.0226	0.000	0.0000	0.000	0	0
Service/Copper	0.0226	0.000	0.0000	0.000	0	0
Service/Copper	0.0226	0.000	0.0000	0.000	0	0
Total	N/A	53.94	119.63	195.03	743.14	1,111.74

O&M leaks include any other pipeline leaks that are discovered during the year from operations and maintenance activity, third party and gas odor reports, etc. that are not accounted for in other categories of this worksheet.

The cells below should be used for calculating emissions when a risk based leak detection and repair practice is used by the Utility. This table is intended to help categorize emissions associated with large leaks (Super Emitters (SEs)), and non-large leaks (non-SEs).

Southwest Gas does not utilize a risk based leak detection and repair practice.

	2023 Emissions from Leaks detected Prior to 2023	2023 Emissions from Leaks Detected from 2023	2023 Emissions from O&M* Leaks Detected in	2023 Estimated Emissions from Unknown Leaks (Mscf)	Total Estimated 2023 Emissions from
	0.00	0.00	0.00	0.00	0.00

Large Leak Emitter Program					
Compliance Leak Survey - Non-LL					-
Compliance Leak Survey - LL					-
Large Leak Emitter Program Outside Compliance Area - Non-LL					-
Large Leak Emitter Program Outside Compliance Area - LL					-
O&M - Non-LL					-
O&M - LL					-
TOTAL	0.00	0.00	0.00	0.00	0.00

Southwest Gas does not have a Large Leak Emitter Program.

Please Provide the following:	Total Count
The portion of the survey mileage that includes mileage that is surveyed multiple times per year. Repeated mileage will not be accounted for in the unknown leak calculation.	

SOUTHWEST GAS CORPORATION, JUNE 14, 2024

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In Response to Data Request, R15-01-008, 2024 June Report

Appendix 4; Rev. 03/29/2024

This summary purposefully should exclude damages, blowdowns, component emissions and component leaks.

	Count of Leaks Carried over from Prior Year	Count of Leaks Discovered in the Year of Interest	Count of Leaks Repaired in the Year of Interest	Average Days to Repair Leaks	Count of Estimated Unsurveyed Leaks in the Year of Interest	Count of Remaining Leaks at final day of the Year of Interest (12/31/23)	Emissions from Leaks Carried over from Prior Year.	Emissions from Leaks Discovered in the Year of Interest.	Emissions from Estimated Unsurveyed Leaks in the Year of Interest	Total Emissions in the Year of Interest [Mscf of Natural Gas]
Grade 1	0	99	99	0	10	0	0.00	4.69	445.88	450.57
Grade 2	0	17	16	10	1	1	0.00	35.19	76.57	111.76
Grade 3	3	49	50	58	5	2	53.94	274.78	220.69	549.41
Graded Leak Total	3	165	165	N/A	16	3	53.94	314.66	743.14	1,111.74
Above Ground Hazardous	0	0	0	0	0	0	0	0	-	0
Above Ground Non-Hazardous	0	0	0	0	0	0	0	0	-	0
Above Ground Non-Hazardous Minor	0	0	0	0	0	0	0	0	-	0
AG Total	0	0	0	0	0	0	0	0	-	0
Total of All Leaks	3	165	165	N/A	16	3	53.94	314.66	743.14	1,111.74
Main/Plastic	1	53	54	19	5	1	9.26	271.53	243.01	523.80
Main/Unprotected Steel	0	0	0	0	0	0	0.00	0.00	0.00	0.00
Main/Protected Steel	2	10	10	61	1	1	44.68	35.07	45.33	125.08
Service/Plastic	0	98	97	1	9	1	0.00	6.43	436.97	443.40
Service/Unprotected Steel	0	0	0	0	0	0	0.00	0.00	0.00	0.00
Service/Protected Steel	0	4	4	14	1	0	0.00	1.63	17.84	19.46
Service/Copper	0	0	0	0	0	0	0.00	0.00	0.00	0.00
Total	3	165	165	N/A	16	3	53.94	314.66	743.14	1111.74

Large Leak or Super Emitter Program Categorization										
Compliance Leak Survey - Non-LL						0				0
Compliance Leak Survey - LL						0				0
Large Leak/Super Emitter Program Outside Compliance Area - Non-LL						0				0
Large Leak/Super Emitter Program Outside Compliance Area - LL						0				0
O&M - Non-LL						0				0
O&M - LL						0				0
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Change Due to LL/SE Program on 2023:	0.00	0.00	0.00	N/A	0.00	0.00	0.00	0.00	0.00	0.00
% Change Due to LL/SE Program on 2023:	0.0%)	0.0%)	0.0%)	N/A	0.0%)	0.0%)	0.0%)	0.0%)	0.0%)	0.0%)

Southwest Gas does not have a Large Leak/Super Emitter Program.

This section added to the template for 2020 Reporting. Send any suggestions to improve this worksheet to Staff for consideration.

SOUTHWEST GAS CORPORATION, JUNE 14, 2024
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Appendix 4; Rev. 03/29/2024

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.

Distribution Main & Service Pipeline Damage (3rd party dig-ins, natural disasters, etc.):

ID	Geographic Location	Damage Type	Pipe Classification	Pipe Material	Pipe Size (nominal)	Pipe Age (months)	Pressure (psi)	Leak Grade	Above Ground or Below Ground	Discovery Date (MM/DD/YY)	Repair Date (MM/DD/YY)	Number of Days Leaking	Emission Factor or Engineering Estimate (Mscf/Day)	Annual Emissions (Mscf)	Explanatory Notes / Comments
4611327	96161	E	DB	PC	1"	12	60	1	B	1/31/2023	1/31/2023	1	0.016	0.016	Engineering Estimate
4673811	96150	E	DB	P	1/2"	168	35	1	B	5/10/2023	5/10/2023	1	0.001	0.001	Engineering Estimate
4677435	96145	E	DB	P	1/2"	348	60	1	B	5/17/2023	5/17/2023	1	0.059	0.059	Engineering Estimate
4679069	96150	E	DB	P	3/4"	288	35	1	B	5/12/2023	5/12/2023	1	0.650	0.650	Engineering Estimate
4679735	96145	E	DB	P	1"	420	43	1	B	5/24/2023	5/24/2023	1	0.001	0.001	Engineering Estimate
4689568	96150	E	DB	P	1/2"	360	60	1	B	6/10/2023	6/10/2023	1	0.102	0.102	Engineering Estimate
4691263	96150	E	DB	P	1/2"	Unknown	40	1	B	6/14/2023	6/14/2023	1	0.180	0.180	Engineering Estimate
4691578	96161	E	DB	P	1"	324	60	1	B	6/15/2023	6/15/2023	1	2.442	2.442	Engineering Estimate
4693212	96161	E	DB	P	1"	48	60	1	B	6/20/2023	6/20/2023	1	0.001	0.001	Engineering Estimate
4696113	96150	E	DB	P	1"	120	35	1	B	6/27/2023	6/27/2023	1	0.008	0.008	Engineering Estimate
4701279	96150	E	DB	PC	3/4"	Unknown	35	1	B	7/1/2023	7/1/2023	1	0.655	0.655	Engineering Estimate
4703555	96150	E	DB	PC	3/4"	Unknown	35	1	B	7/11/2023	7/11/2023	1	4.696	4.696	Engineering Estimate
4705353	96145	E	MB	P	6"	24	43	1	B	7/17/2023	7/17/2023	1	8.766	8.766	Engineering Estimate
4705364	96161	E	DB	P	1/2"	252	60	1	B	7/18/2023	7/18/2023	1	0.067	0.067	Engineering Estimate
4708024	96145	E	DB	P	1/2"	552	43	1	B	7/25/2023	7/25/2023	1	7.606	7.606	Engineering Estimate
4710705	96145	E	DB	P	1"	264	43	1	B	8/1/2023	8/1/2023	1	0.498	0.498	Engineering Estimate
4717959	96161	E	DB	P	1/2"	216	60	1	B	8/9/2023	8/9/2023	1	0.087	0.087	Engineering Estimate
4718072	96145	E	DB	P	1/2"	336	43	1	B	8/9/2023	8/9/2023	1	0.247	0.247	Engineering Estimate
4721328	96145	E	DB	P	1/2"	540	43	1	B	8/17/2023	8/17/2023	1	0.001	0.001	Engineering Estimate
4724330	96161	E	DB	P	1/2"	324	60	1	B	8/25/2023	8/25/2023	1	0.138	0.138	Engineering Estimate
4729951	96150	E	DB	P	1/2"	156	35	1	B	8/31/2023	8/31/2023	1	0.001	0.001	Engineering Estimate
4730391	96150	E	DB	P	3/4"	480	35	1	B	8/30/2023	8/30/2023	1	0.232	0.232	Engineering Estimate
4731165	96161	E	DB	P	1/2"	264	60	1	B	9/7/2023	9/7/2023	1	0.132	0.132	Engineering Estimate
4733022	96145	E	DB	P	1/2"	540	43	1	B	9/13/2023	9/13/2023	1	0.000	0.000	Engineering Estimate
4733938	96150	E	DB	P	1/2"	324	60	1	B	9/12/2023	9/12/2023	1	0.274	0.274	Engineering Estimate
4737877	96150	E	DB	P	1/2"	156	35	1	B	9/25/2023	9/25/2023	1	0.001	0.001	Engineering Estimate
4742693	96145	E	DB	P	1/2"	264	43	1	B	10/4/2023	10/4/2023	1	0.072	0.072	Engineering Estimate
4743327	96161	E	DB	P	1/2"	264	60	1	B	10/5/2023	10/5/2023	1	0.095	0.095	Engineering Estimate
4743328	96145	E	MB	P	2"	492	43	1	B	10/5/2023	10/5/2023	1	24.042	24.042	Engineering Estimate
4743795	96145	E	DB	P	1"	12	43	1	B	10/7/2023	10/7/2023	1	0.001	0.001	Engineering Estimate
4745537	96150	E	DB	P	1/2"	180	35	1	B	10/12/2023	10/12/2023	1	0.002	0.002	Engineering Estimate
4747290	96150	E	DB	P	1/2"	180	60	1	B	10/16/2023	10/16/2023	1	0.001	0.001	Engineering Estimate
4751459	96161	E	MB	P	2"	216	60	1	B	10/28/2023	10/28/2023	1	1.320	1.320	Engineering Estimate
4751467	96150	E	DB	P	1"	96	60	1	B	10/28/2023	10/28/2023	1	0.002	0.002	Engineering Estimate
4753620	96145	E	DB	P	1/2"	144	43	1	B	9/12/2023	9/12/2023	1	0.074	0.074	Engineering Estimate
4753680	96145	E	DB	P	1"	60	43	1	B	11/2/2023	11/2/2023	1	0.149	0.149	Engineering Estimate
4787361	96161	E	DB	P	1/2"	264	60	1	B	8/29/2023	8/29/2023	1	0.124	0.124	Engineering Estimate
4595427	92301	E	DB	P	0.5	361	55	1	B	1/4/2023	1/4/2023	0.044	0.145	0.145	Engineering Estimate
4596624	92301	E	DB	P	0.5	366	55	1	B	1/6/2023	1/6/2023	0.024	3.279	3.279	Engineering Estimate
4599256	92392	E	DB	P	0.5	344	54	1	B	1/12/2023	1/12/2023	0.028	3.988	3.988	Engineering Estimate
4598484	92395	E	DB	P	1	213	36	1	B	1/11/2023	1/11/2023	0.025	1.485	1.485	Engineering Estimate
4600790	92301	E	DB	P	0.5	366	55	1	B	1/17/2023	1/17/2023	0.028	0.091	0.091	Engineering Estimate
4604479	92392	E	DB	P	0.5	501	55	1	B	1/21/2023	1/21/2023	0.033	3.213	3.213	Engineering Estimate
4605751	92345	E	DB	P	0.5	362	54	1	B	1/25/2023	1/25/2023	0.012	1.005	1.005	Engineering Estimate
4610423	92301	E	DB	P	0.5	367	55	1	B	1/28/2023	1/28/2023	0.033	0.108	0.108	Engineering Estimate
4610492	92345	E	MS	P	2	552	40	1	B	1/27/2023	1/27/2023	0.023	5.827	5.827	Engineering Estimate
4614783	92345	E	DB	P	0.5	403	35	1	B	2/6/2023	2/6/2023	0.001	0.000	0.000	Engineering Estimate
4613058	92345	E	DB	P	0.5	227	34	1	B	2/5/2023	2/5/2023	0.022	1.470	1.470	Engineering Estimate
4618044	92395	E	DB	P	0.5	309	36	1	B	2/14/2023	2/14/2023	0.034	2.027	2.027	Engineering Estimate
4620837	92395	E	DB	P	0.5	519	36	1	B	2/17/2023	2/17/2023	0.022	4.389	4.389	Engineering Estimate
4621689	92345	E	DB	P	2	0	35	1	B	2/22/2023	2/22/2023	0.032	7.427	7.427	Engineering Estimate
4631834	92307	E	DB	P	1	37	40	1	B	3/5/2023	3/5/2023	0.026	1.650	1.650	Engineering Estimate
4633455	92395	E	MB	P	2	172	43	1	B	3/6/2023	3/6/2023	0.067	82.924	82.924	Engineering Estimate
4634625	92395	O	DB	P	0.5	226	40	1	B	3/11/2023	3/11/2023	0.038	2.266	2.266	Engineering Estimate
4634936	92311	E	MB	P	2	243	40	1	B	3/14/2023	3/14/2023	0.032	31.822	31.822	Engineering Estimate
4636034	92395	E	DB	P	1	37	38	1	B	3/16/2023	3/16/2023	0.025	0.243	0.243	Engineering Estimate
4810382	92315	O	DB	P	0.75	476	36	1	B	3/18/2023	3/18/2023	0.028	0.000	0.000	Engineering Estimate
4640118	92395	E	DB	P	1	15	40	1	B	3/27/2023	3/27/2023	0.020	1.185	1.185	Engineering Estimate

Distribution Main & Service Pipeline Damage (3rd party dig-ins, natural disasters, etc.):

ID	Geographic Location	Damage Type	Pipe Classification	Pipe Material	Pipe Size (nominal)	Pipe Age (months)	Pressure (psi)	Leak Grade	Above Ground or Below Ground	Discovery Date (MM/DD/YY)	Repair Date (MM/DD/YY)	Number of Days Leaking	Emission Factor or Engineering Estimate (Mscf/Day)	Annual Emissions (Mscf)	Explanatory Notes / Comments
4646635	92345	E	DB	P	1	152	38	1	B	3/31/2023	3/31/2023	0.022	0.208	0.208	Engineering Estimate
4657955	92301	E	DB	P	0.5	413	55	1	B	3/31/2023	3/31/2023	0.035	0.112	0.112	Engineering Estimate
4647389	92327	E	DB	P	0.5	232	35	1	B	4/3/2023	4/3/2023	0.039	1.179	1.179	Engineering Estimate
4647947	92395	E	DB	P	0.5	504	40	1	B	4/5/2023	4/5/2023	0.023	3.452	3.452	Engineering Estimate
4647845	92308	E	DB	P	0.5	255	35	1	B	4/4/2023	4/4/2023	0.020	0.046	0.046	Engineering Estimate
4651992	92301	E	DB	P	2	6	55	1	B	4/12/2023	4/12/2023	0.035	190.517	190.517	Engineering Estimate
4652365	92345	E	DB	P	0.5	394	38	1	B	4/13/2023	4/13/2023	0.024	1.597	1.597	Engineering Estimate
4659625	92307	E	DB	P	0.5	512	40	1	B	4/20/2023	4/20/2023	0.016	0.706	0.706	Engineering Estimate
4660646	92301	E	DB	P	0.5	382	55	1	B	4/25/2023	4/25/2023	0.019	0.063	0.063	Engineering Estimate
4660954	92311	E	DB	P	0.5	472	34	1	B	4/25/2023	4/25/2023	0.013	1.422	1.422	Engineering Estimate
4747369	92315	E	DB	P	0.5	260	40	1	B	4/29/2023	4/29/2023	0.039	0.577	0.577	Engineering Estimate
4675255	92345	E	DB	P	0.5	492	36	1	B	5/12/2023	5/12/2023	0.020	0.919	0.919	Engineering Estimate
4674739	92311	O	DB	P	1	236	40	1	B	5/13/2023	5/13/2023	0.059	26.049	26.049	Engineering Estimate
4675354	92392	E	DB	P	0.5	374	55	1	B	5/15/2023	5/15/2023	0.026	0.516	0.516	Engineering Estimate
4675249	92344	E	DB	P	1	209	36	1	B	5/15/2023	5/15/2023	0.019	0.000	0.000	Engineering Estimate
4672766	92301	E	DB	P	0.5	190	55	1	B	5/8/2023	5/8/2023	0.024	1.573	1.573	Engineering Estimate
4679731	92395	O	DB	P	0.5	441	36	1	B	5/23/2023	5/23/2023	0.009	0.290	0.290	Engineering Estimate
4680065	92307	E	DB	P	0.5	285	36	1	B	5/25/2023	5/25/2023	0.022	3.253	3.253	Engineering Estimate
4689898	92392	E	DB	P	0.5	199	55	1	B	6/9/2023	6/9/2023	0.119	6.260	6.260	Engineering Estimate
4692466	92345	E	DB	P	0.5	318	34	1	B	6/16/2023	6/16/2023	0.031	1.705	1.705	Engineering Estimate
4693466	92345	E	DB	P	0.5	201	36	1	B	6/19/2023	6/19/2023	0.024	3.209	3.209	Engineering Estimate
4693536	92395	E	DB	P	0.5	526	37	1	B	6/21/2023	6/21/2023	0.017	0.681	0.681	Engineering Estimate
4690266	92398	E	DB	P	0.5	264	39	1	B	6/10/2023	6/10/2023	0.058	1.434	1.434	Engineering Estimate
4690174	92345	E	DB	P	0.5	493	37	1	B	6/11/2023	6/11/2023	0.038	2.071	2.071	Engineering Estimate
4690177	92301	E	DB	P	0.5	256	55	1	B	6/12/2023	6/12/2023	0.033	0.108	0.108	Engineering Estimate
4700602	92345	E	MB	P	2	189	35	1	B	7/3/2023	7/3/2023	0.038	35.276	35.276	Engineering Estimate
4701283	92345	E	DM	P	0.5	241	40	1	B	7/3/2023	7/3/2023	0.024	0.941	0.941	Engineering Estimate
4693980	92345	E	MB	P	4	2	40	1	B	6/20/2023	6/20/2023	0.023	3.704	3.704	Engineering Estimate
4701586	92314	E	DB	P	0.5	227	36	1	B	7/6/2023	7/6/2023	0.023	5.529	5.529	Engineering Estimate
4703738	92392	E	DB	P	0.5	476	40	1	B	7/12/2023	7/12/2023	0.010	0.510	0.510	Engineering Estimate
4789329	92315	E	DB	P	0.5	255	36	1	B	7/12/2023	7/12/2023	0.026	0.360	0.360	Engineering Estimate
4702376	92315	E	DB	P	1	249	40	1	B	7/7/2023	7/7/2023	0.015	6.761	6.761	Engineering Estimate
4789179	92315	E	DB	P	0.5	263	36	1	B	7/15/2023	7/15/2023	0.019	0.000	0.000	Engineering Estimate
4709499	92345	E	DB	P	0.5	373	38	1	B	7/28/2023	7/28/2023	0.031	0.076	0.076	Engineering Estimate
4716100	92392	E	DB	P	1	10	55	1	B	8/4/2023	8/4/2023	0.030	0.000	0.000	Engineering Estimate
4717725	92308	E	DB	P	0.5	488	36	1	B	8/8/2023	8/8/2023	0.015	0.214	0.214	Engineering Estimate
4722870	92345	E	DB	P	0.5	236	38	1	B	8/21/2023	8/21/2023	0.024	1.032	1.032	Engineering Estimate
4724045	92315	E	DB	P	0.5	242	36	1	B	8/24/2023	8/24/2023	0.008	0.000	0.000	Engineering Estimate
4725600	92344	E	DB	P	1	223	55	1	B	8/29/2023	8/29/2023	0.024	11.464	11.464	Engineering Estimate
4724989	92315	E	DB	P	0.5	267	34	1	B	8/28/2023	8/28/2023	0.007	0.221	0.221	Engineering Estimate
4730752	92392	E	DB	P	1	198	55	1	B	9/6/2023	9/6/2023	0.014	14.760	14.760	Engineering Estimate
4730947	92311	E	DB	P	0.5	146	37	1	B	9/4/2023	9/4/2023	0.049	0.110	0.110	Engineering Estimate
4731799	92392	E	DB	P	0.5	345	34	1	B	9/10/2023	9/10/2023	0.035	1.074	1.074	Engineering Estimate
4731661	92315	E	DB	P	0.5	255	36	1	B	9/8/2023	9/8/2023	0.007	0.190	0.190	Engineering Estimate
4732545	92392	E	MB	P	4	397	60	1	B	9/11/2023	9/11/2023	0.076	16.772	16.772	Engineering Estimate
4734138	92345	E	MB	P	2	554	37	1	B	9/14/2023	9/14/2023	0.060	51.266	51.266	Engineering Estimate
4735175	92345	E	DB	P	0.5	439	35	1	B	9/18/2023	9/18/2023	0.019	0.735	0.735	Engineering Estimate
4736397	92333	E	DB	P	0.5	229	38	1	B	9/20/2023	9/20/2023	0.007	0.320	0.320	Engineering Estimate
4743029	92345	E	DB	P	0.5	548	38	1	B	10/4/2023	10/4/2023	0.048	2.308	2.308	Engineering Estimate
4743647	92308	E	DB	P	0.5	464	40	1	B	10/4/2023	10/4/2023	0.038	0.571	0.571	Engineering Estimate
4746119	92344	E	DB	P	0.5	207	55	1	B	10/15/2023	10/15/2023	0.044	2.032	2.032	Engineering Estimate
4748272	92392	E	DB	P	0.5	454	55	1	B	10/19/2023	10/19/2023	0.010	0.874	0.874	Engineering Estimate
4743916	92314	E	DB	P	0.5	506	36	1	B	10/6/2023	10/6/2023	0.001	0.000	0.000	Engineering Estimate
4752633	92333	E	DB	P	0.5	257	36	1	B	10/31/2023	10/31/2023	0.026	0.342	0.342	Engineering Estimate
4754943	92345	E	DB	P	0.5	497	36	1	B	11/6/2023	11/6/2023	0.029	0.068	0.068	Engineering Estimate
4756175	92395	E	DB	P	0.5	454	36	1	B	11/11/2023	11/11/2023	0.043	0.594	0.594	Engineering Estimate
4759337	92395	E	DB	P	0.5	275	55	1	B	11/14/2023	11/14/2023	0.035	0.673	0.673	Engineering Estimate
4760213	92301	E	DB	P	0.5	531	55	1	B	11/18/2023	11/18/2023	0.026	1.925	1.925	Engineering Estimate
4762472	92345	E	DB	P	0.5	566	35	1	B	11/27/2023	11/27/2023	0.032	1.404	1.404	Engineering Estimate
4762525	92395	O	DB	P	0.5	244	34	1	B	11/28/2023	11/28/2023	0.022	1.219	1.219	Engineering Estimate
4773454	92345	O	DB	P	0.5	251	36	1	B	12/4/2023	12/4/2023	0.025	0.129	0.129	Engineering Estimate
4780902	92394	E	DB	P	0.5	485	35	1	B	12/15/2023	12/15/2023	0.023	0.054	0.054	Engineering Estimate
4779483	92311	E	MB	P	2	423	36	1	B	12/21/2023	12/21/2023	0.042	22.579	22.579	Engineering Estimate
4780582	92344	E	DB	P	1	183	55	1	B	12/27/2023	12/27/2023	0.026	0.002	0.002	Engineering Estimate
4786544	92345	E	DB	P	0.5	565	36	1	B	12/31/2023	12/31/2023	0.026	0.968	0.968	Engineering Estimate

Total **642.288**

SOUTHWEST GAS CORPORATION, JUNE 14, 2024

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 2024 June Report

Appendix 4; Rev. 03/29/2024

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.

Distribution Main & Service Pipeline Blowdowns:

ID	Geographic Location	Number of Blowdown Events	Pipe Size (nominal)	Length of Pipe	Pressure (psi)	Annual Emissions (Mscf)	Explanatory Notes / Comments
92363			1"	1190	55	0.021	GHG Report New pipe installation - 24 Blowdown events were estimated
			2"	21	55	0.002	
92363			1"	1734	55	0.030	GHG Report Service Blowdowns - 42 Blowdown events were estimated
			2"	105	55	0.008	
92363			1"	22	55	0.001	GHG Report Riser purges - 22 estimated blowdown events based on volume of gas lost.
92363			2"	431	55	0.033	GHG Report Main blowdowns - 13 blowdown events based on the volume of gas lost.
96145, 96150, 96161			1"	1911	52	0.010	GHG Report New Pipe Purges - 435 Pipeline blowdowns of new risers.
			1"	13035	52	0.069	
			1"	3263	52	0.017	
			2"	62	52	0.001	
			2"	2096	52	0.049	
96145, 96150, 96161			2"	664	52	0.016	GHG Report Service Blowdowns - 172 Pipeline blowdowns for service, Post Leak + Reg Station Maintenance blowdowns
			1"	5542	52	0.116	
			2"	1	52	0.000	
			3/4"	804	52	0.014	
			1"	1091	52	0.023	
			1"	1507	52	0.032	
			3/4"	528	52	0.009	
96145, 96150, 96161			1/2"	85	52	0.000	GHG Report Main Blowdowns - 4 Pipeline blowdowns for mains
			3/4"	175	52	0.003	
			1"	157	52	0.003	
			2"	10428	52	1.088	
			4"	5321	52	1.785	
			6"	2051	52	1.492	
			2"	1	52	0.000	
			2"	68	52	0.007	
92395			4"	8	52	0.003	GHG Report New Pipe Installation - 1,089 Blowdown events were estimated from total job count
			1/2"	3854	40	0.004	
			1"	159786	40	0.691	
			1.25"	0	40	0.000	
			2"	169314	40	3.243	
			4"	21962	40	1.511	
			6"	2744	40	0.409	
			3/4"	30	240	0.000	
			1"	1	240	0.000	
			2"	62	240	0.006	
			4"	813	187	0.259	
92395			6"	19281	240	16.757	GHG Report Service Blowdowns - 2,188 Blowdown events were estimated
			8"		325	0.000	
			1/2"		26	40	
92395			1"	131,502	40	2.274	GHG Report
			1"	313	240	0.019	

Distribution Main & Service Pipeline Blowdowns:

ID	Geographic Location	Number of Blowdown Events	Pipe Size (nominal)	Length of Pipe	Pressure (psi)	Annual Emissions (Mscf)	Explanatory Notes / Comments
			2"	116,613	40	8.936	GHG Report Main Blowdowns - 119 Blowdown events were estimated
			4"	3,704	40	1.019	
			6"	9	40	0.005	
	92395		2"	27,398	40	2.376	
			4"	30,213	181	37.313	
			6"	22	325	0.104	
			8"	0	240	0.000	

Total **79.759**

SOUTHWEST GAS CORPORATION, JUNE 14, 2024

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 2024 June Report
Appendix 4; Rev. 03/29/2024**

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.

Distribution Main & Service Pipeline Component Vented Emissions (see note above):

Total Number of Devices	Device Type	Bleed Rate	Manufacturer	Engineering or Manufacturer's based Estimate of	Annual Emissions (Mscf)	Explanatory Notes / Comments
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Southwest Gas did not have any Distribution Main & Service Pipeline Component Vented Emissions in 2023.

Total 0.000

SOUTHWEST GAS CORPORATION, JUNE 14, 2024

**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 2024 June Report
Appendix 4; Rev. 03/29/2024**

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 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.

Distribution Main & Service Pipeline Component Fugitive Leaks (see note above):

Total Number of Devices	Device Type	Bleed Rate	Manufacturer	Discovery Date (MM/DD/YY)	Repair Date (MM/DD/YY)	Number of Days Leaking	Emission Factor (Mscf/day)	Annual Emission (Mscf)	Explanatory Notes / Comments
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Southwest Gas did not have any Distribution Main & Service Pipeline Component Fugitive Leaks in 2023.

Total **0.000**

Appendix 5
Distribution M&R Stations

SOUTHWEST GAS CORPORATION, JUNE 14, 2024
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 2024 June Report
Appendix 5; Rev. 03/29/2024

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.
 After completing the tab on "Leak Based - Station Emissions" and "Station - Unknown Leaks" fill in the table for "Leak Based - Emissions Summary."

Distribution M&R Station Leaks:

ID	Geographic Location	M&R Station or Farm Tap Classification	Component Type	Incoming Pressure (psi)	Leak Grade	Upgraded Leak Grade or Downgraded Leak Grade	Leak Discovery Method	Discovery Date (MM/DD/YY)	Re-Grade Date (MM/DD/YY)	Repair Date (MM/DD/YY)	Scheduled Repair Date (MM/DD/YY)	Reason for Not Scheduling a Repair	Number of Days Leaking	Number of Days to Repair	Emission Factor (Mscf/Day)	Annual Emissions (Mscf)	Explanatory Notes / Comments
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Southwest Gas did not have any Distribution M&R Station Leaks in 2023 nor were any carried over from 2022.

Total Emissions from leaks carried over from before 2023 **0.000**

Total Emissions from leaks discovered in 2023 **0.000**

Total Emissions from O&M Leaks discovered in 2023 **0.000**

Grand Total of all 2023 emissions from leaks **0.000**

SOUTHWEST GAS CORPORATION, JUNE 14, 2024
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 2024 June Report
Appendix 5; Rev. 03/29/2024

Notes:
 If highlighted cells are filled in, the other cells will auto-populate

Summary of Data by Distribution M&R Station Results for Annual System Leak Rate and Resulting Number of Unknown Leaks calculated for M&R Station

M&R Station Classification; Leak Grade or Bubble Size Category if available.	Total System M&R Station per survey Cycle	M&R Station on Annual Survey [MX,A]	M&R Station on Multi-Year Survey Cycles [MXTot]	Survey Interval (yrs) [I]	M&R Station Surveyed Annually from Multi-Year Survey Cycles [MX,I]	Total # of Leaks Detected from Survey [N _{X,L}]	Annual Leak Rate [Leaks / Meter] $R_x = \frac{N_{X,L}}{M_{X,A} + (I \times M_{X,I})}$	# of Unknown Leaks $N_{X,unk} = \bar{R}_X \times (M_X^{Tot} - M_{X,I}) \times \frac{I}{2}$
Class 1 (Hazardous Leak)	225	225	0	1	0	0	-	-
				3			-	-
				5			-	-
Class 3 (Non-Hazardous Leak)	225	225	0	1	0	0	-	-
				3			-	-
				5			-	-
				1			-	-
				3			-	-
				5			-	-
				1			-	-
				3			-	-
				5			-	-
				1			-	-
				3			-	-
				5			-	-
				1			-	-
				3			-	-
				5			-	-
				1			-	-
				3			-	-
				5			-	-
				1			-	-
				3			-	-
				5			-	-
				1			-	-
				3			-	-
				5			-	-
Total	225	225	0	N/A	0	0		0

Total # of Leaks Detected from O&M* [N _{X,O}]	0
	0
	0
	0
	0
	0
	0
	0
	0
	0
	0
	0
	0
	0
	0
	0
	0
	0
	0
	0
Total	0

Southwest Gas
inspects its
Distribution M&R
Stations Annually

Estimated Emissions by Leak Code

Leakage Category	Emission Factor (Mscf/day/leak)	Emissions from Leaks Detected from Survey (Mscf)	Emissions from O&M* Leaks Detected (Mscf)	Estimated Emissions from Unknown Leaks (Mscf)	Total Estimated Emissions from Leaks (Mscf)
Facility/Material					
Total	N/A	0	0	0	0

SOUTHWEST GAS CORPORATION, JUNE 14, 2024

Rulemaking (R.) 15-01-008 to Adopt Rules and Procedures Governing Commission Regulated Natural Gas M&R Stations and Facilities to Reduce Natural Gas Leaks
Consistent with Senate Bill 1371, Leno.

In Response to Data Request, R15-01-008 2024 June Report

Appendix 5; Rev. 03/29/2024

This summary purposefully should exclude damages, blowdowns, component emissions and component leaks.

Grade if Applicable	Count of Leaks Carried over from Prior Year	Count of Leaks Discovered in the Year of Interest	Count of Leaks Repaired in the Year of Interest	Average Days to Repair Leaks	Count of Estimated Unsurveyed Leaks in the Year of Interest	Count of Remaining Leaks at final day of the Year of Interest (12/31/23)	Emissions from Leaks Carried over from Prior Year.	Emissions from Leaks Discovered in the Year of Interest.	Emissions from Estimated Unsurveyed Leaks in the Year of Interest	Total Emissions in the Year of Interest [Mscf of Natural Gas]
Grade A	0	0	0	0	0	0	0	0	0	0
Grade B	0	0	0	0	0	0	0	0	0	0
Grade C	0	0	0	0	0	0	0	0	0	0
Grade D	0	0	0	0	0	0	0	0	0	0
Above Ground Hazardous	0	0	0	0	0	0	0	0	0	0
Above Ground Non-Hazardous	0	0	0	0	0	0	0	0	0	0
Above Ground Non-Hazardous Minor	0	0	0	0	0	0	0	0	0	0
Graded Leak Total	0	0	0	0	0	0	0	0	0	0

x

SOUTHWEST GAS CORPORATION, JUNE 14, 2024

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 2024 June Report

Appendix 5; Rev. 03/29/2024

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.

As revised in 2022, add F1, F2 and F3 for Farm Taps

Distribution M&R Station Leaks and Emissions

Number of Stations	Station Classification	Emission Factor (Mscf/yr)	Annual Emissions (Mscf)	Explanatory Notes / Comments
51	A1	40.6	2070.600	
125	A2	896.5	112062.500	
33	A3	1684.5	55588.500	
1	B1	0.964	0.964	
13	B2	1.84	23.920	
2	B3	12.176	24.352	
		Total	169,770.836	

SOUTHWEST GAS CORPORATION, JUNE 14, 2024
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 2024 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

Distribution M&R Station Damage (3rd party dig-ins, natural disasters, etc.):

ID	Geographic Location	Damage Type	Pipe Material	Pipe Size (nominal)	Pipe Age (months)	Pressure (psi)	Leak Grade	Above Ground or Below Ground	Discovery Date (MM/DD/YY)	Repair Date (MM/DD/YY)	Number of Days Leaking	Emission Factor (Mscf/Day)	Annual Emissions (Mscf)	Explanatory Notes / Comments
4734832	92395	O	UB	0.25	40	40	1	AH	9/16/2023	9/16/2023	0.014	1.432	1.432	
4755930	92311	O	PB	0.375	300	55	1	AH	11/9/2023	11/9/2023	0.049	1.430	1.430	
Total												2.862		

SOUTHWEST GAS CORPORATION, JUNE 14, 2024

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In Response to Data Request, R15-01-008 2024 June Report

Appendix 5; Rev. 03/29/2024

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

Distribution M&R Station Blowdowns:

ID	Geographic Location	Number of Blowdown Events	Annual Emissions (Mscf)	Explanatory Notes / Comments
11DM1000001	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DM1000066	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DM1000075	92311	2	0.326	1 Gas lost to flow and lock-up of Reg. Station during Inspection & 1 Maintenance
11DM1000077	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DM1000079	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DM1000081	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DM1000083	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DM1000085	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DM1000095	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DM1000096	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DM1000102	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DM1000126	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DM1000132	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DM1000260	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DR10000153	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DR10000154	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DR10000156	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DR10000157	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DR10000159	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DR10000160	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DR10000161	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DR10000162	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DR10000165	92311	2	0.326	1 Gas lost to flow and lock-up of Reg. Station during Inspection & 1 Maintenance
11DR10000166	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DR10000167	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DR10000168	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DR10000169	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DR10000170	92311	2	0.326	1 Gas lost to flow and lock-up of Reg. Station during Inspection & 1 Maintenance
11DR10000172	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DR10000174	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DR10000175	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DR10000257	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DR10000259	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DS10026421	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DS10026442	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DS10027340	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DS10028860	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DS10029800	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DS10029940	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
11DS15015370	92311	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DM10000064	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DM10000069	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DM10000086	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DM10000087	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DM10000089	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DM10000091	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DM10000092	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DM10000093	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DM10000100	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DM10000140	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DM10000141	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DM10000143	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DM10000144	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DM10000146	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DM10000233	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DM10000261	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DM10000263	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DM15006750	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DR10000003	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DR10000004	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DR10000005	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DR10000006	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DR10000007	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DR10000009	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DR10000010	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DR10000011	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DR10000012	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection

Gas lost to blowdowns from regulator maintenance

$Q1 = D2P^{0.372}$

Q = Cubic feet of gas per 1,000 feet of pipeline

D = Inside diameter of pipeline

P = Gauge pressure of gas expressed in lb/square inch

0.372 = Empirical constant

Gas lost to flow and lock-up of Reg. Station

$Q2 = D2P1T/60$

Q = volume of gas in Mcf/hr at a pressure of 14.9 psi, 60oF and a specific gravity of 0.60

D = diameter of the nipple or orifice in inches.

P = absolute pressure in lb/inches2 at some nearby point upstream from the opening.

T = length of blow off in minutes.

Overall gas released from M & R Station maintenance

Qoverall = Q1 + Q2

Engineering factor estimate for Appendix 5: Distribution M&R Station Blowdowns

Eng. Factor = Qoverall / Number of Reg. Stations

Distribution M&R Station Blowdowns:

ID	Geographic Location	Number of Blowdown Events	Annual Emissions (Mscf)	Explanatory Notes / Comments
12DS10020980	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DS10022142	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DS10022180	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DS10023000	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DS10023142	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DS10023780	92395	2	0.326	1 Gas lost to flow and lock-up of Reg. Station during Inspection & 1 Maintenance
12DS10023900	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DS10024000	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DS10024600	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DS10024641	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DS10025460	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DS10025760	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DS10025980	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DS10026424	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DS10026460	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DS10027640	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DS10027721	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DS10027900	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DS10028900	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DS10034280	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
12DS15015350	92395	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
13DM10000071	92314	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
13DM10000097	92314	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
13DR10000014	92314	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
13DR10000015	92314	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
13DR10000041	92314	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
13DR10000060	92314	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
13DR10000250	92314	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
13DR10000251	92314	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
13DR10000252	92314	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
13DR10000253	92314	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
13DR10000254	92314	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
13DR10032701	92314	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
13DR15007110	92314	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
13DR15007271	92314	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
13DR15007290	92314	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
13DR15007511	92314	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
13DR15007571	92314	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
13DR15007670	92314	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
13DS10004442	92314	1	0.163	Gas lost to flow and lock-up of Reg. Station during Inspection
13DM10000072	92314	2	0.326	1 Gas lost to flow and lock-up of Reg. Station during Inspection & 1 Maintenance
14DR10001561	96145	1	0.163	Gas loss - blowdown - regulator maintenance
14DR10001567	96145	1	0.163	Gas loss - blowdown - regulator maintenance
14DR10001569	96145	2	0.327	Gas loss - blowdown - regulator maintenance/ Extra Inspection
14DR15000502	96145	1	0.163	Gas loss - blowdown - regulator maintenance
14DR15005488	96145	1	0.163	Gas loss - blowdown - regulator maintenance
14DR15006870	96145	1	0.163	Gas loss - blowdown - regulator maintenance
14DS10018882	96145	1	0.163	Gas loss - blowdown - regulator maintenance
14DS10031220	96145	1	0.163	Gas loss - blowdown - regulator maintenance
15DR10001574	96161	1	0.163	Gas loss - blowdown - regulator maintenance
15DR10001575	96161	1	0.163	Gas loss - blowdown - regulator maintenance
15DR10001577	96161	1	0.163	Gas loss - blowdown - regulator maintenance
15DR10001572	96161	1	0.163	Gas loss - blowdown - regulator maintenance
15DR10001573	96161	1	0.163	Gas loss - blowdown - regulator maintenance
15DR10001576	96161	1	0.163	Gas loss - blowdown - regulator maintenance
15DS10026480	96161	1	0.163	Gas loss - blowdown - regulator maintenance
15DS10026920	96161	1	0.163	Gas loss - blowdown - regulator maintenance
16DM12230001	96150	1	0.163	Gas loss - blowdown - regulator maintenance
16DM12230003	96150	1	0.163	Gas loss - blowdown - regulator maintenance
16DM12230004	96150	1	0.163	Gas loss - blowdown - regulator maintenance
16DM12230005	96150	1	0.614	Pressure Relief Valve checked as apart of regulator maintenance - Average Pressure x Average Volume x # of inspections & Maintenance Activities
16DS10009858	96150	1	0.163	Gas loss - blowdown - regulator maintenance
16DS10009859	96150	1	0.163	Gas loss - blowdown - regulator maintenance
16DS10009860	96150	1	0.163	Gas loss - blowdown - regulator maintenance
14DS10020461	96145	1	0.163	Gas loss - blowdown - regulator maintenance
16DS10009861	96150	1	0.163	Gas loss - blowdown - regulator maintenance
16DS10009863	96150	1	0.163	Gas loss - blowdown - regulator maintenance
16DS10009864	96150	1	0.163	Gas loss - blowdown - regulator maintenance
16DS10008077	96150	1	0.614	Pressure Relief Valve checked as apart of regulator maintenance - Average Pressure x Average Volume x # of inspections & Maintenance Activities
16DS10026140	96150	1	0.163	Gas loss - blowdown - regulator maintenance
16DS10026141	96150	1	0.163	Gas loss - blowdown - regulator maintenance
16DS10008098	96150	1	0.163	Gas loss - blowdown - regulator maintenance
16DR15000321	96150	1	0.163	Gas loss - blowdown - regulator maintenance
16DR15003444	96150	1	0.163	Gas loss - blowdown - regulator maintenance
16DS10027120	96150	1	0.163	Gas loss - blowdown - regulator maintenance
19DS10030820	92363	1	0.131	Gas loss - blowdown - regulator maintenance
19DSR5008310	92363	1	0.131	Relief Valve Inspection
19DS10029821	92636	1	0.131	Gas loss - blowdown - regulator maintenance

Distribution M&R Station Blowdowns:

ID	Geographic Location	Number of Blowdown Events	Annual Emissions (Mscf)	Explanatory Notes / Comments
19DS10029841	92636	1	0.131	Gas loss - blowdown - regulator maintenance
19DS10027320	92636	1	0.131	Gas loss - blowdown - regulator maintenance
19DS10028960	92636	1	0.131	Gas loss - blowdown - regulator maintenance
19DR25011230	92636	1	0.131	Relief Valve Inspection
Total			40.134	

SOUTHWEST GAS CORPORATION, JUNE 14, 2024
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In Response to Data Request, R15-01-008 2024 June Report
Appendix 5; Rev. 03/29/2024

Notes:

The data collected on this sheet is for informational purposes and may not be included in the emissions inventory for 2023. The worksheet is designed to track actual emissions for future reference and to determine if an actual leak based emission accounting is feasible for M&R stations.

If you record data using this table and you only leak survey part of your system, you must extrapolate emissions from leaks up to account for emissions from your entire system for the year.

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.

Distribution M&R Station Component Vented Emissions:

ID	Geographic Location	Station Classification	Device Type	Bleed Rate	Manufacturer	Number of Days Emitting	Engineering or Manufacturer's based Estimate of Emissions	Annual Emissions (Mscf)	Explanatory Notes / Comments
12DR1000004C	92308	A3	O	L	SpectraSensor	365	0.048	17.52	Manufacturer's based Estimate of Emissions (1-2 cubic Feet per hour: 2 ft ³ /hr * 24hrs/day * 365 days = 17,520 ft ³)
12DR1501199C	92394	A3	O	L	ABB	365	0.024	8.76	Engineering estimate based on continuous sampling . X ft ³ /hr * 24hrs/day * 365 days
12DR1501199C	92394	A3	O	L	SpectraSensor	365	0.054	19.71	Engineering estimate based on continuous sampling . X ft ³ /hr * 24hrs/day * 365 days
12DR1501199C	92394	A3	O	L	Applied Analytics	365	0.144	52.56	Engineering estimate based on continuous sampling . X ft ³ /hr * 24hrs/day * 365 days
12DR1501199C	92394	A3	O	L	SpectraSensor	365	0.054	19.71	Engineering estimate based on continuous sampling . X ft ³ /hr * 24hrs/day * 365 days
Total								118.26	

SOUTHWEST GAS CORPORATION, JUNE 14, 2024
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In Response to Data Request, R15-01-008 2024 June Report
Appendix 5; Rev. 03/29/2024

Notes:

The data collected on this sheet is for informational purposes and will not be included in the emissions inventory for 2023. The worksheet is designed to track actual leaks for future reference and to determine if an actual leak based emission accounting is feasible for M&R stations.

If you record data using this table and you only leak survey part of your system, you must extrapolate emissions from leaks up to account for emissions from your entire system for the year.

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 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.

Distribution M&R Station Component Fugitive Leaks:

ID	Geographic Location	Station Classification	Device Type	Bleed Rate	Manufacturer	Pressure (psi)	Discovery Date (MM/DD/YY)	Repair Date (MM/DD/YY)	Number of Days Leaking	Emission Factor (Mscf/day)	Annual Emissions (Mscf)	Explanatory Notes / Comments
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Southwest Gas did not have any Distribution M&R Station Component fugitive leaks in 2023.

Total **0.00**

Appendix 6

MSA Systems

SOUTHWEST GAS CORPORATION, JUNE 14, 2024

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 2024 June Report

Appendix 6; Rev. 03/29/2024

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)
9,775	CI	0.051	498.53
197,870	R	0.148	29,284.76
Total			29,783.29

SOUTHWEST GAS CORPORATION, JUNE 14, 2024
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Reduce Natural Gas Leaks Consistent with Senate Bill 1371, Leno.
In Response to Data Request, R15-01-008 2024 June Report
Appendix 6; Rev. 03/29/2024

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:

(Please add any clarifying explanations here above the table.)

Customer Meter Fugitive Leaks:

ID	Geographic Location	Meter Classification (Commercial/Industrial or Residential)	Leak Classification (Grade)	Leak Discovery Method	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)	Repair Type	Number of Days Leaking	Number of Days to Repair	Bubble Size Classification	MSA Identification Number	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.)
5200154075	92301	R	AN	M	12/22/2023	12/22/2023	N/A	CR	1	1	Bubbles	00458144	
5200000085	92311	R	AN	M	01/20/2023	01/20/2023	N/A	CR	1	1	Bubbles	00626921	
5200112096	92308	R	AN	S	09/28/2023	10/10/2023	N/A	TLA	283	13	Bubbles	00853768	
5200014087	92392	R	AN	M	12/15/2023	12/15/2023	N/A	CR	1	1	Bubbles	00880237	
5200295064	92392	R	AN	M	11/25/2023	11/25/2023	N/A	CR	1	1	Fuzz	00887909	
5200031581	92327	CI	AN	M	02/02/2023	02/09/2023	N/A	CR	8	8	Fuzz	00888298	
5200106568	92307	R	AN	S	09/28/2023	10/03/2023	N/A	CR	276	6	Fuzz	01008242	
5200013167	92392	R	AN	M	10/31/2022	01/03/2023	N/A	CR	65	65	Bubbles	01052796	
5200006270	92307	R	AN	S	10/13/2023	10/27/2023	N/A	CR	300	15	Bubbles	01184364	
5200240112	92345	CI	AN	M	04/05/2023	04/06/2023	N/A	CR	2	2	Fuzz	01213651	
5200115668	92394	R	AN	M	06/25/2023	06/25/2023	N/A	TLA	1	1	Bubbles	01232165	
5200377521	92392	R	AN	M	02/14/2023	02/14/2023	N/A	CR	1	1	Fuzz	01232169	
5200021535	92344	R	AN	M	02/02/2023	02/14/2023	N/A	CR	13	13	Fuzz	01526502	
5200106556	92307	R	AN	S	09/28/2023	10/30/2023	N/A	CR	303	33	Fuzz	01526545	
5200356515	92394	CI	AN	M	01/07/2023	01/07/2023	N/A	CR	1	1	Bubbles	01526747	
5200055640	92356	R	AN	M	02/16/2023	02/16/2023	N/A	TLA	1	1	Fuzz	01528013	
5200422751	92394	R	AN	M	01/30/2023	01/30/2023	N/A	CR	1	1	Bubbles	01528162	
5200422769	92395	R	AN	M	04/26/2023	05/11/2023	N/A	CR	16	16	Bubbles	01528163	
5200422750	92394	R	AN	M	01/19/2023	01/19/2023	N/A	CR	1	1	Bubbles	01528172	
5200027533	92345	R	AN	M	04/28/2023	04/28/2023	N/A	CR	1	1	Bubbles	01528243	
5200027698	92308	R	AN	S	10/13/2023	10/27/2023	N/A	CR	300	15	Bubbles	01528406	
5200005175	92307	R	AN	M	12/11/2023	12/11/2023	N/A	CR	1	1	Fuzz	01528467	
5200006045	92307	R	AN	S	10/13/2023	10/24/2023	N/A	CR	297	12	Fuzz	01528501	
5200133348	92345	R	AN	M	02/22/2023	03/09/2023	N/A	TLA	16	16	Fuzz	01529881	
5200027581	92307	R	AN	S	09/19/2023	09/28/2023	N/A	CR	271	10	Bubbles	01529893	
5200025339	92392	R	AN	M	08/02/2023	08/02/2023	N/A	CR	1	1	Bubbles	01530002	
5200005493	92307	R	AN	S	09/07/2023	09/28/2023	N/A	CR	271	22	Fuzz	01530176	
5200460697	92301	R	AN	M	11/27/2023	11/27/2023	N/A	CR	1	1	Bubbles	01530668	
5200027764	92392	R	AN	S	10/13/2023	11/08/2023	N/A	CR	312	27	Bubbles	01530871	
5200227460	92308	R	AN	M	08/18/2023	08/18/2023	N/A	CR	1	1	Bubbles	01531026	
5200040316	92307	R	AN	S	09/28/2023	10/27/2023	N/A	CR	300	30	Bubbles	01531717	
5200083900	92394	R	AN	M	11/02/2022	01/04/2023	N/A	CR	64	64	Fuzz	01531822	
5200311205	92308	CI	AN	M	10/06/2023	10/06/2023	N/A	CR	1	1	Bubbles	01532074	
5200013348	92392	R	AN	M	11/01/2022	01/03/2023	N/A	CR	64	64	Bubbles	01532150	
5200000375	92311	R	AN	M	05/18/2023	05/18/2023	N/A	CR	1	1	Fuzz	01532471	
5200025436	92344	R	AN	M	01/12/2023	01/13/2023	N/A	CR	2	2	Bubbles	01532780	
5200100356	92311	R	AN	M	01/05/2023	01/05/2023	N/A	TLA	1	1	Bubbles	01532878	
5200084352	92392	R	AN	M	10/31/2022	01/04/2023	N/A	CR	66	66	Bubbles	01533301	
5200008050	92392	R	AN	S	07/26/2023	08/16/2023	N/A	CR	228	22	Bubbles	01534337	
5200084355	92392	R	AN	M	10/31/2022	01/04/2023	N/A	CR	66	66	Bubbles	01534523	
5200166202	92394	R	AN	M	08/06/2023	08/06/2023	N/A	TLA	1	1	Bubbles	01535157	
5200235270	92395	R	AH	M	12/29/2023	12/29/2023	N/A	CR	1	1	Bubbles Blown Off	01535233	
5200013626	92392	R	AN	M	07/05/2023	07/05/2023	N/A	CR	1	1	Bubbles	01535438	
5200200657	92307	R	AN	M	03/28/2023	03/28/2023	N/A	CR	1	1	Bubbles	01535451	
5200166244	92394	R	AN	M	10/22/2023	10/22/2023	N/A	CR	1	1	Bubbles	01535930	
5200027996	92344	R	AN	M	02/17/2023	02/17/2023	N/A	TLA	1	1	Bubbles	01536326	
5200478321	92392	R	AN	M	01/12/2023	01/12/2023	N/A	CR	1	1	Fuzz	01536417	
5200428601	92392	CI	AN	M	06/20/2023	06/20/2023	N/A	CR	1	1	Fuzz	01536821	
5200022901	92345	R	AN	M	02/02/2023	02/14/2023	N/A	CR	13	13	Fuzz	01580477	
5200272040	92344	R	AN	M	02/02/2023	02/08/2023	N/A	CR	7	7	Bubbles	01581125	
5200284381	92395	R	AN	S	06/28/2023	07/11/2023	N/A	CR	192	14	Fuzz	01581676	
5200166358	92301	R	AN	S	07/26/2023	07/26/2023	N/A	CR	207	1	Bubbles	01581808	
5200166361	92301	R	AN	S	07/26/2023	08/03/2023	N/A	CR	215	9	Fuzz	01581814	
5200316011	92311	CI	AN	M	04/07/2023	04/07/2023	N/A	CR	1	1	Bubbles	01581942	
5200478209	92395	R	AN	M	01/20/2023	01/20/2023	N/A	CR	1	1	Bubbles	01582007	
5200026434	92344	R	AN	M	01/11/2023	01/11/2023	N/A	CR	1	1	Bubbles	01583021	
5200183755	92345	R	AN	M	10/30/2023	10/30/2023	N/A	CR	1	1	Fuzz	01583598	
5200235203	92395	R	AN	M	05/15/2023	05/15/2023	N/A	CR	1	1	Bubbles	01584583	
5200221254	92394	R	AN	M	12/20/2023	12/29/2023	N/A	CR	10	10	Bubbles	01626858	
5200152473	92308	R	AN	M	03/30/2023	04/04/2023	N/A	CR	6	6	Fuzz	02856161	
5200078950	92308	R	AN	M	02/13/2023	02/13/2023	N/A	TLA	1	1	Bubbles	02856177	
5200257578	92395	CI	AN	S	07/26/2023	08/08/2023	N/A	CR	220	14	Bubbles	02856795	
5200005209	92307	R	AN	S	09/07/2023	09/20/2023	N/A	CR	263	14	Bubbles	02857105	
5200334352	92345	R	AN	M	02/15/2023	03/02/2023	N/A	CR	16	16	Bubbles	02857805	
5200328095	92344	R	AN	M	05/20/2023	05/20/2023	N/A	TLA	1	1	Bubbles	02858435	
5200118227	92308	R	AN	S	12/20/2023	12/28/2023	N/A	CR	362	9	Bubbles	02858487	

Southwest Gas has not made it a mandatory requirement for field personnel to document bubble size classifications. This information will be made a mandatory requirement once the Company's work order system is updated, which is scheduled to be completed later in 2024. This is why some of the Bubble Size Classifications are marked as "N/A" for not available.

Customer Meter Fugitive Leaks:

ID	Geographic Location	Meter Classification (Commercial/Industrial or Residential)	Leak Classification (Grade)	Leak Discovery Method	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)	Repair Type	Number of Days Leaking	Number of Days to Repair	Bubble Size Classification	MSA Identification Number	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.)
5200151772	92344	R	AN	M	03/06/2023	03/06/2023	N/A	CR	1	1	Bubbles	02859463	
5200199885	92345	R	AN	M	02/13/2023	02/13/2023	N/A	CR	1	1	Bubbles	02859495	
5200443897	92311	R	AN	M	12/01/2023	12/01/2023	N/A	CR	1	1	Bubbles	02862008	
5200091530	92311	R	AN	M	12/08/2023	12/08/2023	N/A	CR	1	1	Bubbles	02862099	
5200005421	92307	R	AN	S	09/07/2023	09/14/2023	N/A	CR	257	8	Fuzz	02862408	
5200047630	92308	R	AN	S	11/16/2023	12/07/2023	N/A	CR	341	22	Fuzz	02862884	
5200515263	92308	R	AN	M	01/24/2023	01/24/2023	N/A	CR	1	1	Bubbles	02863187	
5200012794	92395	R	AN	M	04/26/2023	05/11/2023	N/A	TLA	16	16	Bubbles	02864306	
5200478020	92308	CI	AN	S	08/10/2023	08/14/2023	N/A	TLA	226	5	Bubbles	03272705	
5200395228	92392	CI	AN	M	03/13/2023	03/13/2023	N/A	CR	1	1	Bubbles	03272748	
5200395228	92392	CI	AN	M	12/07/2023	12/07/2023	N/A	CR	1	1	Bubbles	03272748	
5200484635	92314	CI	AN	M	10/09/2023	10/09/2023	N/A	CR	1	1	Fuzz	03392794	
5200039785	92307	R	AN	M	10/08/2023	10/08/2023	N/A	CR	1	1	Bubbles	03571811	
5200074321	92307	R	AN	S	09/28/2023	10/03/2023	N/A	TLA	276	6	Fuzz	03572573	
5200005254	92307	R	AN	S	11/09/2023	12/19/2023	N/A	CR	353	41	Fuzz	03573933	
5200256629	92307	R	AN	M	01/03/2023	01/03/2023	N/A	CR	1	1	Bubbles	03573939	
5200005799	92307	R	AN	S	10/13/2023	12/07/2023	N/A	CR	341	56	Fuzz	03578480	
5200021953	92344	R	AN	M	02/22/2023	03/07/2023	N/A	CR	14	14	Fuzz	03579016	
5200021832	92344	R	AN	M	02/22/2023	03/02/2023	N/A	CR	9	9	Fuzz	03579692	
5200401604	92344	R	AN	M	02/22/2023	03/02/2023	N/A	CR	9	9	Bubbles	03579806	
5200004828	92345	R	AN	M	03/22/2023	03/23/2023	N/A	TLA	2	2	Bubbles	03579847	
5200067952	92392	R	AN	M	12/30/2023	12/30/2023	N/A	CR	1	1	Fuzz	03580259	
5200432515	92394	R	AN	S	10/13/2023	10/26/2023	N/A	CR	299	14	Bubbles	03626185	
5200040221	92307	R	AN	M	03/30/2023	03/30/2023	N/A	CR	1	1	Bubbles	03627147	
5200071991	92394	R	AN	M	05/22/2023	05/22/2023	N/A	CR	1	1	Bubbles	03627931	
5200021845	92344	R	AN	M	02/22/2023	03/02/2023	N/A	CR	9	9	Fuzz	03649791	
5200021848	92344	R	AN	M	02/22/2023	03/02/2023	N/A	CR	9	9	Fuzz	03650499	
5200177384	92394	R	AN	M	02/04/2023	02/04/2023	N/A	CR	1	1	Bubbles	03654752	
5200384011	92392	R	AN	M	11/02/2022	01/05/2023	N/A	CR	65	65	Fuzz	03655183	
5200068581	92308	R	AN	M	03/14/2023	03/14/2023	N/A	CR	1	1	Bubbles	03655630	
5200324076	92394	R	AN	M	04/12/2023	04/12/2023	N/A	CR	1	1	Bubbles	03655816	
5200079986	92345	R	AN	M	02/02/2023	02/14/2023	N/A	CR	13	13	Fuzz	03656043	
5200013913	92392	R	AN	S	11/16/2023	12/19/2023	N/A	CR	353	34	Fuzz	03656796	
5200050075	92392	CI	AN	S	06/28/2023	07/06/2023	N/A	CR	187	9	Fuzz	03709448	
5200177400	92301	R	AN	M	03/16/2023	03/16/2023	N/A	CR	1	1	Bubbles	03709848	
5200349331	92307	R	AN	M	03/23/2023	03/23/2023	N/A	TLA	1	1	Fuzz	03710077	
5200326585	92307	R	AN	S	08/10/2023	08/14/2023	N/A	CR	226	5	Bubbles	03710365	
5200158806	92394	R	AN	M	03/03/2023	03/03/2023	N/A	CR	1	1	Bubbles	03710549	
5200349216	92307	R	AN	S	11/16/2023	11/29/2023	N/A	TLA	333	14	Fuzz	03710859	
5200076261	92307	R	AN	M	03/07/2023	03/07/2023	N/A	CR	1	1	Bubbles	03711305	
5200235129	92395	R	AN	S	06/28/2023	07/06/2023	N/A	CR	187	9	Bubbles	03712077	
5200080921	92301	R	AN	M	04/13/2023	04/13/2023	N/A	CR	1	1	Fuzz	03712296	
5200324001	92394	R	AN	M	12/23/2023	12/23/2023	N/A	TLA	1	1	Bubbles	03717521	
5200067502	92395	CI	AN	S	12/21/2023	12/21/2023	N/A	CR	355	1	Bubbles	03741912	
5200020085	92308	CI	AN	M	11/16/2023	12/07/2023	N/A	CR	22	22	Bubbles	03751966	
5200340538	92307	CI	AH	M	07/13/2023	07/13/2023	N/A	CR	1	1	Bubbles Blown Off	03752951	
5200060098	92345	R	AN	M	01/02/2023	01/02/2023	N/A	CR	1	1	Fuzz	03890150	
5200036221	92345	R	AN	M	02/03/2023	02/03/2023	N/A	CR	1	1	Bubbles	04096745	
5200311400	92345	R	AH	M	05/31/2023	05/31/2023	N/A	CR	1	1	Bubbles Blown Off	04096763	
5200384165	92392	R	AN	M	09/17/2023	09/17/2023	N/A	CR	1	1	Fuzz	04096797	
5200157864	92344	R	AN	M	02/01/2023	02/01/2023	N/A	CR	1	1	Fuzz	04232211	
5200016789	92392	R	AN	M	01/18/2023	01/18/2023	N/A	CR	1	1	Bubbles	05738357	
5200202954	92307	R	AN	S	09/28/2023	10/03/2023	N/A	CR	276	6	Bubbles	05738778	
5200023666	92345	R	AN	M	11/10/2023	11/10/2023	N/A	CR	1	1	Bubbles	05739134	
5200047768	92308	R	AN	M	05/17/2023	05/17/2023	N/A	CR	1	1	Bubbles	05739162	
5200038496	92345	R	AN	M	01/20/2023	01/20/2023	N/A	CR	1	1	Fuzz	05762622	
5200188222	92345	R	AN	M	03/22/2023	03/28/2023	N/A	TLA	7	7	Bubbles	05763734	
5200013150	92392	R	AN	M	10/31/2022	01/04/2023	N/A	CR	66	66	Bubbles	05764617	
5200323285	92314	R	AN	M	03/15/2023	03/15/2023	N/A	CR	1	1	Fuzz	05765960	
5200039956	92307	R	AN	M	07/26/2023	08/17/2023	N/A	CR	23	23	Fuzz	05767020	
5200098910	92345	R	AN	M	01/22/2023	01/22/2023	N/A	CR	1	1	Bubbles	05767143	
5200023789	92307	CI	AN	S	10/13/2023	10/27/2023	N/A	CR	300	15	Bubbles	05767279	
5200388863	92392	CI	AN	M	03/13/2023	03/13/2023	N/A	CR	1	1	Fuzz	05767443	
5200151333	92344	R	AN	M	03/29/2023	03/29/2023	N/A	TLA	1	1	Fuzz	05818182	
5200058884	92344	R	AN	M	02/02/2023	02/14/2023	N/A	CR	13	13	Fuzz	05975069	
5200019496	92345	CI	AN	M	04/13/2023	04/18/2023	N/A	TLA	6	6	Fuzz	07562052	
5200059949	92392	R	AN	M	11/30/2022	01/03/2023	N/A	CR	35	35	Bubbles	07567295	
5200011039	92395	R	AN	M	12/08/2023	12/08/2023	N/A	CR	1	1	Bubbles	07567631	
5200133534	92345	R	AN	M	04/05/2023	04/05/2023	N/A	TLA	1	1	Bubbles	07567753	
5200047322	92308	R	AN	M	10/02/2023	10/02/2023	N/A	CR	1	1	Fuzz	07567808	
5200016661	92345	R	AN	M	01/04/2023	01/04/2023	N/A	CR	1	1	Bubbles	07567856	
5200382286	92345	R	AN	M	08/30/2023	08/30/2023	N/A	CR	1	1	Fuzz	07569104	
5200053798	92394	R	AN	M	08/15/2023	08/15/2023	N/A	TLA	1	1	Bubbles	07569732	
5200058706	92344	R	AN	M	02/22/2023	03/08/2023	N/A	CR	15	15	Fuzz	07622181	
5200152121	92307	R	AN	S	09/07/2023	09/20/2023	N/A	CR	263	14	Bubbles	07879918	
5200065980	92395	R	AN	M	03/06/2023	03/06/2023	N/A	CR	1	1	Fuzz	07880513	
5200311105	92394	CI	AN	M	05/12/2023	05/12/2023	N/A	CR	1	1	Fuzz	07880556	
5200384277	92392	R	AN	M	11/01/2022	01/10/2023	N/A	CR	71	71	Bubbles	07880557	
5200150327	92307	R	AN	S	10/13/2023	11/29/2023	N/A	CR	333	48	Fuzz	08488545	
5200229321	92392	R	AN	M	11/04/2023	11/04/2023	N/A	CR	1	1	Bubbles	08488995	
5200055503	92308	R	AN	M	12/06/2023	12/06/2023	N/A	CR	1	1	Bubbles	08537350	
5200268690	92307	CI	AN	S	10/13/2023	10/27/2023	N/A	CR	300	15	Bubbles	08537705	

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5200180494	92307	R	AN	S	10/13/2023	10/24/2023	N/A	CR	297	12	Fuzz	08538043	
5200059293	92345	R	AN	M	07/24/2023	07/24/2023	N/A	CR	1	1	Bubbles	08540019	
5200014094	92392	R	AN	M	02/19/2023	02/19/2023	N/A	CR	1	1	Bubbles	08540025	
5200398024	92392	R	AN	M	11/01/2022	01/04/2023	N/A	CR	65	65	Bubbles	08540234	
5200507109	92345	R	AN	M	03/24/2023	03/24/2023	N/A	CR	1	1	Bubbles	08540571	
5200174052	92392	R	AN	M	01/22/2023	01/22/2023	N/A	CR	1	1	Bubbles	08540815	
5200229096	92395	R	AN	S	07/26/2023	08/15/2023	N/A	CR	227	21	Bubbles	08540977	
5200085951	92392	R	AN	M	11/02/2022	01/05/2023	N/A	CR	65	65	Bubbles	08541185	
5200040223	92307	R	AN	M	01/10/2023	01/10/2023	N/A	CR	1	1	Bubbles	08543284	
5200047200	92308	R	AN	M	01/03/2023	01/03/2023	N/A	CR	1	1	Bubbles	08543586	
5200328375	92345	R	AN	M	02/18/2023	02/18/2023	N/A	CR	1	1	Bubbles	08544783	
5200440724	92392	R	AN	M	12/15/2023	12/15/2023	N/A	CR	1	1	Bubbles	08545164	
5200211545	92307	R	AN	M	10/13/2023	10/13/2023	N/A	TLA	1	1	Bubbles	08546019	
5200144085	92392	R	AN	S	12/20/2023	12/28/2023	N/A	TLA	362	9	Bubbles	08546635	
5200080683	92308	R	AN	S	10/13/2023	10/30/2023	N/A	TLA	303	18	Fuzz	08554168	
5200079665	92301	R	AN	M	02/18/2023	02/18/2023	N/A	CR	1	1	Bubbles	08555376	
5200147148	92395	CI	AN	S	06/22/2023	06/26/2023	N/A	CR	177	5	Bubbles	08556004	
5200172088	92392	R	AN	M	09/24/2023	09/24/2023	N/A	CR	1	1	Bubbles	08556950	
5200282022	92342	CI	AN	S	07/26/2023	08/03/2023	N/A	CR	215	9	Bubbles	08557030	
5200202681	92307	R	AN	M	09/11/2023	09/11/2023	N/A	CR	1	1	Bubbles	08557062	
5200034372	92345	R	AN	M	04/26/2023	05/12/2023	N/A	CR	17	17	Fuzz	08557771	
5200167734	92356	R	AN	M	12/06/2023	12/06/2023	N/A	CR	1	1	Fuzz	08557919	
5200103213	92345	R	AN	M	02/15/2023	03/02/2023	N/A	CR	16	16	Bubbles	08558007	
5200295381	92392	R	AN	M	02/04/2023	02/04/2023	N/A	CR	1	1	Fuzz	08558083	
5200024372	92395	R	AN	M	10/06/2023	10/11/2023	N/A	CR	6	6	Bubbles	08558386	
5200050448	92394	R	AN	M	01/30/2023	01/30/2023	N/A	CR	1	1	Fuzz	08558390	
5200036042	92345	R	AN	M	10/20/2023	10/20/2023	N/A	TLA	1	1	Bubbles	08558597	
5200164616	92308	R	AN	S	11/09/2023	12/19/2023	N/A	TLA	353	41	Bubbles	08558829	
5200248761	92395	R	AN	M	04/26/2023	05/02/2023	N/A	CR	7	7	Bubbles	08559312	
5200007462	92307	R	AN	S	11/16/2023	11/29/2023	N/A	CR	333	14	Fuzz	08559375	
5200025229	92308	R	AN	M	11/09/2023	11/09/2023	N/A	CR	1	1	Bubbles	08559535	
5200040484	92307	R	AN	M	02/19/2023	02/19/2023	N/A	CR	1	1	Bubbles	08559886	
5200417659	92356	CI	AN	S	08/10/2023	08/15/2023	N/A	CR	227	6	Bubbles	08560517	
5200282757	92344	R	AN	M	02/02/2023	03/07/2023	N/A	CR	34	34	Bubbles	08560773	
5200084825	92307	CI	AN	S	10/13/2023	10/24/2023	N/A	TLA	297	12	Bubbles	08710043	
5200056312	92395	CI	AN	M	12/06/2023	12/06/2023	N/A	TLA	1	1	Bubbles	09117346	
5200021758	92394	CI	AN	M	11/28/2023	11/28/2023	N/A	CR	1	1	Bubbles	09123058	
5200058944	92344	R	AN	M	05/31/2023	05/31/2023	N/A	CR	1	1	Bubbles	09370777	
5200436371	92345	R	AN	M	04/26/2023	05/10/2023	N/A	CR	15	15	Bubbles	09373892	
5200036437	92345	R	AN	M	06/01/2023	06/01/2023	N/A	CR	1	1	Fuzz	09375085	
5200068891	92394	CI	AN	M	11/14/2023	11/14/2023	N/A	CR	1	1	Bubbles	09419588	
5200025508	92392	R	AN	M	01/27/2023	01/27/2023	N/A	CR	1	1	Bubbles	09784943	
5200008254	92392	R	AN	S	06/28/2023	07/11/2023	N/A	CR	192	14	Bubbles	09785680	
5200042259	92307	R	AN	M	07/02/2023	07/02/2023	N/A	CR	1	1	Fuzz	09785878	
5200133282	92345	R	AN	M	02/22/2023	03/02/2023	N/A	CR	9	9	Bubbles	09786026	
5200096876	92345	R	AN	M	06/12/2023	06/12/2023	N/A	CR	1	1	Bubbles	09792316	
5200012648	92395	R	AN	M	01/11/2023	01/11/2023	N/A	CR	1	1	Fuzz	09792517	
5200015486	92345	R	AN	M	01/11/2023	01/11/2023	N/A	CR	1	1	Bubbles	09792986	
5200373879	92308	R	AN	M	01/05/2023	01/05/2023	N/A	CR	1	1	Fuzz	09798920	
5200002518	92311	CI	AN	M	12/01/2023	12/01/2023	N/A	CR	1	1	Bubbles	09799216	
5200013152	92392	R	AN	M	10/31/2022	01/04/2023	N/A	CR	66	66	Bubbles	09802735	
5200074284	92392	R	AN	M	11/01/2022	01/05/2023	N/A	CR	66	66	Fuzz	09815710	
5200272295	92344	R	AN	M	02/02/2023	03/07/2023	N/A	CR	34	34	Bubbles	09884115	
5200151790	92344	R	AN	M	02/02/2023	02/22/2023	N/A	CR	21	21	Bubbles	09884959	
5200022971	92345	R	AN	M	01/18/2023	01/18/2023	N/A	CR	1	1	Fuzz	09916103	
5200318924	92308	R	AN	S	10/13/2023	10/24/2023	N/A	CR	297	12	Fuzz	09916283	
5200267160	92301	R	AN	M	01/20/2023	01/20/2023	N/A	TLA	1	1	Bubbles	09917315	
5200177097	92344	R	AN	M	02/13/2023	02/13/2023	N/A	CR	1	1	Bubbles	09917337	
5200052804	92395	R	AN	M	12/05/2023	12/05/2023	N/A	CR	1	1	Bubbles	09917613	
5200420664	92395	R	AN	M	02/01/2023	02/01/2023	N/A	CR	1	1	Fuzz	09918039	
5200287820	92392	R	AN	M	03/09/2023	03/09/2023	N/A	CR	1	1	Bubbles	09918079	
5200106870	92308	R	AN	S	10/13/2023	10/18/2023	N/A	CR	291	6	Fuzz	0B189752	
5200217172	92301	R	AN	M	03/24/2023	03/24/2023	N/A	TLA	1	1	Bubbles	0C057034	
5200019829	92345	CI	AN	M	01/24/2023	01/24/2023	N/A	CR	1	1	Bubbles	0C204949	
5200005392	92307	R	AN	M	09/07/2023	09/18/2023	N/A	CR	12	12	Fuzz	0E515726	
5200236260	92392	R	AN	M	12/08/2023	12/08/2023	N/A	CR	1	1	Bubbles	0K921747	
5200015155	92345	R	AN	M	02/01/2023	02/01/2023	N/A	CR	1	1	Fuzz	0K922023	
5200388604	92395	R	AN	M	02/01/2023	02/01/2023	N/A	CR	1	1	Bubbles	0K922162	
5200008041	92392	R	AN	M	10/19/2023	10/19/2023	N/A	CR	1	1	Bubbles	0K931906	
5200018047	92392	R	AN	M	01/21/2023	01/21/2023	N/A	CR	1	1	Bubbles	0L289085	
5200084527	92345	R	AN	M	03/22/2023	03/28/2023	N/A	TLA	7	7	Bubbles	0M115448	
5200384097	92392	R	AN	M	10/31/2022	01/03/2023	N/A	CR	65	65	Bubbles	0M674833	
5200227172	92308	R	AN	M	04/05/2023	04/05/2023	N/A	CR	1	1	Bubbles	0M764574	
5200282024	92342	CI	AN	S	07/26/2023	08/03/2023	N/A	CR	215	9	Bubbles	0M769355	
5200133269	92345	R	AN	M	02/22/2023	03/02/2023	N/A	CR	9	9	Fuzz	0M827823	
5200214160	92308	R	AN	M	02/27/2023	02/27/2023	N/A	CR	1	1	Bubbles	0M922364	
5200020317	92307	R	AN	M	01/08/2023	01/08/2023	N/A	CR	1	1	Bubbles	0M922618	
5200326517	92307	R	AN	S	09/07/2023	09/14/2023	N/A	CR	257	8	Fuzz	0M922727	
5200119617	92392	R	AN	S	06/01/2023	06/20/2023	N/A	CR	171	20	Bubbles	0M927742	
5200098812	92345	R	AN	M	02/15/2023	03/02/2023	N/A	CR	16	16	Bubbles	0N016732	
5200041120	92307	R	AN	S	09/28/2023	10/03/2023	N/A	CR	276	6	Fuzz	0N016885	
5200382266	92345	R	AN	M	02/01/2023	02/01/2023	N/A	CR	1	1	Fuzz	0N086981	

Customer Meter Fugitive Leaks:

ID	Geographic Location	Meter Classification (Commercial/Industrial or Residential)	Leak Classification (Grade)	Leak Discovery Method	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)	Repair Type	Number of Days Leaking	Number of Days to Repair	Bubble Size Classification	MSA Identification Number	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.)
5200239694	92345	R	AN	M	02/02/2023	02/14/2023	N/A	CR	13	13	Fuzz	0N087080	
5200236484	92392	R	AN	M	02/10/2023	02/10/2023	N/A	CR	1	1	Fuzz	0N087155	
5200248641	92395	CI	AN	S	06/28/2023	07/06/2023	N/A	CR	187	9	Fuzz	0N087351	
5200060354	92345	R	AN	M	10/17/2023	10/17/2023	N/A	CR	1	1	Bubbles	0N186201	
5200310190	92345	R	AN	M	04/26/2023	05/02/2023	N/A	CR	7	7	Fuzz	0N186229	
5200188008	92345	R	AN	M	04/26/2023	05/12/2023	N/A	CR	17	17	Fuzz	0N186387	
5200004810	92345	R	AN	M	02/15/2023	03/07/2023	N/A	CR	21	21	Fuzz	0N208715	
5200050464	92394	R	AN	M	01/31/2023	01/31/2023	N/A	CR	1	1	Bubbles	0N252959	
5200203587	92307	R	AN	M	11/06/2023	11/06/2023	N/A	CR	1	1	Fuzz	0N273632	
5200515233	92308	R	AN	M	07/01/2023	07/01/2023	N/A	CR	1	1	Bubbles	0N273697	
5200239805	92345	R	AN	M	02/22/2023	03/16/2023	N/A	CR	23	23	Bubbles	0N273784	
5200009500	92342	R	AH	M	06/06/2023	06/06/2023	N/A	CR	1	1	Bubbles Blown Off	0N273815	
5200060394	92345	R	AN	M	07/05/2023	07/05/2023	N/A	TLA	1	1	Fuzz	0N316897	
5200204197	92308	R	AN	M	05/23/2023	05/23/2023	N/A	TLA	1	1	Fuzz	0N316968	
5200098893	92345	R	AN	M	02/23/2023	03/10/2023	N/A	CR	16	16	Bubbles	0N316994	
5200032105	92311	R	AN	M	10/09/2023	10/09/2023	N/A	CR	1	1	Bubbles	0N719744	
5200347795	92308	R	AN	S	10/13/2023	11/07/2023	N/A	CR	311	26	Bubbles	0R487140	
5200077289	92308	R	AN	M	08/21/2023	08/21/2023	N/A	CR	1	1	Bubbles	0R582322	
5200038447	92345	R	AN	M	04/26/2023	06/20/2023	N/A	CR	56	56	Bubbles	0R707180	
5200022789	92344	R	AN	M	02/08/2023	02/08/2023	N/A	CR	1	1	Fuzz	12276222	
5200026863	92394	R	AN	M	11/02/2022	01/04/2023	N/A	CR	64	64	Fuzz	12443195	
5200436320	92345	R	AN	M	02/15/2023	03/07/2023	N/A	CR	21	21	Bubbles	54737821	
5200284012	92395	R	AN	M	01/18/2023	01/18/2023	N/A	CR	1	1	Bubbles	54738223	
5200440146	92392	R	AN	M	10/31/2022	01/04/2023	N/A	CR	66	66	Bubbles	54739074	
5200440148	92392	R	AN	M	10/31/2022	01/04/2023	N/A	CR	66	66	Bubbles	54739075	
5200356875	92394	R	AN	M	05/30/2023	05/30/2023	N/A	CR	1	1	Bubbles	54739131	
5200056482	92395	R	AN	M	04/26/2023	05/11/2023	N/A	CR	16	16	Bubbles	54739224	
5200112309	92307	R	AN	S	11/16/2023	11/29/2023	N/A	CR	333	14	Fuzz	54816849	
5200088135	92392	R	AN	M	01/12/2023	01/18/2023	N/A	CR	7	7	Bubbles	54817391	
5200028035	92392	R	AN	M	10/31/2022	01/04/2023	N/A	CR	66	66	Bubbles	54817456	
5200025767	92308	CI	AN	S	11/16/2023	12/07/2023	N/A	CR	341	22	Fuzz	54817506	
5200028024	92395	R	AN	M	04/26/2023	05/02/2023	N/A	CR	7	7	Bubbles	54817867	
5200004437	92345	CI	AN	M	03/22/2023	03/28/2023	N/A	CR	7	7	Bubbles	54817889	
5200036327	92345	R	AN	M	11/13/2023	11/14/2023	N/A	CR	2	2	Bubbles	54817890	
5200087127	92315	CI	AN	M	02/08/2023	02/08/2023	N/A	TLA	1	1	Bubbles	54855759	
5200002204	92311	CI	AN	M	03/22/2023	04/04/2023	N/A	CR	14	14	Bubbles	54855788	
5200042044	92307	R	AN	S	11/09/2023	11/29/2023	N/A	CR	333	21	Bubbles	54855831	
5200018735	92342	CI	AN	S	07/26/2023	08/03/2023	N/A	CR	215	9	Bubbles	54855913	
5200200841	92307	R	AN	S	10/13/2023	10/30/2023	N/A	CR	303	18	Fuzz	54855976	
5200005666	92307	R	AN	M	02/08/2023	02/08/2023	N/A	CR	1	1	Bubbles	54856267	
5200014095	92392	R	AN	M	11/02/2022	01/05/2023	N/A	CR	65	65	Bubbles	54856942	
5200180411	92308	CI	AN	S	09/07/2023	09/26/2023	N/A	CR	269	20	Bubbles	54859232	
5200249251	92395	CI	AH	M	12/06/2023	12/06/2023	N/A	CR	1	1	Bubbles Blown Off	54859252	
5200026625	92345	CI	AN	M	02/01/2023	02/01/2023	N/A	TLA	1	1	Bubbles	54889001	
5202685562	92345	R	AN	M	09/27/2023	09/27/2023	N/A	CR	1	1	Bubbles	54889003	
5200080682	92308	R	AN	S	10/13/2023	10/27/2023	N/A	CR	300	15	Bubbles	54896044	
5200016412	92345	R	AN	M	05/23/2023	05/23/2023	N/A	CR	1	1	Bubbles	54896111	
5200103463	92345	R	AN	M	01/11/2023	01/23/2023	N/A	TLA	13	13	Fuzz	54896287	
5200307138	92314	R	AN	M	04/18/2023	04/18/2023	N/A	TLA	1	1	Bubbles	54903863	
5200112387	92307	R	AN	S	10/13/2023	10/18/2023	N/A	CR	291	6	Fuzz	54915347	
5200013175	92392	R	AN	M	10/31/2022	01/04/2023	N/A	CR	66	66	Bubbles	54915589	
5200047232	92308	R	AN	M	03/07/2023	03/07/2023	N/A	CR	1	1	Bubbles	54916409	
5202471517	92392	R	AN	M	11/02/2023	11/02/2023	N/A	CR	1	1	Bubbles	54916826	
5202218828	92392	R	AN	M	10/06/2023	10/06/2023	N/A	CR	1	1	Bubbles	54917070	
5202216814	92392	R	AN	M	01/18/2023	01/18/2023	N/A	CR	1	1	Bubbles	54917664	
5201837410	92392	R	AN	M	11/01/2022	01/04/2023	N/A	CR	65	65	Bubbles	54917674	
5202539022	92392	R	AN	M	11/01/2022	01/04/2023	N/A	CR	65	65	Bubbles	54917685	
5200017954	92308	CI	AN	M	08/10/2023	08/15/2023	N/A	CR	6	6	Bubbles	54917849	
5201860397	92394	R	AN	M	01/27/2023	01/27/2023	N/A	CR	1	1	Bubbles	54917864	
5200025821	92345	R	AN	M	03/02/2023	03/02/2023	N/A	CR	1	1	Bubbles	54918002	
5200047715	92308	R	AN	S	11/16/2023	12/07/2023	N/A	CR	341	22	Fuzz	54918309	
5201700406	92392	R	AN	M	11/02/2023	11/02/2023	N/A	CR	1	1	Bubbles	54918475	
5202165802	92392	R	AN	M	11/01/2022	01/05/2023	N/A	CR	66	66	Bubbles	54918592	
5201954336	92345	R	AN	M	11/24/2023	11/24/2023	N/A	CR	1	1	Bubbles	54918745	
5200084769	92301	R	AN	M	01/28/2023	01/28/2023	N/A	CR	1	1	Bubbles	54947669	
5200034929	92311	R	AN	M	01/11/2023	01/11/2023	N/A	CR	1	1	Bubbles	54947726	
5200083714	92394	R	AN	M	11/02/2022	01/04/2023	N/A	CR	64	64	Fuzz	54947732	
5200116750	92308	R	AN	M	01/11/2023	01/11/2023	N/A	TLA	1	1	Fuzz	54947992	
5202150913	92392	R	AN	M	02/03/2023	02/03/2023	N/A	CR	1	1	Bubbles	54948052	
5201708494	92394	R	AN	M	07/28/2023	07/28/2023	N/A	TLA	1	1	Bubbles	54948122	
5202653551	92311	R	AN	M	07/18/2023	07/18/2023	N/A	CR	1	1	Fuzz	54948167	
5200001568	92311	R	AN	M	03/16/2023	03/16/2023	N/A	CR	1	1	Bubbles	54948443	
5202685024	92311	R	AN	M	12/04/2023	12/04/2023	N/A	CR	1	1	Bubbles	54948448	
5200033167	92311	R	AN	M	01/20/2023	01/20/2023	N/A	TLA	1	1	Fuzz	54948461	
5200326790	92307	R	AN	S	08/10/2023	08/15/2023	N/A	CR	227	6	Fuzz	54948975	
5201805937	92392	R	AN	M	01/18/2023	01/18/2023	N/A	CR	1	1	Bubbles	54949008	
5200384182	92392	R	AN	M	02/09/2023	02/09/2023	N/A	CR	1	1	Fuzz	54949081	
5200013587	92392	R	AN	M	11/02/2022	01/05/2023	N/A	CR	65	65	Bubbles	54949092	
5200013766	92392	R	AN	M	10/31/2022	01/04/2023	N/A	CR	66	66	Fuzz	54949097	
5200012187	92392	R	AN	M	11/16/2022	01/05/2023	N/A	CR	51	51	Bubbles	54949098	
5200058875	92344	R	AN	M	02/02/2023	02/08/2023	N/A	TLA	7	7	Bubbles	54949118	
5201904850	92345	R	AN	M	10/18/2023	10/18/2023	N/A	TLA	1	1	Bubbles	54949374	

Customer Meter Fugitive Leaks:

ID	Geographic Location	Meter Classification (Commercial/Industrial or Residential)	Leak Classification (Grade)	Leak Discovery Method	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)	Repair Type	Number of Days Leaking	Number of Days to Repair	Bubble Size Classification	MSA Identification Number	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.)
5202520539	92394	R	AN	M	01/24/2023	01/24/2023	N/A	CR	1	1	Bubbles	54949428	
5200515014	92308	R	AN	M	01/21/2023	01/21/2023	N/A	CR	1	1	Fuzz	54949511	
5200133607	92345	R	AN	M	01/11/2023	01/11/2023	N/A	CR	1	1	Bubbles	54949515	
5200132758	92345	R	AN	M	01/27/2023	01/27/2023	N/A	TLA	1	1	Bubbles	54949520	
5202577508	92345	R	AN	M	12/05/2023	12/11/2023	N/A	TLA	7	7	Bubbles	54949624	
5200015450	92345	R	AN	M	01/11/2023	01/18/2023	N/A	CR	8	8	Bubbles	54949678	
5202522114	92392	R	AN	M	02/15/2023	02/15/2023	N/A	TLA	1	1	Fuzz	54949706	
5201765956	92392	R	AN	M	03/30/2023	03/30/2023	N/A	CR	1	1	Fuzz	54949902	
5202255413	92392	R	AN	M	02/15/2023	02/15/2023	N/A	CR	1	1	Bubbles	54950084	
5202660602	92392	R	AN	M	06/05/2023	06/05/2023	N/A	CR	1	1	Fuzz	54950161	
5201753967	92345	R	AH	M	11/22/2023	11/22/2023	N/A	CR	1	1	Bubbles Blown Off	54950165	
5200012536	92395	R	AN	M	05/30/2023	05/30/2023	N/A	CR	1	1	Fuzz	54950211	
5201809982	92392	R	AN	M	11/03/2023	11/03/2023	N/A	CR	1	1	Bubbles	54950489	
5202584051	92392	R	AN	M	02/16/2023	02/16/2023	N/A	CR	1	1	Bubbles	54950612	
5202584051	92392	R	AN	M	11/28/2023	11/28/2023	N/A	CR	1	1	Bubbles	54950612	
5202189452	92392	R	AN	M	12/05/2023	12/05/2023	N/A	TLA	1	1	Bubbles	54950690	
5200334267	92345	R	AN	M	03/06/2023	03/06/2023	N/A	CR	1	1	Fuzz	54950882	
5200013119	92392	R	AN	M	11/30/2022	01/03/2023	N/A	CR	35	35	Bubbles	54951166	
5200083948	92394	R	AN	M	11/02/2022	01/03/2023	N/A	TLA	63	63	Bubbles	54951167	
5200419170	92395	R	AN	M	01/06/2023	01/06/2023	N/A	TLA	1	1	Bubbles	54951173	
5200229417	92395	R	AN	M	01/12/2023	01/12/2023	N/A	CR	1	1	Bubbles	54951192	
5200382237	92345	R	AN	M	11/10/2023	11/10/2023	N/A	TLA	1	1	Bubbles	54951196	
5200322368	92314	R	AN	M	09/14/2023	09/14/2023	N/A	TLA	1	1	Fuzz	54951657	
5200153375	92307	R	AN	M	12/28/2023	12/28/2023	N/A	CR	1	1	Bubbles	55037123	
5200085930	92394	R	AN	M	01/31/2023	01/31/2023	N/A	TLA	1	1	Bubbles	55037130	
5201815836	92345	R	AN	M	04/16/2023	04/16/2023	N/A	CR	1	1	Bubbles	55037150	
5202641231	92392	R	AN	M	11/15/2023	11/15/2023	N/A	CR	1	1	Bubbles	55048385	
5200041359	92308	R	AN	M	08/10/2023	08/16/2023	N/A	CR	7	7	Bubbles	55048404	
5200339889	92392	R	AN	M	07/26/2023	08/08/2023	N/A	CR	14	14	Bubbles	55048463	
5202604517	92392	R	AN	M	09/15/2023	09/15/2023	N/A	CR	1	1	Bubbles	55048538	
5202649227	92392	R	AN	M	11/02/2023	11/02/2023	N/A	CR	1	1	Bubbles	55048549	
5200094998	92311	R	AN	M	12/14/2023	12/14/2023	N/A	TLA	1	1	Bubbles	55048826	
5200004529	92345	R	AN	M	04/26/2023	05/02/2023	N/A	CR	7	7	Fuzz	55049154	
5202676057	92345	R	AN	M	11/10/2023	11/10/2023	N/A	CR	1	1	Fuzz	55049233	
5200015215	92345	R	AN	M	04/01/2023	04/01/2023	N/A	TLA	1	1	Bubbles	55049264	
5200326560	92307	R	AN	M	05/13/2023	05/13/2023	N/A	CR	1	1	Bubbles	55049357	
5200339572	92395	R	AN	S	06/22/2023	07/13/2023	N/A	CR	194	22	Bubbles	55049402	
5200356700	92394	R	AN	M	07/13/2023	07/13/2023	N/A	CR	1	1	Bubbles	55049405	
5200038247	92345	R	AN	M	04/26/2023	05/02/2023	N/A	CR	7	7	Fuzz	55049421	
5200248667	92395	CI	AN	M	06/28/2023	07/06/2023	N/A	CR	9	9	Bubbles	55049440	
5200071445	92307	R	AN	M	10/10/2023	10/10/2023	N/A	CR	1	1	Bubbles	55049481	
5200148739	92368	R	AN	M	12/10/2023	12/10/2023	N/A	CR	1	1	Bubbles	55049586	
5200056097	92395	R	AN	M	04/26/2023	05/02/2023	N/A	CR	7	7	Bubbles	55049656	
5202639675	92392	R	AH	M	06/11/2023	06/11/2023	N/A	CR	1	1	Bubbles Blown Off	55049703	
5202655627	92392	R	AN	M	06/26/2023	06/26/2023	N/A	CR	1	1	Bubbles	55049779	
5200221203	92394	R	AN	M	07/27/2023	07/27/2023	N/A	TLA	1	1	Fuzz	55049802	
5200229217	92392	R	AN	M	06/01/2023	06/20/2023	N/A	CR	20	20	Bubbles	55049953	
5202658595	92392	R	AN	M	12/22/2023	12/22/2023	N/A	TLA	1	1	Bubbles	55049954	
5200058905	92344	R	AN	M	06/15/2023	06/15/2023	N/A	TLA	1	1	Bubbles	55049969	
5200098509	92345	R	AN	M	08/29/2023	08/29/2023	N/A	CR	1	1	Bubbles	55050024	
5200196823	92345	R	AN	M	02/02/2023	03/07/2023	N/A	CR	34	34	Bubbles	55050055	
5200103045	92345	R	AN	M	05/24/2023	05/30/2023	N/A	CR	7	7	Bubbles	55050080	
5200180055	92394	R	AN	M	07/05/2023	07/05/2023	N/A	TLA	1	1	Bubbles	55050152	
5202550596	92392	R	AH	M	10/31/2023	10/31/2023	N/A	CR	1	1	Bubbles Blown Off	55050173	
5202670074	92392	R	AN	M	12/10/2023	12/10/2023	N/A	CR	1	1	Bubbles	55050174	
5200119685	92395	R	AN	M	06/07/2023	06/07/2023	N/A	CR	1	1	Bubbles	55050207	
5200015283	92345	R	AN	M	06/19/2023	06/19/2023	N/A	TLA	1	1	Bubbles	55050213	
5202156902	92392	R	AN	M	07/18/2023	07/18/2023	N/A	CR	1	1	Bubbles	55050246	
5202559102	92392	R	AN	M	11/01/2023	11/01/2023	N/A	CR	1	1	Bubbles	55050298	
5200138307	92345	R	AN	M	09/03/2023	09/03/2023	N/A	CR	1	1	Bubbles	55050300	
5200004364	92345	R	AN	M	04/26/2023	05/12/2023	N/A	TLA	17	17	Fuzz	55050380	
5200204453	92308	R	AN	S	09/28/2023	10/27/2023	N/A	CR	300	30	Bubbles	55050435	
5202576631	92392	R	AN	M	06/14/2023	06/14/2023	N/A	CR	1	1	Bubbles	55050508	
5200150161	92307	R	AN	M	09/07/2023	09/07/2023	N/A	TLA	1	1	Bubbles	55050511	
5202529602	92392	R	AN	M	12/15/2023	12/15/2023	N/A	CR	1	1	Bubbles	55050544	
5202665125	92392	R	AN	M	11/22/2023	11/22/2023	N/A	TLA	1	1	Bubbles	55050555	
5200235339	92395	R	AN	M	06/28/2023	07/06/2023	N/A	CR	9	9	Fuzz	55050571	
5200123061	92395	R	AN	M	08/10/2023	08/10/2023	N/A	TLA	1	1	Bubbles	55050627	
5200050308	92394	R	AN	M	08/13/2023	08/13/2023	N/A	TLA	1	1	Bubbles	55050632	
5200356703	92394	R	AN	M	09/20/2023	11/08/2023	N/A	CR	50	50	Bubbles	55050633	
5200068541	92344	R	AN	M	12/04/2023	12/04/2023	N/A	TLA	1	1	Bubbles	55050644	
5200012989	92395	R	AN	M	04/26/2023	05/11/2023	N/A	CR	16	16	Fuzz	55050645	
5200034092	92345	R	AN	M	04/05/2023	04/24/2023	N/A	CR	20	20	Bubbles	55050709	
5200248385	92395	R	AN	M	04/13/2023	04/18/2023	N/A	CR	6	6	Bubbles	55050718	
5200318929	92308	R	AN	M	05/19/2023	05/19/2023	N/A	CR	1	1	Fuzz	55050733	
5200090701	92314	R	AN	M	03/04/2023	03/04/2023	N/A	CR	1	1	Bubbles	55051135	
5200085794	92344	R	AN	M	02/10/2023	02/10/2023	N/A	CR	1	1	Bubbles	55079081	
5200040206	92307	R	AN	M	02/07/2023	02/07/2023	N/A	TLA	1	1	Bubbles	55079086	
5200012763	92395	R	AN	M	04/26/2023	05/11/2023	N/A	CR	16	16	Bubbles	55080471	
5200036342	92345	R	AN	M	05/30/2023	05/30/2023	N/A	TLA	1	1	Bubbles	55080478	
5202643109	92345	R	AN	M	08/19/2023	08/19/2023	N/A	CR	1	1	Fuzz	55080486	
5200399003	92344	R	AN	M	02/22/2023	03/07/2023	N/A	CR	14	14	Fuzz	55080504	

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5200123062	92395	R	AN	M	08/07/2023	08/07/2023	N/A	TLA	1	1	Bubbles	55080505	
5200047992	92308	CI	AN	M	04/05/2023	04/07/2023	N/A	CR	3	3	Bubbles	55080539	
5200145729	92307	R	AN	M	03/28/2023	03/28/2023	N/A	CR	1	1	Fuzz	55080584	
5200410624	92395	R	AN	M	02/03/2023	02/03/2023	N/A	CR	1	1	Bubbles	55080722	
5200221406	92394	R	AN	M	02/15/2023	02/15/2023	N/A	TLA	1	1	Bubbles	55080838	
5200298783	92311	R	AN	M	02/23/2023	02/23/2023	N/A	TLA	1	1	Fuzz	55080844	
5202046469	92345	R	AN	M	12/08/2023	12/08/2023	N/A	CR	1	1	Bubbles	55080863	
5200467598	92394	R	AN	M	03/22/2023	03/22/2023	N/A	TLA	1	1	Fuzz	55080874	
5200006436	92307	R	AN	M	04/08/2023	04/08/2023	N/A	CR	1	1	Bubbles	55080906	
5200007839	92308	R	AN	M	02/02/2023	02/03/2023	N/A	CR	2	2	Bubbles	55080957	
5200040030	92307	R	AN	S	09/07/2023	09/20/2023	N/A	CR	263	14	Bubbles	55080985	
5200073910	92344	R	AN	M	03/03/2023	03/03/2023	N/A	TLA	1	1	Fuzz	55081224	
5202554535	92395	R	AN	M	04/26/2023	05/15/2023	N/A	CR	20	20	Bubbles	55081541	
5200326579	92307	R	AN	M	03/31/2023	03/31/2023	N/A	TLA	1	1	Fuzz	55081736	
5200257787	92345	R	AN	M	04/29/2023	04/29/2023	N/A	TLA	1	1	Fuzz	55081755	
5200107011	92307	R	AN	M	02/15/2023	02/15/2023	N/A	CR	1	1	Fuzz	55081881	
5200213305	92394	R	AN	M	03/14/2023	03/14/2023	N/A	TLA	1	1	Bubbles	55081996	
5200034114	92345	R	AN	M	03/09/2023	03/10/2023	N/A	TLA	2	2	Fuzz	55082006	
5200139167	92392	R	AN	M	11/02/2023	11/02/2023	N/A	TLA	1	1	Bubbles	55082157	
5201834412	92395	R	AN	M	10/24/2023	10/24/2023	N/A	TLA	1	1	Bubbles	55100250	
5200123307	92395	CI	AN	M	07/19/2023	07/19/2023	N/A	CR	1	1	Bubbles	55105557	
5200007777	92308	R	AN	M	04/26/2023	04/26/2023	N/A	CR	1	1	Fuzz	55120202	
5200152226	92308	R	AH	M	11/04/2023	11/04/2023	N/A	CR	1	1	Bubbles Blown Off	55120409	
5200123856	92395	R	AH	M	11/03/2023	11/03/2023	N/A	CR	1	1	Bubbles Blown Off	55120410	
5200034946	92311	R	AN	M	12/22/2023	12/22/2023	N/A	TLA	1	1	Bubbles	55120414	
5200177014	92345	R	AN	M	12/12/2023	12/12/2023	N/A	TLA	1	1	Bubbles	55120557	
5200041393	92308	R	AN	M	08/17/2023	09/20/2023	N/A	CR	35	35	Bubbles	55120593	
5200040459	92307	R	AN	M	09/07/2023	09/20/2023	N/A	CR	14	14	Bubbles	55120599	
5200203514	92307	R	AN	M	09/07/2023	09/20/2023	N/A	TLA	14	14	Bubbles	55120628	
5200104413	92307	R	AN	M	09/07/2023	09/20/2023	N/A	TLA	14	14	Bubbles	55120636	
5200047824	92308	R	AN	M	11/16/2023	12/07/2023	N/A	TLA	22	22	Fuzz	55120770	
5200227232	92308	R	AN	M	11/16/2023	12/19/2023	N/A	CR	34	34	Fuzz	55120916	
5200008210	92392	R	AH	M	12/18/2023	12/18/2023	N/A	CR	1	1	Bubbles Blown Off	55120935	
5202532552	92345	R	AN	M	09/27/2023	09/27/2023	N/A	CR	1	1	Bubbles	55120994	
5200034358	92345	R	AN	M	10/16/2023	10/16/2023	N/A	CR	1	1	Bubbles	55121000	
5200256955	92301	R	AN	M	10/18/2023	10/19/2023	N/A	TLA	2	2	Bubbles	55121146	
5200316336	92311	R	AN	M	08/27/2023	08/27/2023	N/A	CR	1	1	Fuzz	55121291	
5202562145	92392	R	AN	M	12/08/2023	12/08/2023	N/A	CR	1	1	Bubbles	55121315	
5200340747	92307	R	AN	M	10/13/2023	10/27/2023	N/A	CR	15	15	Bubbles	55121338	
5200030516	92311	R	AN	M	10/31/2023	10/31/2023	N/A	TLA	1	1	Fuzz	55121370	
5202642711	92345	R	AN	M	10/31/2023	10/31/2023	N/A	TLA	1	1	Bubbles	55121423	
5200038495	92345	R	AN	M	11/27/2023	11/27/2023	N/A	TLA	1	1	Bubbles	55121466	
5200014638	92392	R	AN	M	11/27/2023	11/27/2023	N/A	CR	1	1	Bubbles	55121740	
5200132898	92345	R	AN	M	09/26/2023	09/26/2023	N/A	CR	1	1	Fuzz	55121939	
5200083722	92301	R	AN	M	09/26/2023	09/26/2023	N/A	TLA	1	1	Bubbles	55122067	
5200012764	92395	R	AN	M	10/18/2023	10/18/2023	N/A	CR	1	1	Bubbles	55122069	
5200106786	92308	R	AN	M	10/23/2023	10/23/2023	N/A	CR	1	1	Bubbles	55122151	
5200025971	92345	R	AN	M	10/16/2023	10/16/2023	N/A	CR	1	1	Bubbles	55122217	
5200005279	92307	R	AN	M	09/28/2023	10/03/2023	N/A	CR	6	6	Fuzz	55122235	
5200106664	92307	R	AN	M	09/07/2023	09/28/2023	N/A	TLA	22	22	Fuzz	55122260	
5200236376	92392	R	AN	M	11/02/2023	11/02/2023	N/A	CR	1	1	Bubbles	55122394	
5200015555	92345	R	AN	M	11/02/2023	11/02/2023	N/A	TLA	1	1	Bubbles	55122414	
5200094820	92311	R	AN	M	11/14/2023	11/14/2023	N/A	CR	1	1	Bubbles	55122417	
5200116704	92308	R	AN	M	10/13/2023	10/26/2023	N/A	CR	14	14	Bubbles	55122420	
5200080565	92394	R	AH	M	10/31/2023	10/31/2023	N/A	CR	1	1	Bubbles Blown Off	55122610	
5200326890	92307	R	AN	M	09/07/2023	09/14/2023	N/A	CR	8	8	Fuzz	55122706	
5200213048	92394	R	AN	M	10/01/2023	10/01/2023	N/A	TLA	1	1	Fuzz	55122710	
5200204234	92308	R	AN	M	09/28/2023	10/10/2023	N/A	CR	13	13	Fuzz	55122798	
5200040047	92307	R	AN	M	09/07/2023	09/20/2023	N/A	CR	14	14	Fuzz	55122952	
5200001199	92311	R	AN	M	12/04/2023	12/04/2023	N/A	CR	1	1	Bubbles	55123067	
5200295152	92344	R	AN	M	12/20/2023	12/20/2023	N/A	CR	1	1	Fuzz	55123128	
5200338261	92307	CI	AN	M	08/10/2023	08/15/2023	N/A	CR	6	6	Bubbles	55130110	
5200041076	92307	R	AN	M	09/28/2023	10/03/2023	N/A	CR	6	6	Fuzz	55147056	
5200338267	92307	CI	AN	M	08/10/2023	08/15/2023	N/A	CR	6	6	Bubbles	55147167	
5200168653	92301	R	AH	M	11/02/2023	11/03/2023	N/A	CR	1	1	Bubbles Blown Off	55330260	
5200422832	92307	R	AN	M	10/04/2023	10/04/2023	N/A	CR	1	1	Bubbles	55330935	
5200013437	92392	R	AN	M	10/31/2022	01/03/2023	N/A	CR	65	65	Bubbles	55342840	
5200284078	92394	R	AN	M	12/08/2023	12/08/2023	N/A	CR	1	1	Bubbles	55343491	
5200284136	92392	R	AN	M	10/31/2022	01/04/2023	N/A	CR	66	66	Bubbles	55344110	
5200013903	92392	R	AN	M	11/30/2022	01/05/2023	N/A	CR	37	37	Bubbles	55344827	
5200013927	92392	R	AN	M	11/30/2022	01/05/2023	N/A	CR	37	37	Bubbles	55344851	
5200013922	92392	R	AN	M	11/01/2022	01/04/2023	N/A	CR	65	65	Bubbles	55344862	
5200457871	92392	R	AH	M	10/30/2023	10/30/2023	N/A	CR	1	1	Bubbles Blown Off	55344924	
5200180252	92394	CI	AN	S	07/26/2023	07/26/2023	N/A	TLA	207	1	Fuzz	55537958	
5200478024	92308	CI	AN	S	08/10/2023	08/16/2023	N/A	CR	228	7	Bubbles	56360785	
5200311478	92308	CI	AN	S	08/10/2023	08/14/2023	N/A	CR	226	5	Bubbles	56360787	
5200017796	92301	R	AN	M	1/3/2023	44930	N/A	TLA	2	2	Fuzz	08555853	
5200026747	92394	R	AN	M	44895	44930	N/A	TLA	36	36	Fuzz	03339666	
5202218828	92392	R	AN	M	45205	45205	N/A	CR	1	1	Bubbles	54917070	
5200071739	92394	R	AN	M	44932	44932	N/A	TLA	1	1	Fuzz	00887164	
5200157877	92344	R	AN	M	44865	44935	N/A	CR	71	71	Fuzz	54951148	
5200168845	92395	R	AN	M	44936	44936	N/A	TLA	1	1	Fuzz	0D765554	

Customer Meter Fugitive Leaks:

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5200016537	92301	R	AN	M	44938	44938	N/A	TLA	1	1	Fuzz	07567520	
5200324448	92345	R	AN	M	44938	44939	N/A	CR	2	2	Fuzz	0N719726	
5200053582	92394	R	AN	M	44952	44952	N/A	TLA	1	1	Fuzz	0K932776	
5200072168	92345	R	AN	M	44937	44956	N/A	CR	20	20	Fuzz	55343852	
5200074187	92301	R	AN	M	44957	44957	N/A	TLA	1	1	Fuzz	09918597	
5200276782	92394	R	AN	M	44958	44958	N/A	TLA	1	1	Fuzz	54948463	
5200152442	92308	R	AN	M	44959	44959	N/A	TLA	1	1	Fuzz	00888381	
5200221025	92394	R	AN	M	44959	44959	N/A	TLA	1	1	Fuzz	01534678	
5200072084	92345	R	AN	M	44937	44959	N/A	TLA	23	23	Fuzz	03580426	
5200103479	92345	R	AN	M	44960	44960	N/A	TLA	1	1	Fuzz	55079094	
5200282343	92342	R	AN	M	44962	44962	N/A	TLA	1	1	Fuzz	08554560	
5200079699	92344	R	AN	M	44959	44963	N/A	TLA	5	5	Fuzz	08539933	
5202645527	92345	R	AN	M	44959	44963	N/A	TLA	5	5	Fuzz	54948082	
5200028110	92392	R	AN	M	44964	44964	N/A	TLA	1	1	Fuzz	54855907	
5200295383	92392	R	AN	M	44965	44965	N/A	TLA	1	1	Fuzz	08558087	
5200395189	92345	R	AN	M	44967	44967	N/A	TLA	1	1	Fuzz	07568607	
5200112077	92308	R	AN	M	44970	44970	N/A	TLA	1	1	Fuzz	55037151	
5202560074	92344	R	AN	M	44959	44971	N/A	TLA	13	13	Fuzz	54949521	
5200457516	92344	R	AN	M	44959	44971	N/A	TLA	13	13	Fuzz	01584771	
5200051740	92307	R	AN	M	44972	44972	N/A	TLA	1	1	Fuzz	55080814	
5200272112	92344	R	AN	M	44959	44973	N/A	TLA	15	15	Fuzz	01582202	
5200420585	92392	R	AN	M	44974	44974	N/A	CR	1	1	Fuzz	03710000	
5200333322	92315	R	AN	M	44976	44976	N/A	TLA	1	1	Fuzz	54759551	
5200027588	92308	R	AN	M	44981	44981	N/A	TLA	1	1	Fuzz	01532913	
5201741888	92344	R	AN	M	44982	44982	N/A	TLA	1	1	Fuzz	54949408	
5200031387	92314	R	AN	M	44989	44989	N/A	TLA	1	1	Fuzz	02860908	
5200090469	92315	R	AN	M	44991	44991	N/A	TLA	1	1	Fuzz	54818664	
5200078559	92344	R	AN	M	44959	44992	N/A	TLA	34	34	Fuzz	08539698	
5200166195	92344	R	AN	M	44959	44992	N/A	TLA	34	34	Fuzz	54896186	
5200239807	92345	R	AN	M	44972	44992	N/A	TLA	21	21	Fuzz	0R707094	
5200401726	92344	R	AN	M	44979	44992	N/A	TLA	14	14	Fuzz	55120559	
5200073900	92344	R	AN	M	44979	44992	N/A	CR	14	14	Fuzz	03650587	
5200440301	92394	R	AN	M	44992	44992	N/A	TLA	1	1	Fuzz	54817372	
5200151301	92344	R	AN	M	44959	44992	N/A	TLA	34	34	Fuzz	01536059	
5200098911	92345	R	AN	M	44972	44992	N/A	TLA	21	21	Fuzz	0N333814	
5200098869	92345	R	AN	M	44972	44992	N/A	TLA	21	21	Fuzz	01232161	
5200098933	92345	R	AN	M	44972	44992	N/A	TLA	21	21	Fuzz	0E673326	
5200334147	92345	R	AN	M	44972	44994	N/A	TLA	23	23	Fuzz	0N252712	
5200068281	92392	R	AN	M	44994	44994	N/A	TLA	1	1	Fuzz	08491578	
5200239796	92345	R	AN	M	44979	44994	N/A	TLA	16	16	Fuzz	05847205	
5200221108	92394	R	AN	M	44994	44994	N/A	TLA	1	1	Fuzz	0L288993	
5200168851	92344	R	AN	M	44979	44994	N/A	TLA	16	16	Fuzz	12445258	
5200168850	92344	R	AN	M	44979	44994	N/A	TLA	16	16	Fuzz	54868616	
5200035361	92311	R	AN	M	44995	44995	N/A	TLA	1	1	Fuzz	0N271069	
5200480723	92314	R	AN	M	44995	44995	N/A	TLA	1	1	Fuzz	01536960	
5200336532	92345	R	AN	M	45000	45000	N/A	TLA	1	1	Fuzz	07568416	
5200196559	92345	R	AN	M	45001	45001	N/A	TLA	1	1	Fuzz	54949714	
5200248467	92395	R	AN	M	45007	45008	N/A	TLA	2	2	Fuzz	55080894	
5200402777	92395	R	AN	M	45007	45008	N/A	TLA	2	2	Fuzz	55050564	
5200188279	92345	R	AN	M	45007	45013	N/A	TLA	7	7	Fuzz	09799023	
5200017004	92301	R	AN	M	45014	45014	N/A	TLA	1	1	Fuzz	54737894	
5200239527	92345	R	AN	M	44980	45014	N/A	TLA	35	35	Fuzz	0N252800	
5200109535	92307	R	AN	M	45001	45019	N/A	TLA	19	19	Fuzz	54947919	
5200167547	92395	R	AN	M	45020	45020	N/A	TLA	1	1	Fuzz	08541188	
5200139303	92392	R	AN	M	45021	45021	N/A	TLA	1	1	Fuzz	55082075	
5200249383	92395	R	AN	M	45021	45021	N/A	TLA	1	1	Fuzz	55329946	
5200239522	92345	R	AN	M	44993	45022	N/A	TLA	30	30	Fuzz	0N208456	
5200282912	92392	R	AN	M	45023	45023	N/A	TLA	1	1	Fuzz	55534701	
5200084880	92395	CI	AN	M	45028	45028	N/A	TLA	1	1	Fuzz	55080731	
5200119559	92395	R	AN	M	45028	45028	N/A	TLA	1	1	Fuzz	54950862	
5200090403	92315	CI	AN	M	44895	45028	N/A	TLA	134	134	Fuzz	0E206125	
5200416292	92345	R	AN	M	45021	45029	N/A	TLA	9	9	Fuzz	09918018	
5200002203	92311	CI	AN	M	45007	45029	N/A	TLA	23	23	Fuzz	08491460	
5200034247	92345	R	AN	M	45021	45029	N/A	TLA	9	9	Fuzz	55344143	
5200180213	92345	CI	AN	M	45029	45034	N/A	TLA	6	6	Fuzz	05818163	
5200302081	92345	R	AN	M	45029	45034	N/A	TLA	6	6	Fuzz	03711747	
5200384289	92392	R	AN	M	45036	45036	N/A	TLA	1	1	Fuzz	55080705	
5200020792	92394	R	AN	M	45040	45040	N/A	TLA	1	1	Fuzz	03577529	
5200316370	92311	CI	AN	M	45021	45042	N/A	TLA	22	22	Fuzz	05353804	
5200038031	92345	R	AN	M	45042	45048	N/A	TLA	7	7	Fuzz	0M927749	
5200038009	92345	R	AN	M	45042	45048	N/A	TLA	7	7	Fuzz	08541924	
5200127571	92395	R	AN	M	45054	45054	N/A	TLA	1	1	Fuzz	55049696	
5200063402	92345	CI	AN	M	45042	45056	N/A	TLA	15	15	Fuzz	55122307	
5200003244	92345	R	AN	M	45049	45056	N/A	TLA	8	8	Fuzz	54949365	
5200270882	92345	CI	AN	M	45042	45056	N/A	TLA	15	15	Fuzz	12248205	
5200063253	92345	CI	AN	M	45042	45056	N/A	TLA	15	15	Fuzz	00713188	
5200068105	92345	CI	AN	M	45042	45056	N/A	TLA	15	15	Fuzz	05846871	
5200039523	92345	R	AN	M	45042	45057	N/A	TLA	16	16	Fuzz	02863082	
5200040059	92307	R	AN	M	45049	45057	N/A	TLA	9	9	Fuzz	55082045	
5200038022	92345	R	AN	M	45042	45057	N/A	TLA	16	16	Fuzz	0L289045	
5200056444	92395	R	AN	M	45042	45057	N/A	CR	16	16	Fuzz	03656693	
5200003514	92345	R	AN	M	45057	45057	N/A	TLA	1	1	Fuzz	08541135	

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5200012991	92395	R	AN	M	45042	45058	N/A	TLA	17	17	Fuzz	54737566	
5200123611	92395	CI	AN	M	45042	45058	N/A	TLA	17	17	Fuzz	12446900	
5200123307	92395	CI	AN	M	45126	45126	N/A	CR	1	1	Bubbles	55105557	
5200120887	92301	R	AN	M	45042	45061	N/A	TLA	20	20	Fuzz	04031938	
5200273428	92392	R	AN	M	45062	45062	N/A	TLA	1	1	Fuzz	55081846	
5200042316	92307	R	AN	M	45063	45063	N/A	TLA	1	1	Fuzz	05846550	
5200440399	92392	R	AN	M	45065	45065	N/A	TLA	1	1	Fuzz	54816797	
5200097603	92333	R	AN	M	45068	45068	N/A	TLA	1	1	Fuzz	08497035	
5200164784	92307	R	AN	M	45068	45068	N/A	TLA	1	1	Fuzz	54856999	
5200151586	92392	R	AN	M	45076	45076	N/A	TLA	1	1	Fuzz	08544118	
5200276902	92395	R	AN	M	45076	45076	N/A	TLA	1	1	Fuzz	54858572	
5200284072	92394	R	AN	M	45079	45079	N/A	TLA	1	1	Fuzz	55343547	
5200085936	92356	R	AN	M	45081	45081	N/A	TLA	1	1	Fuzz	08557741	
5200217103	92301	R	AN	M	45029	45084	N/A	TLA	56	56	Fuzz	01580608	
5200123806	92395	R	AN	M	45049	45084	N/A	TLA	36	36	Fuzz	0M242025	
5200016866	92395	R	AN	M	45070	45084	N/A	TLA	15	15	Fuzz	05846057	
5200150424	92394	R	AN	M	45089	45089	N/A	TLA	1	1	Fuzz	03579410	
5200011621	92392	R	AN	M	45085	45091	N/A	TLA	7	7	Fuzz	01579335	
5200145760	92301	R	AN	M	45096	45096	N/A	TLA	1	1	Fuzz	02855769	
5200147228	92345	R	AN	M	45103	45103	N/A	TLA	1	1	Fuzz	22284374	
5200443833	92311	R	AN	M	45106	45106	N/A	TLA	1	1	Fuzz	0M828236	
5200011524	92392	CI	AN	M	45105	45113	N/A	TLA	9	9	Fuzz	03751758	
5200039706	92307	R	AN	M	45105	45113	N/A	TLA	9	9	Fuzz	07569754	
5200202571	92307	CI	AN	M	45105	45113	N/A	TLA	9	9	Fuzz	04031639	
5200039830	92307	R	AN	M	45105	45113	N/A	TLA	9	9	Fuzz	54738314	
5200148666	92368	R	AN	M	45117	45117	N/A	TLA	1	1	Fuzz	55120415	
5200148666	92368	R	AN	M	45117	45117	N/A	TLA	1	1	Fuzz	55120415	
5200045063	92395	R	AN	M	45105	45118	N/A	TLA	14	14	Fuzz	55050112	
5200023944	92345	R	AN	M	45119	45119	N/A	TLA	1	1	Fuzz	08559297	
5200381579	92392	R	AN	M	45120	45120	N/A	TLA	1	1	Fuzz	05845869	
5200008099	92392	R	AN	M	45105	45120	N/A	TLA	16	16	Fuzz	0R435294	
5200256514	92394	R	AN	M	45122	45122	N/A	TLA	1	1	Fuzz	12443276	
5200176962	92311	R	AN	M	45099	45124	N/A	TLA	26	26	Fuzz	0T002837	
5200138159	92345	CI	AN	M	45105	45125	N/A	TLA	21	21	Fuzz	55344757	
5200036164	92345	CI	AN	M	45099	45125	N/A	TLA	27	27	Fuzz	54948557	
5200003922	92345	R	AN	M	45099	45125	N/A	TLA	27	27	Fuzz	0N271194	
5202587011	92345	R	AN	M	45099	45132	N/A	TLA	34	34	Fuzz	54918586	
5200270599	92345	R	AN	M	45099	45132	N/A	TLA	34	34	Fuzz	0M115706	
5200039717	92307	R	AN	M	45133	45133	N/A	TLA	1	1	Fuzz	54859226	
5200355898	92395	R	AN	M	45119	45133	N/A	TLA	15	15	Fuzz	0M012816	
5200018021	92395	CI	AN	M	45105	45133	N/A	TLA	29	29	Fuzz	09117651	
5200494778	92345	CI	AN	M	45135	45135	N/A	TLA	1	1	Fuzz	03741986	
5200428667	92392	CI	AN	M	45133	45141	N/A	TLA	9	9	Fuzz	01626459	
5200123058	92395	R	AN	M	45145	45145	N/A	TLA	1	1	Fuzz	04502106	
5200229425	92395	R	AN	M	45133	45146	N/A	TLA	14	14	Fuzz	09784813	
5200138443	92345	R	AN	M	45148	45148	N/A	TLA	1	1	Fuzz	0E908736	
5200203619	92307	R	AN	M	45149	45149	N/A	TLA	1	1	Fuzz	12248083	
5200026647	92308	R	AN	M	45152	45152	N/A	TLA	1	1	Fuzz	04387215	
5200204243	92308	R	AN	M	45161	45161	N/A	TLA	1	1	Fuzz	55129986	
5200123456	92395	R	AN	M	45161	45161	N/A	TLA	1	1	Fuzz	0F621972	
5200174247	92345	R	AN	M	45161	45161	N/A	TLA	1	1	Fuzz	54737778	
5200096408	92314	R	AN	M	45165	45165	N/A	TLA	1	1	Fuzz	08496083	
5200123354	92395	R	AN	M	45168	45168	N/A	TLA	1	1	Fuzz	09799104	
5200043862	92308	R	AN	M	45174	45174	N/A	TLA	1	1	Fuzz	00627397	
5200012503	92395	R	AN	M	45181	45181	N/A	TLA	1	1	Fuzz	55048598	
5200005090	92307	R	AN	M	45176	45183	N/A	TLA	8	8	Fuzz	04232216	
5200010263	92301	R	AN	M	45184	45184	N/A	TLA	1	1	Fuzz	01580283	
5200009827	92342	R	AN	M	45186	45186	N/A	TLA	1	1	Fuzz	09792597	
5200040159	92307	R	AN	M	45176	45189	N/A	TLA	14	14	Fuzz	07566850	
5200073648	92307	R	AN	M	45176	45189	N/A	TLA	14	14	Fuzz	05763554	
5200026771	92301	R	AN	M	45192	45192	N/A	TLA	1	1	Fuzz	01626800	
5201826839	92392	R	AN	M	45192	45192	N/A	TLA	1	1	Fuzz	54918031	
5200152268	92308	R	AN	M	45195	45195	N/A	TLA	1	1	Fuzz	54739798	
5200022588	92307	R	AN	M	45176	45197	N/A	TLA	22	22	Fuzz	03572567	
5200104204	92307	R	AN	M	45201	45201	N/A	TLA	1	1	Fuzz	55081202	
5200202924	92307	R	AN	M	45197	45202	N/A	TLA	6	6	Fuzz	54949230	
5200107368	92307	R	AN	M	45197	45202	N/A	TLA	6	6	Fuzz	01528369	
5200340849	92307	R	AN	M	45197	45202	N/A	TLA	6	6	Fuzz	03572644	
5200515064	92308	R	AN	M	45203	45203	N/A	TLA	1	1	Fuzz	01184370	
5200042392	92307	R	AN	M	45205	45205	N/A	TLA	1	1	Fuzz	08540276	
5201837487	92344	R	AN	M	45206	45206	N/A	TLA	1	1	Fuzz	54948869	
5201837487	92344	R	AN	M	45206	45206	N/A	TLA	1	1	Fuzz	54948869	
5200227199	92308	R	AN	M	45210	45217	N/A	CR	8	8	Fuzz	55049483	
5200347598	92308	R	AN	M	45212	45217	N/A	TLA	6	6	Fuzz	55049728	
5200116754	92308	R	AN	M	45212	45217	N/A	TLA	6	6	Fuzz	03627329	
5200347654	92308	R	AN	M	45212	45223	N/A	TLA	12	12	Fuzz	55050200	
5200204476	92308	R	AN	M	45212	45223	N/A	TLA	12	12	Fuzz	08491428	
5200005825	92307	R	AN	M	45212	45223	N/A	TLA	12	12	Fuzz	03672548	
5200150479	92394	R	AN	M	45226	45226	N/A	TLA	1	1	Fuzz	09918484	
5200336761	92345	R	AN	M	45229	45229	N/A	TLA	1	1	Fuzz	0D696337	
5200008988	92308	R	AN	M	45212	45229	N/A	TLA	18	18	Fuzz	01532053	
5200340734	92307	R	AN	M	45212	45229	N/A	TLA	18	18	Fuzz	03571635	

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5200040362	92307	R	AN	M	45233	45233	N/A	TLA	1	1	Fuzz	0N186320	
5200071989	92394	R	AN	M	45234	45234	N/A	TLA	1	1	Fuzz	03627556	
5200256829	92307	R	AN	M	45236	45236	N/A	TLA	1	1	Fuzz	05738589	
5200059325	92345	R	AN	M	45236	45236	N/A	TLA	1	1	Fuzz	03656154	
5200112102	92307	R	AN	M	45212	45237	N/A	TLA	26	26	Fuzz	0N087277	
5200005292	92307	R	AN	M	45212	45237	N/A	CR	26	26	Fuzz	0N252961	
5200006214	92307	R	AN	M	45212	45237	N/A	TLA	26	26	Fuzz	03869095	
5200401865	92345	R	AN	M	45244	45244	N/A	TLA	1	1	Fuzz	09814913	
5200013019	92395	R	AN	M	45245	45245	N/A	TLA	1	1	Fuzz	55146234	
5200388733	92395	R	AN	M	45250	45250	N/A	TLA	1	1	Fuzz	01580857	
5200152290	92308	R	AN	M	45258	45258	N/A	CR	1	1	Fuzz	55121311	
5200231199	92345	R	AN	M	45258	45258	N/A	TLA	1	1	Fuzz	03710066	
5200096887	92345	R	AN	M	45259	45259	N/A	TLA	1	1	Fuzz	54738493	
5200278857	92308	R	AN	M	45262	45262	N/A	CR	1	1	Fuzz	08559357	
5200336756	92345	R	AN	M	45264	45264	N/A	TLA	1	1	Fuzz	54949437	
5202640144	92392	R	AN	M	45239	45267	N/A	TLA	29	29	Fuzz	55050367	
5200436837	92344	R	AN	M	45268	45268	N/A	TLA	1	1	Fuzz	55078422	
5200196956	92345	R	AN	M	45271	45271	N/A	TLA	1	1	Fuzz	01626961	
5200154156	92308	R	AN	M	45272	45272	N/A	TLA	1	1	Fuzz	03710822	
5200031720	92311	R	AN	M	45105	45273	N/A	TLA	169	169	Fuzz	55120642	
5200031728	92311	R	AN	M	45210	45273	N/A	TLA	64	64	Fuzz	0M828243	
5200326853	92307	R	AN	M	45277	45277	N/A	TLA	1	1	Fuzz	55121463	
5200200848	92307	R	AN	M	45277	45277	N/A	TLA	1	1	Fuzz	03718437	
5200042069	92307	R	AN	M	45278	45278	N/A	TLA	1	1	Fuzz	05738632	
5200286416	92308	CI	AN	M	45278	45278	N/A	TLA	1	1	Fuzz	00621237	
5200047668	92308	R	AN	M	45246	45279	N/A	TLA	34	34	Fuzz	01528071	
5200010504	92394	R	AN	M	45231	45279	N/A	TLA	49	49	Fuzz	0R487207	
5202516126	92392	R	AN	M	45280	45280	N/A	TLA	1	1	Fuzz	55050241	
5200076057	92395	CI	AN	M	45280	45280	N/A	TLA	1	1	Fuzz	08913611	
5200349161	92307	R	AN	M	45280	45289	N/A	TLA	10	10	Fuzz	0R098288	
5200109535	92307	R	AN	M	45001	45019	N/A	TLA	19	19	Fuzz	54947919	
5200038483	92345	R	AN	M	44964	44965	N/A	TLA	2	2	Fuzz	55343356	
5200100359	92311	R	AN	M	45035	45040	N/A	TLA	6	6	Fuzz	01531382	
5200357829	92301	R	AN	M	45286	45289	N/A	TLA	4	4	Fuzz	02864213	
5202559103	92392	R	AN	M	45189	45189	N/A	TLA	1	1	Bubbles	55050295	
5200278560	92301	R	AN	M	44929	44929	N/A	TLA	1	1	Bubbles	55078300	
5200022552	92392	R	AN	M	44866	44929	N/A	TLA	64	64	Bubbles	09917148	
5200012374	92392	R	AN	M	44867	44929	N/A	TLA	63	63	Bubbles	01535154	
5200180469	92394	R	AN	M	44866	44929	N/A	TLA	64	64	Bubbles	55330929	
5200422599	92394	R	AN	M	44866	44929	N/A	TLA	64	64	Bubbles	01526834	
5202496002	92392	R	AN	M	44866	44931	N/A	TLA	66	66	Bubbles	54916320	
5200248741	92395	R	AN	M	44932	44932	N/A	TLA	1	1	Bubbles	54739216	
5200093415	92386	R	AN	M	44933	44933	N/A	TLA	1	1	Bubbles	00707535	
5200081512	92392	R	AN	M	44935	44935	N/A	TLA	1	1	Bubbles	55130103	
5200147043	92301	R	AN	M	44937	44937	N/A	TLA	1	1	Bubbles	55534461	
5200012204	92392	R	AN	M	44881	44937	N/A	TLA	57	57	Bubbles	12276236	
5200333337	92386	R	AN	M	44937	44937	N/A	TLA	1	1	Bubbles	55051137	
5200155650	92301	R	AN	M	44938	44938	N/A	TLA	1	1	Bubbles	09371754	
5200158753	92395	R	AN	M	44939	44939	N/A	TLA	1	1	Bubbles	08557926	
5200339838	92392	R	AN	M	44939	44939	N/A	TLA	1	1	Bubbles	11862485	
5200011153	92395	R	AN	M	44943	44943	N/A	TLA	1	1	Bubbles	54949666	
5200010552	92395	R	AN	M	44944	44944	N/A	TLA	1	1	Bubbles	04511744	
5200028692	92315	R	AN	M	44944	44944	N/A	TLA	1	1	Bubbles	08497521	
5200084603	92395	R	AN	M	44946	44946	N/A	TLA	1	1	Bubbles	54947997	
5200026623	92395	R	AN	M	44946	44946	N/A	TLA	1	1	Bubbles	04407963	
5200384897	92308	R	AN	M	44948	44948	N/A	CR	1	1	Bubbles	0F290477	
5200035483	92311	R	AN	M	44948	44948	N/A	CR	1	1	Bubbles	03571521	
5200071659	92394	R	AN	M	44949	44949	N/A	CR	1	1	Bubbles	02857131	
5200139283	92392	R	AN	M	44949	44949	N/A	TLA	1	1	Bubbles	54916775	
5200183695	92345	R	AN	M	44949	44949	N/A	TLA	1	1	Bubbles	02857084	
5201611919	92345	R	AN	M	44950	44950	N/A	TLA	1	1	Bubbles	54950473	
5200068946	92395	CI	AN	M	44950	44950	N/A	TLA	1	1	Bubbles	0F544327	
5200027987	92344	R	AN	M	44950	44950	N/A	TLA	1	1	Bubbles	01533747	
5200036389	92345	CI	AN	M	44951	44951	N/A	TLA	1	1	Bubbles	08540421	
5200284066	92344	R	AN	M	44952	44952	N/A	TLA	1	1	Bubbles	54918783	
5201920480	92394	R	AN	M	44953	44953	N/A	TLA	1	1	Bubbles	54949195	
5200005580	92307	R	AN	M	44953	44953	N/A	CR	1	1	Bubbles	03718263	
5200248053	92395	R	AN	M	44956	44956	N/A	TLA	1	1	Bubbles	S4612728	
5200047261	92308	R	AN	M	44958	44958	N/A	TLA	1	1	Bubbles	55080942	
5202533556	92344	R	AN	M	44958	44958	N/A	TLA	1	1	Bubbles	54949516	
5202533556	92344	R	AN	M	44958	44958	N/A	TLA	1	1	Bubbles	54949516	
5200021571	92308	R	AN	M	44960	44960	N/A	CR	1	1	Bubbles	03578965	
5200072220	92392	R	AN	M	44960	44960	N/A	TLA	2	2	Bubbles	03572667	
5200457887	92308	CI	AN	M	44961	44961	N/A	TLA	1	1	Bubbles	00222063	
5200049238	92395	R	AN	M	44963	44963	N/A	TLA	1	1	Bubbles	54739498	
5200053605	92394	R	AN	M	44963	44963	N/A	CR	1	1	Bubbles	55080676	
5200085799	92307	CI	AN	M	44963	44963	N/A	TLA	1	1	Bubbles	54888998	
5200377517	92392	R	AN	M	44964	44964	N/A	TLA	1	1	Bubbles	01580125	
5200174078	92392	R	AN	M	44964	44964	N/A	TLA	1	1	Bubbles	55344659	
5200136802	92345	R	AN	M	44965	44965	N/A	TLA	1	1	Bubbles	05832907	
5200127879	92395	CI	AN	M	44965	44965	N/A	CR	1	1	Bubbles	0M922498	
5200085795	92301	R	AN	M	44966	44966	N/A	TLA	1	1	Bubbles	08545428	

Customer Meter Fugitive Leaks:

ID	Geographic Location	Meter Classification (Commercial/Industrial or Residential)	Leak Classification (Grade)	Leak Discovery Method	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)	Repair Type	Number of Days Leaking	Number of Days to Repair	Bubble Size Classification	MSA Identification Number	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.)
5200059074	92345	R	AN	M	44966	44966	N/A	TLA	1	1	Bubbles	03712218	
5200440044	92301	R	AN	M	44967	44967	N/A	CR	1	1	Bubbles	01582791	
5202204875	92392	R	AN	M	44967	44967	N/A	CR	1	1	Bubbles	54950797	
5200213442	92394	R	AN	M	44967	44967	N/A	CR	1	1	Bubbles	54951105	
5200015678	92345	R	AN	M	44967	44967	N/A	TLA	1	1	Bubbles	54817437	
5202245420	92392	R	AN	M	44971	44971	N/A	CR	1	1	Bubbles	54950116	
5200084404	92308	R	AN	M	44974	44974	N/A	TLA	1	1	Bubbles	01527661	
5200237339	92311	R	AN	M	44977	44977	N/A	TLA	1	1	Bubbles	0T117826	
5200132004	92392	R	AN	M	44978	44978	N/A	TLA	1	1	Bubbles	0R098329	
5200196989	92345	R	AN	M	44978	44978	N/A	TLA	1	1	Bubbles	07568577	
5200059429	92345	R	AN	M	44978	44978	N/A	TLA	1	1	Bubbles	0L646748	
5200132382	92392	R	AN	M	44979	44979	N/A	TLA	1	1	Bubbles	55080860	
5200015957	92345	R	AN	M	44979	44979	N/A	TLA	1	1	Bubbles	54947720	
5200048533	92301	R	AN	M	44980	44980	N/A	TLA	1	1	Bubbles	0N252965	
5200040255	92307	R	AN	M	44981	44981	N/A	TLA	1	1	Bubbles	S4619052	
5200295169	92345	R	AN	M	44979	44987	N/A	TLA	9	9	Bubbles	08541274	
5200066914	92344	R	AN	M	44959	44987	N/A	TLA	29	29	Bubbles	09918190	
5200079903	92344	R	AN	M	44959	44987	N/A	TLA	29	29	Bubbles	05763193	
5200401715	92344	R	AN	M	44979	44987	N/A	TLA	9	9	Bubbles	02859524	
5200401692	92344	R	AN	M	44979	44987	N/A	TLA	9	9	Bubbles	55344759	
5200042458	92307	R	AN	M	44987	44987	N/A	CR	1	1	Bubbles	54950765	
5200076248	92344	R	AN	M	44972	44987	N/A	TLA	16	16	Bubbles	12276368	
5200187593	92386	R	AN	M	44988	44988	N/A	TLA	1	1	Bubbles	54951881	
5200098715	92345	R	AN	M	44988	44988	N/A	TLA	1	1	Bubbles	54896263	
5200317841	92344	R	AN	M	44959	44988	N/A	TLA	30	30	Bubbles	01583180	
5200097390	92315	R	AN	M	44989	44989	N/A	TLA	1	1	Bubbles	54857767	
5200139376	92392	R	AN	M	44992	44992	N/A	TLA	1	1	Bubbles	55081916	
5200336532	92345	R	AN	M	45000	45000	N/A	TLA	1	1	Fuzz	07568416	
5200088121	92392	R	AN	M	44994	44994	N/A	TLA	1	1	Bubbles	54917055	
5200336516	92345	R	AN	M	44979	44994	N/A	CR	16	16	Bubbles	55344066	
5200317731	92344	R	AN	M	44972	44994	N/A	TLA	23	23	Bubbles	03717540	
5200068136	92394	R	AN	M	44998	44998	N/A	TLA	1	1	Bubbles	05764231	
5200221252	92394	R	AN	M	44998	44998	N/A	TLA	1	1	Bubbles	54738199	
5200109634	92307	CI	AN	M	44998	44998	N/A	TLA	1	1	Bubbles	03649906	
5200172313	92392	R	AN	M	44994	45001	N/A	TLA	8	8	Bubbles	08540766	
5200098654	92345	R	AN	M	44994	45001	N/A	TLA	8	8	Bubbles	55343862	
5200063905	92301	R	AN	M	45002	45002	N/A	TLA	1	1	Bubbles	55343388	
5200071034	92345	R	AN	M	45002	45002	N/A	TLA	1	1	Bubbles	03655814	
5200089288	92315	R	AN	M	45003	45003	N/A	TLA	1	1	Bubbles	02860896	
5200033505	92315	CI	AN	M	45005	45005	N/A	TLA	1	1	Bubbles	None	
5200508281	92395	R	AN	M	45007	45008	N/A	TLA	2	2	Bubbles	04328107	
5200015016	92345	R	AN	M	45008	45008	N/A	TLA	1	1	Bubbles	00626214	
5200057835	92392	R	AN	M	45013	45013	N/A	TLA	1	1	Bubbles	55080574	
5200017005	92301	R	AN	M	45014	45014	N/A	TLA	1	1	Bubbles	01535262	
5200053977	92395	R	AN	M	45014	45014	N/A	TLA	1	1	Bubbles	55081327	
5200100011	92311	R	AN	M	45014	45014	N/A	TLA	1	1	Bubbles	54858703	
5200084894	92345	R	AN	M	45016	45016	N/A	TLA	1	1	Bubbles	08545561	
5200013411	92392	R	AN	M	45019	45019	N/A	CR	1	1	Bubbles	01579766	
5202046470	92345	R	AN	M	45019	45019	N/A	TLA	1	1	Bubbles	55080858	
5202046471	92345	R	AN	M	45019	45019	N/A	TLA	1	1	Bubbles	55080851	
5200162919	92308	CI	AN	M	45020	45020	N/A	TLA	1	1	Bubbles	05962463	
5200018368	92345	R	AN	M	45007	45020	N/A	TLA	14	14	Bubbles	0K995673	
5200336592	92345	R	AN	M	45007	45020	N/A	TLA	14	14	Bubbles	0R236277	
5200227436	92308	R	AN	M	45021	45021	N/A	TLA	1	1	Bubbles	55082064	
5200307123	92314	R	AN	M	45022	45022	N/A	TLA	1	1	Bubbles	07566509	
5201765891	92345	R	AN	M	45022	45022	N/A	TLA	1	1	Bubbles	54949622	
5200248838	92395	R	AN	M	45023	45023	N/A	TLA	1	1	Bubbles	0C725966	
5200213197	92394	R	AN	M	45023	45023	N/A	TLA	1	1	Bubbles	01527061	
5200186542	92311	R	AN	M	45026	45026	N/A	TLA	1	1	Bubbles	02856256	
5200123593	92395	CI	AN	M	45037	45037	N/A	TLA	1	1	Bubbles	None	
5200248884	92395	R	AN	M	45040	45040	N/A	TLA	1	1	Bubbles	09792502	
5200417808	92395	CI	AN	M	45029	45040	N/A	TLA	12	12	Bubbles	03272592	
5200248377	92395	R	AN	M	45029	45040	N/A	TLA	12	12	Bubbles	05845344	
5200123180	92395	R	AN	M	45029	45040	N/A	TLA	12	12	Bubbles	05846311	
5200007292	92307	CI	AN	M	45029	45040	N/A	TLA	12	12	Bubbles	01526718	
5200180353	92345	R	AN	M	45029	45040	N/A	TLA	12	12	Bubbles	08555686	
5200042458	92307	R	AN	M	44987	44987	N/A	CR	1	1	Bubbles	54950765	
5200311142	92395	R	AN	M	45042	45043	N/A	TLA	2	2	Bubbles	01581688	
5200440271	92392	R	AN	M	45047	45047	N/A	TLA	1	1	Bubbles	54816730	
5200419382	92395	R	AN	M	45042	45048	N/A	TLA	7	7	Bubbles	54918195	
5200026599	92395	R	AN	M	45042	45048	N/A	TLA	7	7	Bubbles	01529919	
5200157599	92395	R	AN	M	45049	45049	N/A	TLA	1	1	Bubbles	02864278	
5200003654	92345	R	AN	M	45042	45056	N/A	TLA	15	15	Bubbles	12276303	
5200268682	92395	R	AN	M	45042	45057	N/A	TLA	16	16	Bubbles	07622439	
5200038056	92345	R	AN	M	45049	45057	N/A	TLA	9	9	Bubbles	55081186	
5200084745	92395	R	AN	M	45042	45058	N/A	TLA	17	17	Bubbles	54737736	
5201782429	92344	R	AN	M	45061	45061	N/A	TLA	1	1	Bubbles	55080514	
5201708434	92344	R	AN	M	45061	45061	N/A	TLA	1	1	Bubbles	54948593	
5200298760	92311	CI	AN	M	45029	45061	N/A	TLA	33	33	Bubbles	09019918	
5200035189	92311	CI	AN	M	45029	45061	N/A	TLA	33	33	Bubbles	55537956	
5200035189	92311	CI	AN	M	45029	45061	N/A	TLA	33	33	Bubbles	55537956	
5200248044	92395	R	AN	M	45064	45064	N/A	TLA	1	1	Bubbles	55080826	

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5201827859	92392	R	AN	M	45066	45066	N/A	TLA	1	1	Bubbles	54916679	
5200515108	92308	R	AN	M	45068	45068	N/A	TLA	1	1	Bubbles	02862931	
5200284034	92345	R	AN	M	45070	45076	N/A	TLA	7	7	Bubbles	01583806	
5202587006	92392	R	AN	M	45078	45078	N/A	TLA	1	1	Bubbles	54918562	
5200183753	92345	R	AN	M	45082	45082	N/A	TLA	1	1	Bubbles	07569112	
5200417726	92301	CI	AN	M	45042	45084	N/A	TLA	43	43	Bubbles	01528795	
5200436568	92395	CI	AN	M	45070	45084	N/A	TLA	15	15	Bubbles	08491058	
5200282601	92301	R	AN	M	45089	45089	N/A	TLA	1	1	Bubbles	08554602	
5200425631	92394	R	AN	M	45090	45090	N/A	TLA	1	1	Bubbles	03712177	
5200119728	92395	R	AN	M	45078	45097	N/A	CR	20	20	Bubbles	09799028	
5200214066	92308	R	AN	M	45099	45099	N/A	TLA	1	1	Bubbles	03577875	
5200484639	92314	R	AN	M	45103	45103	N/A	TLA	1	1	Bubbles	54903310	
5201768878	92392	R	AN	M	45110	45110	N/A	TLA	1	1	Bubbles	54916677	
5200106555	92307	R	AN	M	45112	45112	N/A	TLA	1	1	Bubbles	55081238	
5200166027	92394	R	AN	M	45105	45113	N/A	CR	9	9	Bubbles	01535005	
5200235126	92395	R	AN	M	45105	45113	N/A	TLA	9	9	Bubbles	00671462	
5200087124	92315	CI	AN	M	45115	45115	N/A	TLA	1	1	Bubbles	08498643	
5200339891	92392	R	AN	M	45105	45118	N/A	TLA	14	14	Bubbles	54918158	
5200080869	92395	R	AN	M	45123	45123	N/A	TLA	1	1	Bubbles	05763132	
5200052773	92395	R	AN	M	45132	45132	N/A	TLA	1	1	Bubbles	07568331	
5200062305	92345	R	AN	M	45105	45132	N/A	CR	28	28	Bubbles	55048715	
5200112415	92307	R	AN	M	45141	45141	N/A	TLA	1	1	Bubbles	03654050	
5200091892	92311	R	AN	M	45105	45141	N/A	TLA	37	37	Bubbles	09883488	
5200339676	92392	R	AN	M	45133	45146	N/A	TLA	14	14	Bubbles	09884712	
5200083928	92392	CI	AN	M	45148	45148	N/A	TLA	1	1	Bubbles	03392743	
5200460505	92308	CI	AN	M	45148	45152	N/A	TLA	5	5	Bubbles	08491421	
5200326602	92307	R	AN	M	45148	45153	N/A	CR	6	6	Bubbles	55048539	
5200055858	92356	R	AN	M	45148	45153	N/A	TLA	6	6	Bubbles	08544476	
5200123016	92395	R	AN	M	45154	45154	N/A	TLA	1	1	Bubbles	08553665	
5200326505	92307	R	AN	M	45154	45154	N/A	TLA	1	1	Bubbles	07621807	
5200508370	92308	CI	AN	M	45148	45154	N/A	TLA	7	7	Bubbles	01088748	
5200045039	92395	R	AN	M	45155	45155	N/A	TLA	1	1	Bubbles	55049042	
5200084871	92301	R	AN	M	45156	45156	N/A	TLA	1	1	Bubbles	04501803	
5200152127	92307	R	AN	M	45157	45157	N/A	TLA	1	1	Bubbles	55048584	
5200192330	92315	R	AN	M	45148	45160	N/A	CR	13	13	Bubbles	0C020790	
5200145866	92345	CI	AN	M	45161	45161	N/A	TLA	1	1	Bubbles	54859286	
5202645565	92311	CI	AN	M	45162	45162	N/A	TLA	1	1	Bubbles	03272731	
5202429019	92392	R	AN	M	45163	45163	N/A	TLA	1	1	Bubbles	54949315	
5200440311	92344	R	AN	M	45164	45164	N/A	TLA	1	1	Bubbles	54896053	
5202429020	92392	R	AN	M	45176	45176	N/A	TLA	1	1	Bubbles	54949310	
5202460002	92392	R	AN	M	45183	45183	N/A	TLA	1	1	Bubbles	55100214	
5200104116	92307	R	AN	M	45176	45183	N/A	CR	8	8	Bubbles	05767344	
5200338087	92307	R	AN	M	45176	45183	N/A	TLA	8	8	Bubbles	55122569	
5200028026	92307	R	AN	M	45176	45183	N/A	TLA	8	8	Bubbles	55344815	
5200028026	92307	R	AN	M	45176	45183	N/A	TLA	8	8	Bubbles	55344815	
5200104183	92307	R	AN	M	45176	45183	N/A	TLA	8	8	Bubbles	55130009	
5200338345	92307	R	AN	M	45155	45183	N/A	CR	29	29	Bubbles	55122536	
5200100397	92311	R	AN	M	45099	45183	N/A	CR	85	85	Bubbles	54738846	
5200025392	92307	R	AN	M	45176	45187	N/A	CR	12	12	Bubbles	04328128	
5200326761	92307	R	AN	M	45188	45188	N/A	CR	1	1	Bubbles	00888335	
5200015330	92345	R	AN	M	45189	45189	N/A	TLA	1	1	Bubbles	55122782	
5200006500	92308	R	AN	M	45189	45195	N/A	TLA	7	7	Bubbles	0N588044	
5200104073	92307	R	AN	M	45176	45195	N/A	TLA	20	20	Bubbles	0M827935	
5200326892	92307	R	AN	M	45176	45197	N/A	CR	22	22	Bubbles	04031823	
5200003972	92345	CI	AN	M	45202	45202	N/A	TLA	1	1	Bubbles	55120484	
5200003972	92345	CI	AN	M	45202	45202	N/A	TLA	1	1	Bubbles	55120484	
5200040283	92307	R	AN	M	45197	45202	N/A	CR	6	6	Bubbles	55120750	
5200494661	92345	R	AN	M	45202	45202	N/A	TLA	1	1	Bubbles	02864391	
5200420572	92307	R	AN	M	45197	45202	N/A	TLA	6	6	Bubbles	12278784	
5200340837	92307	R	AN	M	45197	45202	N/A	TLA	6	6	Bubbles	0F428579	
5201708318	92345	R	AN	M	45203	45203	N/A	TLA	1	1	Bubbles	54916791	
5200203612	92307	R	AN	M	45204	45204	N/A	TLA	1	1	Bubbles	54896174	
5200006278	92307	R	AN	M	45205	45205	N/A	TLA	1	1	Bubbles	03672083	
5200279204	92314	R	AN	M	45205	45205	N/A	TLA	1	1	Bubbles	08497834	
5200091719	92311	R	AN	M	45206	45206	N/A	TLA	1	1	Bubbles	0R921055	
5200338397	92307	R	AN	M	45207	45207	N/A	TLA	1	1	Bubbles	08541966	
5200448856	92315	R	AN	M	45208	45208	N/A	TLA	1	1	Bubbles	07650549	
5200204191	92308	R	AN	M	45197	45209	N/A	TLA	13	13	Bubbles	0N186212	
5200152446	92308	R	AN	M	45210	45210	N/A	CR	1	1	Bubbles	55121361	
5202229305	92345	R	AN	M	45211	45211	N/A	TLA	1	1	Bubbles	54915975	
5202589102	92392	R	AN	M	45212	45212	N/A	CR	1	1	Bubbles	55050509	
5200324107	92392	CI	AN	M	45212	45212	N/A	TLA	1	1	Bubbles	03750510	
5200067952	92392	R	AN	M	45290	45290	N/A	CR	1	1	Fuzz	03580259	
5200028297	92301	R	AN	M	45213	45213	N/A	TLA	1	1	Bubbles	54857188	
5200132959	92345	R	AN	M	45216	45216	N/A	TLA	1	1	Bubbles	55121002	
5200085955	92308	R	AN	M	45212	45217	N/A	TLA	6	6	Bubbles	08541958	
5200084364	92308	R	AN	M	45212	45217	N/A	TLA	6	6	Bubbles	08491600	
5200043753	92308	R	AN	M	45212	45217	N/A	TLA	6	6	Bubbles	05738984	
5200204364	92308	R	AN	M	45212	45223	N/A	TLA	12	12	Bubbles	07567423	
5200112301	92307	R	AN	M	45212	45223	N/A	CR	12	12	Bubbles	0M827905	
5200005941	92307	R	AN	M	45212	45223	N/A	CR	12	12	Bubbles	02858537	
5200040262	92307	R	AN	M	45223	45223	N/A	TLA	1	1	Bubbles	55049700	

Customer Meter Fugitive Leaks:

ID	Geographic Location	Meter Classification (Commercial/Industrial or Residential)	Leak Classification (Grade)	Leak Discovery Method	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)	Repair Type	Number of Days Leaking	Number of Days to Repair	Bubble Size Classification	MSA Identification Number	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.)
5200042371	92307	R	AN	M	45212	45223	N/A	TLA	12	12	Bubbles	0E416399	
5200107045	92307	R	AN	M	45212	45223	N/A	TLA	12	12	Bubbles	05762883	
5200023239	92308	R	AN	M	45212	45223	N/A	TLA	12	12	Bubbles	05764623	
520006987	92308	R	AN	M	45212	45223	N/A	CR	12	12	Bubbles	12442182	
5200152092	92307	R	AN	M	45212	45225	N/A	TLA	14	14	Bubbles	0N208739	
5200005969	92307	R	AN	M	45212	45225	N/A	CR	14	14	Bubbles	0K922058	
5200026630	92307	R	AN	M	45212	45225	N/A	TLA	14	14	Bubbles	05977093	
5200116683	92308	R	AN	M	45212	45225	N/A	CR	14	14	Bubbles	01527578	
5200006716	92308	R	AN	M	45212	45225	N/A	CR	14	14	Bubbles	03578871	
5200347814	92308	R	AN	M	45212	45226	N/A	CR	15	15	Bubbles	55121858	
5200515020	92308	R	AN	M	45212	45226	N/A	TLA	15	15	Bubbles	12276642	
5200021319	92308	R	AN	M	45212	45226	N/A	TLA	15	15	Bubbles	09882552	
5200112168	92307	R	AN	M	45212	45226	N/A	TLA	15	15	Bubbles	09371657	
5200006087	92307	R	AN	M	45212	45226	N/A	TLA	15	15	Bubbles	00852924	
5200200607	92307	R	AN	M	45197	45226	N/A	TLA	30	30	Bubbles	03869123	
5200107471	92307	R	AN	M	45197	45226	N/A	TLA	30	30	Bubbles	03654780	
5200080678	92308	R	AN	M	45212	45226	N/A	TLA	15	15	Bubbles	08558545	
5200023850	92308	R	AN	M	45231	45231	N/A	TLA	1	1	Bubbles	01526501	
5200410714	92395	R	AN	M	45233	45233	N/A	TLA	1	1	Bubbles	0R236107	
5200213099	92394	CI	AN	M	45212	45238	N/A	TLA	27	27	Bubbles	08620841	
5200084024	92394	CI	AN	M	45197	45238	N/A	TLA	42	42	Bubbles	03740802	
5200507003	92301	R	AN	M	45243	45243	N/A	TLA	1	1	Bubbles	54739336	
5200227062	92308	R	AN	M	45243	45243	N/A	TLA	1	1	Bubbles	00753288	
5200018987	92301	R	AN	M	45250	45250	N/A	TLA	1	1	Bubbles	54737577	
5200116400	92301	R	AN	M	45251	45251	N/A	TLA	1	1	Bubbles	01532665	
5200004499	92345	R	AN	M	45251	45251	N/A	CR	1	1	Bubbles	08544274	
5200349082	92307	R	AN	M	45252	45252	N/A	TLA	1	1	Bubbles	02388991	
5200022746	92308	R	AN	M	45256	45256	N/A	TLA	1	1	Bubbles	08491049	
5202695522	92392	R	AN	M	45257	45257	N/A	CR	1	1	Bubbles	55050242	
5201727441	92394	R	AN	M	45258	45258	N/A	TLA	1	1	Bubbles	54949221	
5200211562	92307	R	AN	M	45239	45259	N/A	TLA	21	21	Bubbles	54856422	
5200112264	92307	R	AN	M	45246	45259	N/A	CR	14	14	Bubbles	55121544	
5200112103	92307	R	AN	M	45246	45259	N/A	CR	14	14	Bubbles	55121543	
5200112336	92307	R	AN	M	45246	45259	N/A	CR	14	14	Bubbles	55121551	
5200051598	92307	R	AN	M	45246	45259	N/A	TLA	14	14	Bubbles	02830913	
5200377560	92307	R	AN	M	45246	45259	N/A	TLA	14	14	Bubbles	01213140	
5200000066	92311	CI	AN	M	45260	45260	N/A	TLA	1	1	Bubbles	54859253	
5200058980	92344	R	AN	M	45260	45260	N/A	TLA	1	1	Bubbles	09792201	
5200249350	92395	CI	AN	M	45261	45261	N/A	TLA	1	1	Bubbles	03272711	
5200034623	92311	R	AN	M	45261	45261	N/A	TLA	1	1	Bubbles	0R921210	
5200425894	92301	R	AN	M	45266	45266	N/A	TLA	1	1	Bubbles	0N208355	
5200062023	92345	R	AN	M	45266	45266	N/A	TLA	1	1	Bubbles	55122269	
5200109609	92307	CI	AN	M	45266	45266	N/A	TLA	1	1	Bubbles	01529461	
5200096777	92345	R	AN	M	45267	45267	N/A	TLA	1	1	Bubbles	55342751	
5200079854	92344	R	AN	M	45268	45268	N/A	TLA	1	1	Bubbles	54915213	
5200324060	92308	R	AN	M	45269	45269	N/A	TLA	1	1	Bubbles	03718401	
5200041047	92307	R	AN	M	45273	45273	N/A	TLA	1	1	Bubbles	55120723	
5200079508	92308	R	AN	M	45274	45274	N/A	TLA	1	1	Bubbles	08491136	
5202204960	92307	R	AN	M	45277	45277	N/A	TLA	1	1	Bubbles	55048588	
5200047379	92308	R	AN	M	45246	45279	N/A	TLA	34	34	Bubbles	0K932858	
5200118178	92308	R	AN	M	45246	45279	N/A	TLA	34	34	Bubbles	54859297	
5200284180	92308	R	AN	M	45246	45279	N/A	CR	34	34	Bubbles	01533873	
5202378557	92344	R	AN	M	45280	45280	N/A	TLA	1	1	Bubbles	54949669	
5202657099	92392	R	AN	M	45282	45282	N/A	TLA	1	1	Bubbles	55081588	
5200028289	92394	R	AN	M	45283	45283	N/A	TLA	1	1	Bubbles	54856364	
5200027633	92307	R	AN	M	45283	45283	N/A	TLA	1	1	Bubbles	01527456	
5200468179	92342	CI	AN	M	45283	45283	N/A	TLA	1	1	Bubbles	12443400	
5200316028	92311	R	AN	M	45282	45283	N/A	TLA	2	2	Bubbles	03655969	
5200007820	92308	R	AN	M	45288	45288	N/A	TLA	1	1	Bubbles	0R141215	
5200017853	92392	R	AN	M	45288	45288	N/A	TLA	1	1	Bubbles	55123133	
5200017853	92392	R	AN	M	45288	45288	N/A	TLA	1	1	Bubbles	55123133	
5200057830	92392	R	AN	M	45280	45288	N/A	TLA	9	9	Bubbles	03710974	
5200013720	92392	R	AN	M	45280	45288	N/A	TLA	9	9	Bubbles	09785195	
5200053880	92394	R	AN	M	45280	45288	N/A	TLA	9	9	Bubbles	02863677	
5200213041	92394	R	AN	M	45280	45288	N/A	TLA	9	9	Bubbles	01533107	
5200221325	92394	R	AN	M	45280	45288	N/A	TLA	9	9	Bubbles	01626859	
5200051823	92307	R	AN	M	45246	45288	N/A	TLA	43	43	Bubbles	55120939	
5200494560	92307	R	AN	M	45280	45288	N/A	TLA	9	9	Bubbles	02862982	
5200065596	92307	R	AN	M	45280	45288	N/A	TLA	9	9	Bubbles	01275042	
5200145859	92307	R	AN	M	45280	45288	N/A	TLA	9	9	Bubbles	55100289	
5200286046	92301	R	AN	M	45280	45289	N/A	TLA	10	10	Bubbles	04511779	
5200240354	92301	R	AN	M	45280	45289	N/A	TLA	10	10	Bubbles	0K921859	
5200132076	92392	R	AN	M	45280	45289	N/A	TLA	10	10	Bubbles	09372690	
5200467697	92301	R	AN	M	45280	45289	N/A	TLA	10	10	Bubbles	08555840	
5200070287	92308	R	AN	M	45289	45289	N/A	TLA	1	1	Bubbles	07621934	
5200284490	92392	R	AN	M	45291	45291	N/A	TLA	1	1	Bubbles	54737914	
5200084456	92394	R	AN	M	45291	45291	N/A	TLA	1	1	Bubbles	01535636	
5200155946	92392	R	AN	M	45113	45113	N/A	TLA	1	1	Bubbles	01532600	
5200317742	92345	R	AN	M	45036	45036	N/A	TLA	1	1	Bubbles	08489114	
5200007704	92308	R	AN	M	45275	45275	N/A	CR	1	1	Bubbles	55122458	
5200336770	92345	R	AN	M	44931	44932	N/A	TLA	2	2	Bubbles	00853669	
5200005771	92307	R	AN	M	45208	45209	N/A	TLA	2	2	Bubbles	01529476	

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5202669641	92345	R	AN	M	45215	45216	N/A	TLA	2	2	Bubbles	55121008	
5200507203	92301	CI	AN	M	45059	45059	N/A	TLA	1	1	Fuzz	07881563	
5200109609	92307	CI	AN	M	45266	45266	N/A	TLA	1	1	Bubbles	01529461	
5200326591	92307	R	AN	M	45176	45187	N/A	TLA	12	12	Fuzz	55123030	
5200104120	92307	R	AN	M	45176	45195	N/A	TLA	20	20	Fuzz	01582220	
5200051868	92307	R	AN	M	45212	45217	N/A	TLA	6	6	Fuzz	55121868	
5200023236	92307	R	AN	M	44948	44948	N/A	CR	1	1	Fuzz	02859309	
5200217474	92301	R	AN	M	45043	45043	N/A	CR	1	1	Fuzz	0L707561	
5201839982	92345	R	AN	M	45185	45185	N/A	TLA	1	1	Fuzz	54949209	
5200422675	92395	R	AN	M	45155	45187	N/A	TLA	33	33	Fuzz	01536190	
5200008513	92308	R	AN	M	45176	45187	N/A	CR	12	12	Fuzz	00626180	
5200051917	92307	R	AN	M	45212	45217	N/A	TLA	6	6	Fuzz	55049525	
5200071249	92307	R	AN	M	45246	45259	N/A	TLA	14	14	Fuzz	12278790	
1001967355	96145	R	AH	M	44938	44938	N/A	CR	1	1	Bubbles Blown Off	5200209718	
1002007168	96145	R	AH	M	44954	44954	N/A	CR	1	1	Bubbles Blown Off	5200319534	
1002013914	96145	R	AH	M	44957	44957	N/A	CR	1	1	Bubbles Blown Off	5200319635	
1002040148	96145	R	AH	M	44967	44967	N/A	CR	1	1	Bubbles Blown Off	5200210201	
1002115235	96145	R	AH	M	44998	44998	N/A	CR	1	1	Bubbles Blown Off	5200210242	
1002119190	96145	R	AH	M	44999	44999	N/A	CR	1	1	Bubbles Blown Off	5200638614	
1002142615	96145	CL	AH	M	45007	45007	N/A	CR	1	1	Bubbles Blown Off	5200040659	
1002169387	96145	CL	AH	M	45017	45017	N/A	CR	1	1	Bubbles Blown Off	5200037490	
1002176459	96145	R	AH	M	45020	45020	N/A	CR	1	1	Bubbles Blown Off	5200209836	
1002176551	96145	R	AH	M	45020	45020	N/A	CR	1	1	Bubbles Blown Off	5200095062	
1002179629	96145	R	AH	M	45021	45021	N/A	CR	1	1	Bubbles Blown Off	5200198015	
1002284032	96145	R	AH	M	45060	45060	N/A	CR	1	1	Bubbles Blown Off	5200638694	
1002309461	96145	R	AH	M	45069	45069	N/A	CR	1	1	Bubbles Blown Off	5200210233	
1001985367	96145	R	AN	M	44945	44945	N/A	CR	1	1	Bubbles	5200373436	
1001989042	96145	R	AN	M	44946	44946	N/A	CR	1	1	Bubbles	5200518850	
1002042280	96145	R	AN	M	44967	44967	N/A	CR	1	1	Bubbles	5200209550	
1002105956	96145	R	AN	M	44993	44993	N/A	CR	1	1	N/A	5200518784	
1002365842	96145	R	AN	S	45091	45091	N/A	CR	1	1	Bubbles	5200319738	
1002453066	96145	R	AN	S	45096	45126	N/A	CR	30	30	Fuzz	5200198283	
1002453012	96145	R	AN	S	45096	45126	N/A	CR	30	30	Fuzz	5200319768	
1002497886	96145	R	AN	M	45124	45124	N/A	CR	1	1	N/A	5200462270	
1002002913	96145	R	AN	M	44952	44952	N/A	TLA	1	1	Bubbles	5200558649	
1002016962	96145	R	AN	M	44958	44958	N/A	TLA	1	1	N/A	5200209301	
1002024596	96145	R	AN	M	44960	44960	N/A	TLA	1	1	Bubbles	5200037288	
1002069227	96145	CL	AN	M	44980	44980	N/A	TLA	1	1	Bubbles	5200558681	
1002165766	96145	R	AN	M	45016	45016	N/A	TLA	1	1	Fuzz	5200210028	
1002169181	96145	R	AN	M	45017	45017	N/A	TLA	1	1	Bubbles	5200040641	
1002169233	96145	R	AN	M	45017	45017	N/A	TLA	1	1	N/A	5200319734	
1002169158	96145	R	AN	M	45017	45017	N/A	TLA	1	1	Bubbles	5200037977	
1002169213	96145	CL	AN	M	45017	45017	N/A	TLA	1	1	N/A	5200102308	
1002174811	96145	CL	AN	M	45020	45020	N/A	TLA	1	1	N/A	5200037210	
1002182831	96145	R	AN	M	45022	45022	N/A	TLA	1	1	N/A	5200040687	
1002183860	96145	CL	AN	M	45022	45022	N/A	TLA	1	1	N/A	5200102112	
1002184153	96145	R	AN	M	45022	45022	N/A	TLA	1	1	N/A	5200184535	
1002184908	96145	R	AN	M	45023	45023	N/A	TLA	1	1	N/A	5200353288	
1002184615	96145	R	AN	M	45023	45023	N/A	TLA	1	1	N/A	5200217686	
1002187479	96145	R	AN	M	45024	45024	N/A	TLA	1	1	Bubbles	5200037206	
1002187562	96145	R	AN	M	45024	45024	N/A	TLA	1	1	Bubbles	5200037205	
1002191148	96145	R	AN	M	45026	45026	N/A	TLA	1	1	N/A	5200638578	
1002191405	96145	R	AN	M	45026	45026	N/A	TLA	1	1	Bubbles	5200518877	
1002196586	96145	R	AN	M	45028	45028	N/A	TLA	1	1	N/A	5200037247	
1002198771	96145	R	AN	M	45028	45028	N/A	TLA	1	1	Fuzz	5200037343	
1002198731	96145	CL	AN	M	45028	45028	N/A	TLA	1	1	N/A	5200478802	
1002204342	96145	R	AN	M	45030	45030	N/A	TLA	1	1	N/A	5200040563	
1002204590	96145	R	AN	M	45030	45030	N/A	TLA	1	1	N/A	5200040562	
1002204716	96145	R	AN	M	45030	45030	N/A	TLA	1	1	N/A	5200040557	
1002204929	96145	R	AN	M	45030	45030	N/A	TLA	1	1	N/A	5200217709	
1002208214	96145	R	AN	M	45033	45033	N/A	TLA	1	1	N/A	5200105077	
1002210522	96145	CL	AN	M	45034	45034	N/A	TLA	1	1	N/A	5200210373	
1002211864	96145	CL	AN	M	45034	45034	N/A	TLA	1	1	N/A	5200478793	
1002212121	96145	R	AN	M	45034	45034	N/A	TLA	1	1	N/A	5200037429	
1002213587	96145	R	AN	M	45034	45034	N/A	TLA	1	1	N/A	5200558720	
1002214219	96145	R	AN	M	45035	45035	N/A	TLA	1	1	Bubbles	5200638649	
1002219828	96145	CL	AN	M	45036	45036	N/A	TLA	1	1	N/A	5200471781	
1002219959	96145	R	AN	M	45036	45036	N/A	TLA	1	1	N/A	5200318290	
1002221393	96145	R	AN	M	45037	45037	N/A	TLA	1	1	N/A	5200318292	
1002222162	96145	R	AN	M	45037	45037	N/A	TLA	1	1	N/A	5200039327	
1002222228	96145	R	AN	M	45037	45037	N/A	TLA	1	1	N/A	5200518663	
1002222806	96145	R	AN	M	45037	45037	N/A	TLA	1	1	N/A	5200209275	
1002225959	96145	R	AN	M	45040	45040	N/A	TLA	1	1	N/A	5200037182	
1002274286	96145	R	AN	M	45056	45056	N/A	TLA	1	1	N/A	5200184697	
1002281022	96145	R	AN	M	45058	45058	N/A	TLA	1	1	Bubbles	5200102056	
1002321610	96145	R	AN	M	45073	45073	N/A	TLA	1	1	Bubbles	5200105186	
1002324995	96145	R	AN	M	45076	45076	N/A	TLA	1	1	N/A	5200478648	
1002336088	96145	R	AN	S	45079	45079	N/A	TLA	1	1	N/A	5200040762	
1002340441	96145	R	AN	M	45082	45082	N/A	TLA	1	1	Fuzz	5200118758	
1002347279	96145	R	AN	M	45084	45084	N/A	TLA	1	1	N/A	5200462099	
1002452237	96145	R	AN	S	45089	45125	N/A	TLA	36	36	N/A	5200038640	
1002452721	96145	R	AN	S	45091	45126	N/A	TLA	35	35	N/A	5200462271	

Customer Meter Fugitive Leaks:

ID	Geographic Location	Meter Classification (Commercial/Industrial or Residential)	Leak Classification (Grade)	Leak Discovery Method	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)	Repair Type	Number of Days Leaking	Number of Days to Repair	Bubble Size Classification	MSA Identification Number	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.)
1002373359	96145	R	AN	M	45093	45093	N/A	TLA	1	1	Fuzz	5200318345	
1002452917	96145	R	AN	S	45096	45125	N/A	TLA	29	29	N/A	5200184913	
1002453030	96145	R	AN	S	45096	45126	N/A	TLA	30	30	Fuzz	5200118883	
1002453022	96145	R	AN	S	45097	45126	N/A	TLA	29	29	N/A	5200184943	
1002454676	96145	R	AN	S	45097	45219	N/A	TLA	122	122	N/A	5200319941	
1002458346	96145	R	AN	S	45104	45125	N/A	TLA	21	21	N/A	5200353379	
1002458283	96145	R	AN	S	45104	45219	N/A	TLA	115	115	N/A	5200040906	
1002454958	96145	R	AN	S	45106	45106	N/A	TLA	1	1	Bubbles	5200101952	
1002481814	96145	R	AN	S	45107	45134	N/A	TLA	27	27	N/A	5200039310	
1002488385	96145	R	AN	S	45107	45219	N/A	TLA	112	112	N/A	5200198475	
1002488318	96145	R	AN	S	45107	45219	N/A	TLA	112	112	N/A	5200198014	
1002488714	96145	R	AN	S	45112	45134	N/A	TLA	22	22	N/A	5200319945	
1002488447	96145	R	AN	S	45112	45134	N/A	TLA	22	22	N/A	5200462394	
1002494771	96145	R	AN	S	45113	45134	N/A	TLA	21	21	N/A	5200184736	
1002488454	96145	R	AN	S	45119	45134	N/A	TLA	15	15	N/A	5200037437	
1002498760	96145	R	AN	S	45120	45211	N/A	TLA	91	91	N/A	5200037246	
1002497637	96145	R	AN	M	45124	45124	N/A	TLA	1	1	N/A	5200038867	
1002567570	96145	CL	AN	M	45149	45149	N/A	TLA	1	1	Fuzz	5200478790	
1002615241	96145	R	AN	M	45168	45168	N/A	TLA	1	1	Fuzz	5200308043	
1002842597	96145	R	AN	M	45252	45252	N/A	TLA	1	1	Bubbles	5200184926	
1002858214	96145	R	AN	M	45274	45274	N/A	TLA	1	1	Fuzz	5200462309	
1002917597	96145	R	AN	M	45288	45288	N/A	TLA	1	1	Bubbles	5200037732	
1002042492	96161	R	AH	M	44967	44967	N/A	CR	1	1	Bubbles Blown Off	5200361532	
1002102502	96161	R	AH	M	44992	44992	N/A	CR	1	1	Bubbles Blown Off	5200522250	
1002139184	96161	R	AH	M	45006	45006	N/A	CR	1	1	Bubbles Blown Off	5200134739	
1002145982	96161	R	AH	M	45008	45008	N/A	CR	1	1	Bubbles Blown Off	5200051181	
1002149065	96161	R	AH	M	45009	45009	N/A	CR	1	1	Bubbles Blown Off	5200124180	
1002155141	96161	R	AH	M	45013	45013	N/A	CR	1	1	Bubbles Blown Off	5200054863	
1002168729	96161	R	AH	M	45016	45016	N/A	CR	1	1	Bubbles Blown Off	5200363198	
1002210542	96161	R	AH	M	45034	45034	N/A	CR	1	1	Bubbles Blown Off	5200054123	
1002624798	96161	R	AH	M	45171	45171	N/A	CR	1	1	Bubbles Blown Off	5200516711	
1002844342	96161	R	AH	M	45256	45256	N/A	CR	1	1	Bubbles Blown Off	5200244443	
1001990771	96161	R	AN	M	44949	44949	N/A	CR	1	1	Bubbles	5200369210	
1002059654	96161	R	AN	M	44976	44976	N/A	CR	1	1	N/A	5200533335	
1002090844	96161	R	AN	M	44987	44987	N/A	CR	1	1	Fuzz	5200533391	
1002124376	96161	R	AN	M	45000	45000	N/A	CR	1	1	Fuzz	5200506503	
1002180604	96161	R	AN	M	45021	45021	N/A	CR	1	1	Bubbles	5200223864	
1002218491	96161	R	AN	M	45036	45036	N/A	CR	1	1	Bubbles	5200230120	
1002283960	96161	R	AN	M	45060	45060	N/A	CR	1	1	Bubbles	5200122276	
1002447254	96161	CL	AN	M	45104	45104	N/A	CR	1	1	Bubbles	5200052440	
1002453019	96161	R	AN	M	45105	45105	N/A	CR	1	1	Bubbles	5200052254	
1002528622	96161	R	AN	M	45135	45135	N/A	CR	1	1	N/A	5200361503	
1002579876	96161	R	AN	S	45154	45154	N/A	CR	1	1	Bubbles	5200134874	
1002625494	96161	R	AN	M	45173	45173	N/A	CR	1	1	Bubbles	5200052114	
1002628647	96161	R	AN	S	45174	45174	N/A	CR	1	1	N/A	5200134656	
1002666145	96161	R	AN	M	45188	45188	N/A	CR	1	1	Fuzz	5200050708	
1002761201	96161	R	AN	M	45223	45223	N/A	CR	1	1	Fuzz	5200126026	
1002851389	96161	R	AN	M	45265	45265	N/A	CR	1	1	Bubbles	5200134880	
1002896057	96161	R	AN	M	45275	45275	N/A	CR	1	1	Bubbles	5200134869	
1001985564	96161	R	AN	M	44945	44945	N/A	TLA	1	1	Fuzz	5200223898	
1002023880	96161	R	AN	M	44960	44960	N/A	TLA	1	1	Bubbles	5200232681	
1002043253	96161	R	AN	M	44969	44969	N/A	TLA	1	1	Fuzz	5200122436	
1002113353	96161	R	AN	M	44997	44997	N/A	TLA	1	1	Fuzz	5200051216	
1002163607	96161	R	AN	M	45015	45015	N/A	TLA	1	1	Bubbles	5200369438	
1002173274	96161	R	AN	M	45019	45019	N/A	TLA	1	1	Bubbles	5200055103	
1002177339	96161	R	AN	M	45020	45020	N/A	TLA	1	1	Bubbles	5200363122	
1002177948	96161	CL	AN	M	45021	45021	N/A	TLA	1	1	N/A	5200054678	
1002181735	96161	R	AN	M	45022	45022	N/A	TLA	1	1	N/A	5200363477	
1002185148	96161	R	AN	M	45023	45023	N/A	TLA	1	1	N/A	5200359543	
1002187666	96161	R	AN	M	45024	45024	N/A	TLA	1	1	Bubbles	5200125509	
1002189000	96161	CL	AN	M	45026	45026	N/A	TLA	1	1	Fuzz	5200369803	
1002194517	96161	R	AN	M	45027	45027	N/A	TLA	1	1	N/A	5200232863	
1002197605	96161	R	AN	M	45028	45028	N/A	TLA	1	1	N/A	5200054341	
1002203112	96161	R	AN	M	45030	45030	N/A	TLA	1	1	N/A	5200254763	
1002205783	96161	R	AN	M	45031	45031	N/A	TLA	1	1	N/A	5200533246	
1002212124	96161	R	AN	M	45034	45034	N/A	TLA	1	1	N/A	5200129114	
1002215065	96161	R	AN	M	45035	45035	N/A	TLA	1	1	N/A	5200050797	
1002216546	96161	R	AN	M	45035	45035	N/A	TLA	1	1	N/A	5200369092	
1002224377	96161	R	AN	M	45039	45039	N/A	TLA	1	1	N/A	5200223697	
1002224463	96161	R	AN	M	45039	45039	N/A	TLA	1	1	N/A	5200223729	
1002227407	96161	R	AN	M	45040	45040	N/A	TLA	1	1	N/A	5200363470	
1002237235	96161	R	AN	M	45043	45043	N/A	TLA	1	1	Fuzz	5201680403	
1002297004	96161	R	AN	M	45064	45064	N/A	TLA	1	1	Fuzz	5200230050	
1002452183	96161	CL	AN	S	45089	45124	N/A	TLA	35	35	N/A	5200361988	
1002454649	96161	R	AN	S	45097	45124	N/A	TLA	27	27	N/A	5200129469	
1002488149	96161	R	AN	S	45107	45132	N/A	TLA	25	25	Fuzz	5200129486	
1002468747	96161	R	AN	M	45112	45112	N/A	TLA	1	1	Bubbles	5200361585	
1002494748	96161	R	AN	S	45114	45132	N/A	TLA	18	18	Fuzz	5200585122	
1002585170	96161	R	AN	S	45156	45156	N/A	TLA	1	1	Fuzz	5200516770	
1002648557	96161	R	AN	S	45182	45182	N/A	TLA	1	1	Bubbles	5200506503	
1002649306	96161	R	AN	S	45182	45182	N/A	TLA	1	1	Bubbles	5200244020	
1002656828	96161	CL	AN	S	45184	45184	N/A	TLA	1	1	Bubbles	5200533229	

Customer Meter Fugitive Leaks:

ID	Geographic Location	Meter Classification (Commercial/Industrial or Residential)	Leak Classification (Grade)	Leak Discovery Method	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)	Repair Type	Number of Days Leaking	Number of Days to Repair	Bubble Size Classification	MSA Identification Number	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.)
1002751842	96161	R	AN	M	45218	45218	N/A	TLA	1	1	Bubbles	5200054917	
1002882762	96161	R	AN	M	45270	45270	N/A	TLA	1	1	Bubbles	5200055227	
1002905206	96161	R	AN	M	45279	45279	N/A	TLA	1	1	Bubbles	5200232768	
1001981343	96150	CL	AH	M	44944	44944	N/A	CR	1	1	Bubbles Blown Off	5200111750	
1002043517	96150	R	AH	M	44970	44970	N/A	CR	1	1	Bubbles Blown Off	5200217847	
1002058424	96150	R	AH	M	44974	44974	N/A	CR	1	1	Bubbles Blown Off	5200503121	
1002060240	96150	R	AH	M	44977	44977	N/A	CR	1	1	Bubbles Blown Off	5200618888	
1002091718	96150	R	AH	M	44987	44987	N/A	CR	1	1	Bubbles Blown Off	5200104902	
1002091898	96150	CL	AH	M	44988	44988	N/A	CR	1	1	Bubbles Blown Off	5200205180	
1002095806	96150	R	AH	M	44990	44990	N/A	CR	1	1	Bubbles Blown Off	5200043292	
1002105882	96150	R	AH	M	44993	44993	N/A	CR	1	1	Bubbles Blown Off	5200041534	
1002114862	96150	R	AH	M	44998	44998	N/A	CR	1	1	Bubbles Blown Off	5200108575	
1002120915	96150	R	AH	M	44999	44999	N/A	CR	1	1	Bubbles Blown Off	5200503191	
1002129663	96150	R	AH	M	45002	45002	N/A	CR	1	1	Bubbles Blown Off	5200290363	
1002169620	96150	R	AH	M	45018	45018	N/A	CR	1	1	Bubbles Blown Off	5200392263	
1002184569	96150	R	AH	M	45023	45023	N/A	CR	1	1	Bubbles Blown Off	5200045703	
1002220053	96150	R	AH	M	45036	45036	N/A	CR	1	1	Bubbles Blown Off	5200125052	
1002326896	96150	R	AH	M	45076	45076	N/A	CR	1	1	Bubbles Blown Off	5200354277	
1002367027	96150	R	AH	M	45091	45091	N/A	CR	1	1	Bubbles Blown Off	5200044830	
1002462489	96150	R	AH	M	45110	45110	N/A	CR	1	1	Bubbles Blown Off	5200463328	
1002532772	96150	CL	AH	S	45138	45138	N/A	CR	1	1	Bubbles Blown Off	5200113687	
1002550456	96150	R	AH	M	45142	45142	N/A	CR	1	1	Bubbles Blown Off	5200315343	
1002844010	96150	R	AH	M	45255	45255	N/A	CR	1	1	Bubbles Blown Off	5200043184	
1002858707	96150	R	AH	M	45260	45260	N/A	CR	1	1	Bubbles Blown Off	5200118605	
1002897089	96150	R	AH	M	45275	45275	N/A	CR	1	1	Bubbles Blown Off	5200113906	
1001969527	96150	R	AN	M	44938	44938	N/A	CR	1	1	Bubbles	5200041854	
1002046742	96150	R	AN	M	44970	44970	N/A	CR	1	1	Bubbles	5200045989	
1002107674	96150	R	AN	M	44994	44994	N/A	CR	1	1	Bubbles	5200397072	
1002108093	96150	R	AN	M	44994	44994	N/A	CR	1	1	Bubbles	5200463315	
1002130527	96150	CL	AN	M	45002	45002	N/A	CR	1	1	Bubbles	5200041509	
1002149974	96150	R	AN	M	45011	45011	N/A	CR	1	1	Bubbles	5200353369	
1002159221	96150	R	AN	M	45014	45014	N/A	CR	1	1	Bubbles	5200114493	
1002231924	96150	R	AN	M	45041	45041	N/A	CR	1	1	N/A	5200618745	
1002244047	96150	R	AN	M	45045	45045	N/A	CR	1	1	Bubbles	5200113754	
1002271868	96150	R	AN	M	45055	45055	N/A	CR	1	1	Bubbles	5200046840	
1002836263	96150	R	AN	M	45250	45250	N/A	CR	1	1	Bubbles	5200481369	
1002922570	96150	R	AN	M	45288	45288	N/A	CR	1	1	Bubbles	5200202167	
1001983913	96150	CL	AN	M	44945	44945	N/A	TLA	1	1	N/A	5200044297	
1001985242	96150	R	AN	M	44945	44945	N/A	TLA	1	1	Fuzz	5200044776	
1001989596	96150	R	AN	M	44947	44947	N/A	TLA	1	1	Bubbles	5200463248	
1001989737	96150	CL	AN	M	44948	44948	N/A	TLA	1	1	Bubbles	5200108270	
1001995571	96150	R	AN	M	44950	44950	N/A	TLA	1	1	Fuzz	5200042874	
1001997322	96150	R	AN	M	44950	44950	N/A	TLA	1	1	Bubbles	5200463369	
1002026023	96150	R	AN	M	44961	44961	N/A	TLA	1	1	Fuzz	5200207435	
1002026190	96150	R	AN	M	44961	44961	N/A	TLA	1	1	Fuzz	5200397040	
1002029560	96150	R	AN	M	44963	44963	N/A	TLA	1	1	Fuzz	5200117758	
1002048220	96150	R	AN	M	44971	44971	N/A	TLA	1	1	Fuzz	5200117661	
1002062179	96150	CL	AN	M	44978	44978	N/A	TLA	1	1	Fuzz	5200485277	
1002078419	96150	R	AN	M	44984	44984	N/A	TLA	1	1	Fuzz	5200043281	
1002088887	96150	CL	AN	M	44987	44987	N/A	TLA	1	1	Fuzz	5200620793	
1002089270	96150	R	AN	M	44987	44987	N/A	TLA	1	1	Bubbles	5200521828	
1002090248	96150	R	AN	M	44987	44987	N/A	TLA	1	1	Bubbles	5200108026	
1002095076	96150	R	AN	M	44989	44989	N/A	TLA	1	1	Bubbles	5200397390	
1002096588	96150	R	AN	M	44991	44991	N/A	TLA	1	1	Bubbles	5200114078	
1002108148	96150	R	AN	M	44994	44994	N/A	TLA	1	1	Fuzz	5200290108	
1002113152	96150	R	AN	M	44996	44996	N/A	TLA	1	1	Fuzz	5200353246	
1002113156	96150	R	AN	M	44996	44996	N/A	TLA	1	1	Fuzz	5200481364	
1002116795	96150	R	AN	M	44998	44998	N/A	TLA	1	1	Fuzz	5200620655	
1002118277	96150	CL	AN	M	44999	44999	N/A	TLA	1	1	Fuzz	5200044566	
1002127397	96150	R	AN	M	45001	45001	N/A	TLA	1	1	Fuzz	5200046468	
1002127679	96150	R	AN	M	45001	45001	N/A	TLA	1	1	Fuzz	5200564689	
1002127959	96150	R	AN	M	45001	45001	N/A	TLA	1	1	Fuzz	5200233626	
1002128879	96150	R	AN	M	45002	45002	N/A	TLA	1	1	Bubbles	5200207171	
1002169321	96150	R	AN	M	45017	45017	N/A	TLA	1	1	N/A	5200205187	
1002173620	96150	R	AN	M	45019	45019	N/A	TLA	1	1	Bubbles	5200521753	
1002173843	96150	R	AN	M	45019	45019	N/A	TLA	1	1	N/A	5200463374	
1002173887	96150	R	AN	M	45019	45019	N/A	TLA	1	1	Bubbles	5200207080	
1002175763	96150	R	AN	M	45020	45020	N/A	TLA	1	1	Bubbles	5200233844	
1002181211	96150	R	AN	M	45022	45022	N/A	TLA	1	1	N/A	5200397077	
1002181920	96150	R	AN	M	45022	45022	N/A	TLA	1	1	N/A	5200233563	
1002181889	96150	CL	AN	M	45022	45022	N/A	TLA	1	1	N/A	5200108894	
1002183289	96150	R	AN	M	45022	45022	N/A	TLA	1	1	N/A	5200113848	
1002184191	96150	R	AN	M	45022	45022	N/A	TLA	1	1	N/A	5200233922	
1002184263	96150	R	AN	M	45022	45022	N/A	TLA	1	1	N/A	5200463004	
1002187313	96150	R	AN	M	45024	45024	N/A	TLA	1	1	N/A	5200046662	
1002187861	96150	R	AN	M	45025	45025	N/A	TLA	1	1	N/A	5200397105	
1002187867	96150	R	AN	M	45025	45025	N/A	TLA	1	1	N/A	5200205492	
1002187906	96150	R	AN	M	45025	45025	N/A	TLA	1	1	N/A	5200113893	
1002189613	96150	R	AN	M	45026	45026	N/A	TLA	1	1	Fuzz	5200540543	
1002190938	96150	R	AN	M	45026	45026	N/A	TLA	1	1	N/A	5200114341	
1002191535	96150	R	AN	M	45026	45026	N/A	TLA	1	1	N/A	5200342635	
1002193658	96150	R	AN	M	45027	45027	N/A	TLA	1	1	N/A	5200046992	

Customer Meter Fugitive Leaks:

ID	Geographic Location	Meter Classification (Commercial/Industrial or Residential)	Leak Classification (Grade)	Leak Discovery Method	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)	Repair Type	Number of Days Leaking	Number of Days to Repair	Bubble Size Classification	MSA Identification Number	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.)
1002194339	96150	R	AN	M	45027	45027	N/A	TLA	1	1	N/A	5200290462	
1002204009	96150	R	AN	M	45030	45030	N/A	TLA	1	1	N/A	5200114128	
1002205397	96150	R	AN	M	45030	45030	N/A	TLA	1	1	N/A	5200521620	
1002205961	96150	R	AN	M	45031	45031	N/A	TLA	1	1	N/A	5200202435	
1002206313	96150	R	AN	M	45032	45032	N/A	TLA	1	1	N/A	5200045755	
1002207639	96150	R	AN	M	45033	45033	N/A	TLA	1	1	N/A	5200290467	
1002209313	96150	CL	AN	M	45033	45033	N/A	TLA	1	1	N/A	5200048335	
1002210460	96150	R	AN	M	45034	45034	N/A	TLA	1	1	N/A	5200342610	
1002211327	96150	R	AN	M	45034	45034	N/A	TLA	1	1	Bubbles	5200125384	
1002211756	96150	R	AN	M	45034	45034	N/A	TLA	1	1	N/A	5200125370	
1002214440	96150	R	AN	M	45035	45035	N/A	TLA	1	1	N/A	5200354349	
1002215684	96150	R	AN	M	45035	45035	N/A	TLA	1	1	N/A	5200125113	
1002223592	96150	R	AN	M	45037	45037	N/A	TLA	1	1	N/A	5200503175	
1002223629	96150	R	AN	M	45037	45037	N/A	TLA	1	1	N/A	5200205391	
1002224148	96150	R	AN	M	45038	45038	N/A	TLA	1	1	N/A	5200342593	
1002224436	96150	R	AN	M	45039	45039	N/A	TLA	1	1	N/A	5200481291	
1002226252	96150	R	AN	M	45040	45040	N/A	TLA	1	1	N/A	5200618751	
1002227655	96150	R	AN	M	45040	45040	N/A	TLA	1	1	N/A	5200290139	
1002227960	96150	R	AN	M	45040	45040	N/A	TLA	1	1	N/A	5200202171	
1002228517	96150	R	AN	M	45040	45040	N/A	TLA	1	1	N/A	5200354193	
1002231186	96150	R	AN	M	45041	45041	N/A	TLA	1	1	N/A	5200464052	
1002239111	96150	R	AN	M	45043	45043	N/A	TLA	1	1	Bubbles	5200290152	
1002258428	96150	R	AN	M	45050	45050	N/A	TLA	1	1	N/A	5200233883	
1002374016	96150	R	AN	S	45054	45125	N/A	TLA	71	71	Bubbles	5200618544	
1002271069	96150	R	AN	M	45055	45055	N/A	TLA	1	1	N/A	5200564870	
1002375435	96150	R	AN	S	45055	45141	N/A	TLA	86	86	Bubbles	5200125398	
1002287358	96150	R	AN	M	45061	45061	N/A	TLA	1	1	Fuzz	5200045623	
1002295021	96150	R	AN	M	45063	45063	N/A	TLA	1	1	Fuzz	5200046754	
1002321662	96150	R	AN	M	45073	45073	N/A	TLA	1	1	Fuzz	5200046031	
1002324954	96150	R	AN	M	45076	45076	N/A	TLA	1	1	N/A	5200233765	
1002340585	96150	R	AN	S	45082	45082	N/A	TLA	1	1	Bubbles	5200045916	
1002489042	96150	R	AN	S	45083	45126	N/A	TLA	43	43	Bubbles	5200117514	
1002488634	96150	R	AN	S	45083	45126	N/A	TLA	43	43	Fuzz	5200113980	
1002357218	96150	R	AN	M	45088	45088	N/A	TLA	1	1	N/A	5200397346	
1002357922	96150	R	AN	M	45089	45089	N/A	TLA	1	1	Bubbles	5200207312	
1002452407	96150	R	AN	S	45090	45141	N/A	TLA	51	51	Fuzz	5200233899	
1002452459	96150	R	AN	S	45090	45141	N/A	TLA	51	51	Fuzz	5200618506	
1002365815	96150	R	AN	M	45091	45091	N/A	TLA	1	1	Fuzz	5200113980	
1002452629	96150	R	AN	S	45091	45141	N/A	TLA	50	50	Fuzz	5200117887	
1002452871	96150	R	AN	S	45093	45141	N/A	TLA	48	48	Fuzz	5200392477	
1002377672	96150	CL	AN	M	45096	45096	N/A	TLA	1	1	N/A	5200125190	
1002441077	96150	R	AN	M	45100	45100	N/A	TLA	1	1	Bubbles	5200205234	
1002445902	96150	CL	AN	M	45103	45103	N/A	TLA	1	1	Bubbles	5200290370	
1002448912	96150	R	AN	M	45104	45104	N/A	TLA	1	1	Fuzz	5200044460	
1002468739	96150	R	AN	M	45112	45112	N/A	TLA	1	1	Bubbles	5200043365	
1002481563	96150	R	AN	S	45114	45141	N/A	TLA	27	27	Fuzz	5200117555	
1002478467	96150	R	AN	M	45117	45117	N/A	TLA	1	1	N/A	5200108536	
1002479977	96150	R	AN	M	45117	45117	N/A	TLA	1	1	Bubbles	5200564819	
1002488457	96150	R	AN	M	45120	45120	N/A	TLA	1	1	Bubbles	5200397023	
1002493900	96150	R	AN	M	45122	45122	N/A	TLA	1	1	Bubbles	5200375548	
1002494339	96150	R	AN	M	45123	45123	N/A	TLA	1	1	Bubbles	5200540824	
1002494712	96150	R	AN	M	45123	45123	N/A	TLA	1	1	Bubbles	5200207139	
1002504300	96150	R	AN	M	45126	45126	N/A	TLA	1	1	Bubbles	5200464096	
1002513114	96150	R	AN	M	45131	45131	N/A	TLA	1	1	Bubbles	5200046910	
1002588244	96150	R	AN	S	45138	45216	N/A	TLA	78	78	Fuzz	5200233980	
1002588234	96150	R	AN	S	45139	45216	N/A	TLA	77	77	Fuzz	5200397066	
1002588366	96150	R	AN	S	45139	45216	N/A	TLA	77	77	Bubbles	5200540574	
1002550072	96150	R	AN	M	45142	45142	N/A	TLA	1	1	N/A	5200113826	
1002550156	96150	R	AN	M	45142	45142	N/A	TLA	1	1	N/A	5200125488	
1002596204	96150	R	AN	S	45161	45161	N/A	TLA	1	1	Bubbles	5200041864	
1002649173	96150	R	AN	S	45182	45182	N/A	TLA	1	1	Bubbles	5200113678	
1002679894	96150	R	AN	M	45194	45194	N/A	TLA	1	1	Fuzz	5200041897	
1002704648	96150	R	AN	M	45202	45202	N/A	TLA	1	1	Bubbles	5200044125	
1002758210	96150	R	AN	M	45222	45222	N/A	TLA	1	1	Bubbles	5200207182	
1002771548	96150	R	AN	M	45225	45225	N/A	TLA	1	1	Fuzz	5200043090	
1002775369	96150	R	AN	M	45227	45227	N/A	TLA	1	1	Bubbles	5200045916	
1002836883	96150	R	AN	M	45250	45250	N/A	TLA	1	1	Fuzz	5202424539	
1002842420	96150	R	AN	M	45252	45252	N/A	TLA	1	1	Bubbles	5200618708	
1002843554	96150	R	AN	M	45254	45254	N/A	TLA	1	1	Bubbles	5200392011	
1002851115	96150	R	AN	M	45258	45258	N/A	TLA	1	1	Bubbles	5200044513	
1002852437	96150	R	AN	M	45258	45258	N/A	TLA	1	1	Bubbles	5200046413	
1002853936	96150	R	AN	M	45259	45259	N/A	TLA	1	1	Bubbles	5200046949	
1002914732	96150	R	AN	M	45283	45283	N/A	TLA	1	1	Fuzz	5200464349	
100277862	96161	R	AN	M	45229	45229	N/A	TLA	1	1	Fuzz	5200053001	
1001962492	96150	R	AH	M	44936	44936	N/A	CR	1	1	Bubbles Blown Off	5200540631	
1002776106	96150	CL	AH	M	45229	45229	N/A	CR	1	1	Bubbles Blown Off	5200353213	
1001955463	96150	R	AN	M	44934	44934	N/A	CR	1	1	Fuzz	5201822300	
1001964393	96150	R	AN	M	44937	44937	N/A	TLA	1	1	Fuzz	5200331128	
1002785539	96150	CL	AN	M	45231	45231	N/A	TLA	1	1	Bubbles	5200046570	
1002812269	96150	R	AN	M	45240	45240	N/A	TLA	1	1	Bubbles	5200207130	
1002812797	96150	R	AN	M	45240	45240	N/A	TLA	1	1	Bubbles	5200233502	
1002823267	96150	R	AN	M	45245	45245	N/A	TLA	1	1	Bubbles	5200217744	

Customer Meter Fugitive Leaks:

ID	Geographic Location	Meter Classification (Commercial/Industrial or Residential)	Leak Classification (Grade)	Leak Discovery Method	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)	Repair Type	Number of Days Leaking	Number of Days to Repair	Bubble Size Classification	MSA Identification Number	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.)
1002831820	96150	R	AN	M	45247	45247	N/A	TLA	1	1	N/A	5200046446	
1002833393	96150	R	AN	M	45249	45249	N/A	TLA	1	1	Fuzz	5200117949	
1002835973	96150	R	AN	M	45250	45250	N/A	TLA	1	1	Fuzz	5200046542	
1002926166	96150	R	AN	M	45290	45290	N/A	TLA	1	1	Bubbles	5200618826	

SOUTHWEST GAS CORPORATION, JUNE 14, 2024
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 2024 June Report
Appendix 6; Rev. 03/29/2024

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 12/31/23 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
5200217463	92301	O	R	AH	1/28/2023	1/28/2023			0.026	0.018	0.018	
5200050214	92392	O	R	AH	1/29/2023	1/29/2023			0.001	0.000	0.000	
5200094977	92311	O	R	AH	2/7/2023	2/7/2023			0.008	0.006	0.006	
5200298783	92311	O	R	AH	2/11/2023	2/11/2023			0.033	0.103	0.103	
5200422708	92345	O	R	AH	2/12/2023	2/12/2023			0.035	0.024	0.024	
5200138051	92395	O	R	AH	2/23/2023	2/23/2023			0.015	0.005	0.005	
5200273493	92392	O	R	AH	2/25/2023	2/25/2023			0.026	0.009	0.009	
5200029419	92315	O	R	AH	2/27/2023	2/27/2023			0.010	0.049	0.049	
5200028965	92315	N	R	AH	3/7/2023	3/7/2023			0.024	0.122	0.122	
5200029714	92315	N	R	AH	3/5/2023	3/5/2023			0.025	2.079	2.079	
5200002902	92311	O	CI	AH	3/20/2023	3/20/2023			0.010	0.119	0.119	
5200214398	92308	O	R	AH	4/1/2023	4/1/2023			0.019	1.374	1.374	
5200310045	92345	N	R	AN	4/12/2023	4/29/2023			0.833	1.975	1.975	
5200276555	92392	N	R	AH	5/24/2023	5/24/2023			0.002	0.001	0.001	
5200091828	92311	O	R	AH	7/12/2023	7/12/2023			0.018	0.000	0.000	
5200092645	92311	O	R	AH	7/9/2023	7/9/2023			0.031	0.047	0.047	
5200185595	92315	N	R	AH	8/24/2023	8/24/2023			0.006	0.032	0.032	
5200444844	92315	N	R	AH	8/24/2023	8/24/2023			0.022	0.113	0.113	
5200118394	92307	O	R	AH	10/16/2023	10/16/2023			0.015	0.414	0.414	
5200202828	92307	O	R	AH	10/11/2023	10/11/2023			0.005	0.405	0.405	
5200263790	92308	O	CI	AH	10/25/2023	10/25/2023			0.017	0.095	0.095	
5202649065	92311	O	R	AH	10/29/2023	10/29/2023			0.033	0.023	0.023	
43547	96145	N	R	AH	6/25/2023	6/25/2023			1	2.281	2.281	
43363	96145	N	R	AH	5/23/2023	5/23/2023			1	2.281	2.281	
43285	96145	N	R	AH	5/14/2023	5/14/2023			1	2.281	2.281	
43226	96145	N	R	AH	4/27/2023	4/27/2023			1	2.281	2.281	
43191	96145	N	R	AH	4/21/2023	4/21/2023			1	2.281	2.281	
43172	96145	N	R	AH	4/18/2023	4/18/2023			1	2.281	2.281	
43162	96145	N	R	AH	4/17/2023	4/17/2023			1	2.281	2.281	
43147	96145	N	R	AH	4/12/2023	4/12/2023			1	2.281	2.281	
43144	96145	N	R	AH	4/9/2023	4/9/2023			1	2.281	2.281	
43142	96145	N	R	AH	4/8/2023	4/8/2023			1	2.281	2.281	
43140	96145	N	R	AH	4/6/2023	4/6/2023			1	2.281	2.281	
43139	96145	N	R	AH	4/6/2023	4/6/2023			1	2.281	2.281	
43110	96145	N	R	AH	4/5/2023	4/5/2023			1	2.281	2.281	
43134	96145	N	R	AH	4/4/2023	4/4/2023			1	2.281	2.281	
43136	96145	N	R	AH	4/4/2023	4/4/2023			1	2.281	2.281	
43060	96145	N	R	AH	3/22/2023	3/22/2023			1	2.281	2.281	
43038	96145	N	R	AH	3/17/2023	3/17/2023			1	2.281	2.281	
43035	96145	N	R	AH	3/15/2023	3/15/2023			1	2.281	2.281	
43008	96145	N	R	AH	3/14/2023	3/14/2023			1	2.281	2.281	
42999	96145	N	R	AH	3/13/2023	3/13/2023			1	2.281	2.281	
43011	96145	N	R	AH	3/13/2023	3/13/2023			1	2.281	2.281	
42992	96145	N	R	AH	3/8/2023	3/8/2023			1	2.281	2.281	
42879	96145	N	R	AH	2/10/2023	2/10/2023			1	2.281	2.281	
42919	96145	N	R	AH	2/9/2023	2/9/2023			1	2.281	2.281	
42862	96145	N	R	AH	2/2/2023	2/2/2023			1	2.281	2.281	

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 12/31/23 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
42848	96145	N	R	AH	2/2/2023	2/2/2023			1	2.281	2.281	
42854	96145	N	R	AH	2/1/2023	2/1/2023			1	2.281	2.281	
43067	96145	N	R	AH	1/31/2023	1/31/2023			1	2.281	2.281	
42987	96145	N	R	AH	1/30/2023	1/30/2023			1	2.281	2.281	
43435	96161	N	R	AH	6/4/2023	6/4/2023			1	2.281	2.281	
43192	96161	N	R	AH	4/18/2023	4/18/2023			1	2.281	2.281	
43143	96161	N	R	AH	4/8/2023	4/8/2023			1	2.281	2.281	
43108	96161	N	R	AH	4/5/2023	4/5/2023			1	2.281	2.281	
43105	96161	N	R	AH	4/5/2023	4/5/2023			1	2.281	2.281	
43096	96161	N	R	AH	4/3/2023	4/3/2023			1	2.281	2.281	
43094	96161	N	R	AH	3/31/2023	3/31/2023			1	2.281	2.281	
43064	96161	N	R	AH	3/28/2023	3/28/2023			1	2.281	2.281	
43109	96161	N	R	AH	3/26/2023	3/26/2023			1	2.281	2.281	
43055	96161	N	R	AH	3/24/2023	3/24/2023			1	2.281	2.281	
43057	96161	N	R	AH	3/23/2023	3/23/2023			1	2.281	2.281	
43032	96161	N	R	AH	3/21/2023	3/21/2023			1	2.281	2.281	
43034	96161	N	R	AH	3/21/2023	3/21/2023			1	2.281	2.281	
43027	96161	N	R	AH	3/16/2023	3/16/2023			1	2.281	2.281	
43023	96161	N	R	AH	3/15/2023	3/15/2023			1	2.281	2.281	
43041	96161	N	R	AH	3/15/2023	3/15/2023			1	2.281	2.281	
42968	96161	N	R	AH	3/7/2023	3/7/2023			1	2.281	2.281	
42986	96161	N	R	AH	3/4/2023	3/4/2023			1	2.281	2.281	
43025	96161	N	R	AH	3/2/2023	3/2/2023			1	2.281	2.281	
42881	96161	N	R	AH	2/11/2023	2/11/2023			1	2.281	2.281	
42877	96161	N	R	AH	2/10/2023	2/10/2023			1	2.281	2.281	
43283	96150	N	R	AH	5/9/2023	5/9/2023			1	2.281	2.281	
43229	96150	N	R	AH	4/29/2023	4/29/2023			1	2.281	2.281	
43214	96150	N	R	AH	4/25/2023	4/25/2023			1	2.281	2.281	
43207	96150	N	R	AH	4/24/2023	4/24/2023			1	2.281	2.281	
43211	96150	N	R	AH	4/21/2023	4/21/2023			1	2.281	2.281	
43198	96150	N	R	AH	4/21/2023	4/21/2023			1	2.281	2.281	
43199	96150	N	R	AH	4/20/2023	4/20/2023			1	2.281	2.281	
43171	96150	N	R	AH	4/18/2023	4/18/2023			1	2.281	2.281	
43165	96150	N	R	AH	4/15/2023	4/15/2023			1	2.281	2.281	
43164	96150	N	R	AH	4/12/2023	4/12/2023			1	2.281	2.281	
43131	96150	N	R	AH	4/9/2023	4/9/2023			1	2.281	2.281	
43123	96150	N	R	AH	4/8/2023	4/8/2023			1	2.281	2.281	
43122	96150	N	R	AH	4/6/2023	4/6/2023			1	2.281	2.281	
43093	96150	N	R	AH	4/3/2023	4/3/2023			1	2.281	2.281	
43119	96150	N	R	AH	4/2/2023	4/2/2023			1	2.281	2.281	
43095	96150	N	R	AH	4/1/2023	4/1/2023			1	2.281	2.281	
43072	96150	N	R	AH	3/29/2023	3/29/2023			1	2.281	2.281	
43120	96150	N	R	AH	3/29/2023	3/29/2023			1	2.281	2.281	
43030	96150	N	R	AH	3/17/2023	3/17/2023			1	2.281	2.281	
43031	96150	N	R	AH	3/17/2023	3/17/2023			1	2.281	2.281	
43010	96150	N	R	AH	3/14/2023	3/14/2023			1	2.281	2.281	
42997	96150	N	R	AH	3/13/2023	3/13/2023			1	2.281	2.281	
43019	96150	N	R	AH	3/10/2023	3/10/2023			1	2.281	2.281	
42995	96150	N	R	AH	3/9/2023	3/9/2023			1	2.281	2.281	
42996	96150	N	R	AH	3/9/2023	3/9/2023			1	2.281	2.281	
43149	96150	N	R	AH	3/9/2023	3/9/2023			1	2.281	2.281	
42967	96150	N	R	AH	3/4/2023	3/4/2023			1	2.281	2.281	
42985	96150	N	R	AH	3/4/2023	3/4/2023			1	2.281	2.281	
42964	96150	N	R	AH	3/2/2023	3/2/2023			1	2.281	2.281	
42966	96150	N	R	AH	3/2/2023	3/2/2023			1	2.281	2.281	
42989	96150	N	R	AH	3/2/2023	3/2/2023			1	2.281	2.281	
42944	96150	N	R	AH	2/20/2023	2/20/2023			1	2.281	2.281	
42916	96150	N	R	AH	2/16/2023	2/16/2023			1	2.281	2.281	
43166	96150	N	R	AH	1/18/2023	1/18/2023			1	2.281	2.281	
42770	96150	N	R	AH	1/12/2023	1/12/2023			1	2.281	2.281	

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 12/31/23 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
										Total	200.92	

SOUTHWEST GAS CORPORATION, JUNE 14, 2024

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 2024 June Report

Appendix 6; Rev. 03/29/2024

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
17,542	R	0.0002	3.5084	Meter Change Outs, Family Samples, Meter Set Inspections - Engineering estimate of .2 cubic ft per device.
769	CI	0.0002	0.1538	Meter Change Outs, Family Samples, Meter Set Inspections - Engineering estimate of .2 cubic ft per device.
Total			3.6622	

SOUTHWEST GAS CORPORATION, JUNE 14, 2024

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In Response to Data Request, R15-01-008 2024 June Report

Appendix 6; Rev. 03/29/2024

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
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Southwest Gas did not have any Customer Meter Component/Equipment vented emissions in 2023.

Total **0.00**

Appendix 7
Storage Facilities

SOUTHWEST GAS CORPORATION, JUNE 14, 2024
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 2024 June Report
Appendix 7; Rev. 03/29/2024

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:

ID	Geographic Location	Source	Number of Sources	Discovery Date (MM/DD/YY)	Repair Date (MM/DD/YY)	Number of Days Leaking	Emission Factor (Mscf/day/dev)	Annual Emissions (Mscf)	Explanatory Notes / Comments
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Southwest Gas does not have any Underground Storage Facilities in California.

Total 0.00

SOUTHWEST GAS CORPORATION, JUNE 14, 2024
Rulemaking (R) 15-01-008 to Adopt Rules and Procedures Governing Commission Regulated Natural Gas Pipelines and Facilities to
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In Response to Data Request, R15-01-008 2024 June Report
Appendix 7; Rev. 03/29/2024

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.

Previous Reporting Changes:

- 1) New Column for Measurement Frequency - See box comments.
 - 2) Added new column for Emission Factor: Measurement Date - Pressurized Operations.
 - 3) Added a fourth compressor operating mode "Offline". In addition, a measurement of emissions (EF) should be taken during Offline mode, to ensure that no emissions are emanating from the system.
 - 4) Alternate emissions measurement method, where applicable and measured by the operator.
 - 5) Alternate emissions measurement method, where applicable and measured by the operator.
- Blowdown and isolation valves
- 6) Measure centrifugal compressor emissions additional columns added for these emissions:
 - Dry seals
 - Wet seals
 - Wet seal or degassing vents in Pressurized Idle mode

CPUC Staff strongly encourage more frequent measurement of the following compressor vented emissions. Compliance minimum is once annually, though Staff suggest the minimum frequency should be quarterly and measured at roughly the same time each quarter (e.g. on or around the component survey given mode of operation). More frequent measurements, e.g. monthly would be better due to the temporal changes in conditions that effect emissions. The more frequent measurements also provide an opportunity to detect worn rod packing or seals, which exacerbate emissions, and with timely awareness of suboptimal operations gas operators have an opportunity for accelerating maintenance to correct worn parts. The following steps for reporting more frequent measurements in 2019 are outlined in the adjacent cell, and should be provided if available.

The Columns P thru T were added to the template and should be used for the indicated measured compressor emissions, which include Centrifugal compressors in accordance with OGR and your operating practice.

For the 2022 data reporting of compressor vented emissions:
 Where more than one measurement was taken during the year (e.g. after a maintenance cycle*, monthly, or quarterly), use the measured EF multiplied by the activity hours that occurred during the corresponding period. For example, if the compressor measurement was taken quarterly, then the measured EF should be multiplied by the activity hours that occurred in the respective quarter, and the same for more frequent measurements (e.g. monthly, weekly etc.). For each compressor devote one row per measurement period (see example provided). In the case of a single annual measurement EF, then that EF would apply to the activity hours for each respective mode for the entire year (which is consistent with prior year reporting practice).

* If a measurement is taken after a maintenance cycle and no other measurements were taken during the remainder of the year, then use this measured EF for the activity hours occurring after the measurement date thru 12/31/xx. The activity hours prior to the maintenance of the compressor from the beginning of the year should use the previously measured EF, even if the EF was measured in the prior year.

Transmission Compressor Vented Emissions:

ID	Geographic Location	Compressor Type	Prime Mover	Number of Cylinders	Number of Seals	Seal Type	Measurement Frequency	Emission Factor: Measurement Date - Pressurized Operations	Operating Mode: Pressurized Operating (hours)	Operating Mode: Pressurized Idle (hours)	Operating Mode: Depressurized Idle (hours)	Operating Mode: Offline (hours)	Emission Factor: Pressurized Operating (scf/hr)	Emission Factor: Pressurized Idle (scf/hr)	Emission Factor: Depressurized Idle (scf/hr)	Emission Factor: Pressurized Operating - Rod Packing (scf/hr)	Emission Factor: Pressurized Operating - Blowdown Valve (scf/hr)	Emission Factor: Pressurized Idle - Rod Packing (scf/hr)	Emission Factor: Pressurized Idle - Blowdown Valve (scf/hr)	Annual Emissions (Mscf)	Explanatory Notes / Comments
Southwest Gas does not have any Underground Storage Facilities in California.																					

Total 0.00

SOUTHWEST GAS CORPORATION, JUNE 14, 2024

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, 2024 June Report
Appendix 7; Rev. 03/29/2024**

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
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Southwest Gas does not have any Underground Storage Facilities in California.

Total **0.00**

SOUTHWEST GAS CORPORATION, JUNE 14, 2024
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 2024 June Report
Appendix 7; Rev. 03/29/2024

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
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Southwest Gas does not have any Underground Storage Facilities in California.

Total 0.00

SOUTHWEST GAS CORPORATION, JUNE 14, 2024
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 2024 June Report
Appendix 7; Rev. 03/29/2024

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 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.

Please include emissions from leaks found with concentrations below 10,000ppm, and include in the total emissions column. Please use the associated emission factors provided in Appendix 9, Emission Factors.

Underground Storage: Compressor and Component Fugitive Leaks (see note above):

12/31/2023 1/1/2023

ID	Geographic Location	Device Type	Bleed Rate	Manufacturer	Pressure (psi)	Discovery Date (MM/DD/YY)	Repair Date (MM/DD/YY)	Prior Survey Date (MM/DD/YY)	Number of Days Leaking	Emission Factor or Engineering Estimate (Mscf/day)	Emissions (Mscf)	Explanatory Notes / Comments
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Southwest Gas does not have any Underground Storage Facilities in California.

Total 0.00

SOUTHWEST GAS CORPORATION, JUNE 14, 2024
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 2024 June Report
Appendix 7; Rev. 03/29/2024

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 California Air Resources Board (CARB):
 Note - Definitions in Data Request, R15-01-008 2022 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 2022 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
Southwest Gas does not have any Underground Storage Facilities in California.								
Total							0.00	

Appendix 8

Summary

SOUTHWEST GAS CORPORATION, JUNE 14, 2024
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, 2024 June Report
Appendix 8; Rev. 03/29/2024

Notes:

Please round all natural gas emissions to nearest Mscf.

As a reminder, please use the latest version of each of the worksheets.

Summary Tables:

System Categories	Emission Source Categories	Fugitive or Vented	For Informational and Reference Purposes Only: Original 2015 Baseline Emissions (Mscf)	Approved 2015 Baseline Emissions [Mscf]	Proposed Adjusted 2015 Baseline Emissions (Mscf)	2022 Total Annual Volume of Leaks & Emissions (Mscf)	2022 Total Annual Count of Leak & Emission Items	2023 Total Annual Volume of Leaks & Emissions (Mscf)	2023 Total Annual Count of Leak & Emission Items	Emission Change for Year Over Year Comparison from 2022 to 2023 (Mscf)	Percentage Change for Year Over Year Comparison from 2022 to 2023	Count Change for Year Over Year Comparison from 2022 to 2023	Percentage Change for Year Over Year Comparison from 2022 to 2023	Emission Change for Year Over Year Comparison from 2015 to 2023 (Mscf)	Percentage Change for Year Over Year Comparison from 2015 to 2023	Explanation for Significant Percentage Change for Year Over Year Comparison from 2022 to 2023
Transmission Pipelines	Pipeline Leaks	Fugitive	0	0	0	0	0	7	1	7		1	100.0%	7	0.0%	Leak discovered on valve in 2023, no leaks in 2022.
	All Damages	Fugitive	0	0	0	0	0	0	0	0	0%	0%	0%	0	0%	
	Blowdowns	Vented	327	0	0	0	0	0	0	0	0%	0%	0%	-327	(100%)	
	Component Vented Emissions	Vented	0	0	0	0	0	0	0	0	0%	0	0%	0	0%	
	Component Fugitive Leaks	Fugitive	0	0	0	0	0	0	0	0	0%	0	0%	0	0%	
	Odorizers	Vented	0	0	0	0	0	0	0	0	0	0%	0	0%	0	0%
Transmission M&R Stations	Station Leaks & Emissions	Fugitive	24	0	0	10,884	7	10,884	7	0	0%	0	0%	10,859	44,505%	
	Blowdowns	Vented	0	0	0	8	15	8	14	(1)	(7%)	(1)	(7%)	8	0%	One less blowdown in 2023 than in 2022.
Transmission Compressor Stations	Compressor Emissions	Vented	0	0	0	0	0	0	0	0	0%	0	0%	0	0%	
	Compressor Leaks	Fugitive	0	0	0	0	0	0	0	0	0%	0	0%	0	0%	
	Blowdowns	Vented	0	0	0	0	0	0	0	0	0%	0	0%	0	0%	
	Component Vented Emissions	Vented	0	0	0	0	0	0	0	0	0%	0	0%	0	0%	
	Component Fugitive Leaks	Fugitive	0	0	0	0	0	0	0	0	0%	0	0%	0	0%	
	Storage Tank Leaks & Emissions	Vented	0	0	0	0	0	0	0	0	0%	0	0%	0	0%	
Distribution Main & Service Pipelines	Pipeline Leaks	Fugitive	512	0	0	1306	75	369	167	(937)	(72%)	92	123%	(143)	(28%)	More leaks discovered in 2023.
	All Damages	Fugitive	1,905	0	0	525	146	642	123	117	22%	(23)	(16%)	(1,263)	(66%)	
	Blowdowns	Vented	32	0	0	158	6,065	80	4,108	(78)	(49%)	(1,957)	(32%)	48	149%	
	Component Vented Emissions	Vented	0	0	0	0	0	0	0	0	0%	0	0%	0	0%	
	Component Fugitive Leaks	Fugitive	0	0	0	0	0	0	0	0	0%	0	0%	0	0%	
Distribution M&R Stations	Station Leaks & Emissions	Fugitive	184,084	0	0	186,793	230	169,771	225	(17,022)	(9%)	(5)	(2%)	(14,313)	(8%)	
	All Damages	Fugitive	0	0	0	506	1	3	2	(503)	(99%)	1	100%	3	0%	
	Blowdowns	Vented	38	0	0	40	240	40	227	0	1%	(13)	(5%)	2	6%	
Customer Meters	Meter Leaks	Fugitive	27,377	0	0	29,612	206,764	29,783	207,645	171	1%	881	0%	2,406	9%	
	All Damages	Fugitive	0	0	0	71	23	201	107	130	182%	84	365%	201	0%	More damages experienced in 2023, many attributed to snow load damage.
	Vented Emissions	Vented	15	0	0	2	8,422	4	18,311	2	117%	9,889	117%	(11)	(76%)	More meter work (change outs, inspections, family samples, etc.) in 2023
Underground Storage	Storage Leaks & Emissions	Fugitive	0	0	0	0	0	0	0	0	0%	0	0%	0	0%	
	Compressor Vented Emissions	Vented	0	0	0	0	0	0	0	0	0%	0	0%	0	0%	
	Blowdowns	Vented	0	0	0	0	0	0	0	0	0%	0	0%	0	0%	
	Component Vented Emissions	Vented	0	0	0	0	0	0	0	0	0%	0	0%	0	0%	
	Compressor and Component Fugitive Leaks	Fugitive	0	0	0	0	0	0	0	0	0%	0	0%	0	0%	
	Dehydrator Vent Emissions	Fugitive	0	0	0	0	0	0	0	0	0%	0	0%	0	0%	
Unusual Large Leaks	(Description)		0	0	0	0	0	0	0	0	0%	0	0%	0	0%	
Total			214,314			229,904	NA	211,791	NA	(18,114)	-8%	8,949	743%	(2,524)	(1%)	

SOUTHWEST GAS CORPORATION, JUNE 14, 2024

**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, 2024 June Report
Appendix 8; Rev. 03/29/2024**

System Wide Leak Rate Data

1/1/2023 - 12/31/2023

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
N/A	N/A	N/A	N/A	N/A	

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
N/A	2,020,488	N/A	N/A	

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
N/A	13,752,991	N/A	

Total **15,773,479**

*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.

SOUTHWEST GAS CORPORATION, JUNE 14, 2024

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, 2024 June Report
Appendix 8; Rev. 03/29/2024

Summary Tables:

Natural Gas Properties	Average Mole Percent	Explanatory Notes / Comments
Methane		
Carbon Dioxide		
Ethane		
C3+		
C6+		
Oxygen		Please note that Southwest Gas' natural gas for its California Service Territories is supplied by its 7 upstream suppliers, e.g., Southern California Gas Company, Transwestern Pipeline, Kern River Pipeline, Great Basin Gas Transmission Company, Tuscarora Pipeline, Northwest Pipeline, and El Paso Pipeline.
Hydrogen		
Sulfur		
Water		
Carbon Monoxide		
Particulate Matter		
Inert Gas		
Odorant		

Appendix 9
Emission Factors

SOUTHWEST GAS CORPORATION, JUNE 14, 2024

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 2024 June Report

Appendix 9; Rev. 03/29/2024

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)
	M&R Stations - Direct Industrial Sales	MRR	# of leaks > 10,000 ppm x Subpart W EF (ref: Table W-3 of Subpart W of Part 98) 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

Transmission M&R	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	<u>Leaker EFs-Compressor Station</u> <u>(Component Leaks identified per survey use the following EFs)</u> # of leaks > 10,000 ppm x Subpart W EF (ref: Table W-3 of Subpart W of Part 98) <u>Compressor Components</u> 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 <u>Non-compressor components</u> 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 - Natural 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
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 Msc/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 Msc/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 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 M&R Stations	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, Leaker Based	MRR	<p align="center">Leaker EFs</p> <p align="center">(Component Leaks identified per survey use the following EFs)</p> Connector = 0.043Mscf/day/dev Block Valve = 0.014 Mscf/day/dev Control Valve = 0.240 Mscf/day/dev Pressure Relief Valve = 0.007 Mscf/day/dev Orifice Meter = 0.005 Mscf/day/dev Regulator = 0.020 Mscf/day/dev Open-Ended Line = 0.671 Mscf/day/dev
	M&R Stations - Farm Taps	MRR	# of leaks > 10,000 ppm x Subpart W EF (ref: Table W-3 of Subpart W of Part 98) Farm Tap = 12.2 Mscf/yr/station <p align="center">Leaker EFs</p> <p align="center">(Component Leaks identified per survey use the following EFs)</p> Connector = 0.043Mscf/day/dev Block Valve = 0.014 Mscf/day/dev Control Valve = 0.240 Mscf/day/dev Pressure Relief Valve = 0.007 Mscf/day/dev Orifice Meter = 0.005 Mscf/day/dev Regulator = 0.020 Mscf/day/dev Open-Ended Line = 0.671 Mscf/day/dev
	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 (dehydrator vent emissions tab)	GRI (1996)	<p>One of the following three cases per dehydrator facility</p> <ol style="list-style-type: none"> 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 (compressor and component fugitive leaks tab)	MRR	<p><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</p> <p><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</p>
	Storage - surface casing leakage (storage leaks and emissions tab)	Engineering Estimate	TBD
	Storage - Wellhead leakage (storage leaks and emissions tab)	MRR	<p><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</p> <p><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</p>
	Storage - Compressor & blowdowns (Blowdowns tab)	Engineering Estimate	Eq. 13 of MRR (piping volume x # of blowdowns)

	Storage - Wellhead Rework blowdown and bring-in (Blowdowns tab)	Engineering Estimate	Eq. 9,10,11,12 of MRR
	Pressure Relief Valves (Component Vented Emissions tab)	MRR	Pressure relief valve = 0.9518 Mscf/day/dev.
	Pneumatic Devices - Pneumatic/Hydraulic Valve Operators, and Turbine Valve Operators (Component Vented Emissions tab)	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