



BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

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1-26-16
02:29 PM

Order Instituting Rulemaking to Adopt Rules and Procedures Governing Commission-Regulated Natural Gas Pipelines and Facilities to Reduce Natural Gas Leakage Consistent with Senate Bill 1371.

Rulemaking 15-01-008
(Filed January 15, 2015)

**ADMINISTRATIVE LAW JUDGE'S RULING ENTERING
NEWLY REVISED NATURAL GAS LEAK ANNUAL REPORTING
REQUIREMENTS INTO THE RECORD AND SEEKING COMMENTS**

Background

Rulemaking (R.) 15-01-008 was initiated by the California Public Utilities Commission (Commission) to carry out the intent of Senate Bill (SB) 1371 (Statutes 2014, Chapter 525).¹ SB 1371 requires the adoption of rules and procedures to minimize natural gas leakage from Commission-regulated natural gas pipelines 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-F, and the state's goal of reducing greenhouse gas emissions. SB 1371 also requires the gas corporations to file a report about their natural gas leaks, and their leak management practices. The rulemaking required all of the respondents to file such a report by May 15, 2015.² On May 15, 2015, Alpine Natural Gas Operating Company No. 1 LLC; Pacific Gas and Electric Company

¹ See R.15-01-008 "Order Instituting Rulemaking to Adopt Rules and Procedures Governing Commission-Regulated Natural Gas Pipelines and Facilities to Reduce Natural Gas Leakage consistent with Senate Bill 1371" issued January 22, 2015.

² Safety and Enforcement Division Staff initiated a data request on January 9, 2015, before the issuance of this rulemaking, to expedite achievement of this objective.

(PG&E); San Diego Gas & Electric Company (SDG&E); Southern California Edison Company (SCE); Southern California Gas Company (SoCalGas); Southwest Gas Corporation (Southwest Gas); West Coast Gas Company; Central Valley Gas Storage, LLC (Central Valley); Gill Ranch Storage, LLC; Lodi Gas Storage, LLC (LGS); and Wild Goose Storage Inc., filed responses.

On October 13, 2015, the Administrative Law Judge (ALJ) issued a ruling seeking comments regarding annual reporting requirements due October 20, 2015, and directing staff to develop a revised annual report template (to be used for the May 15, 2016 annual reporting requirements) by the end of December 2015.³ On October 29, 2015, the ALJ issued a ruling seeking optional reply comments due November 6, 2015. On October 30, 2015, SoCalGas, SDG&E, and Southwest Gas (collectively, the Joint Utilities); Environmental Defense Fund (EDF) and Utility Workers Union of America (UWUA) (collectively, the Joint Parties); LGS; and Central Valley filed timely initial comments. On November 6, 2015, the Joint Utilities and the Joint Parties filed timely reply comments.⁴

1. Revised Annual Reporting Requirements

Based on the comments, the following changes are proposed for the annual data request and report template.

- The baseline report year, for comparison purposes, will be 2015.
- Change in the reporting year from Fiscal year to Calendar

³ For a general overview of questions, *see* Scoping Memo questions #8, #10, #11, #14, and #15 and October 13, 2015 ALJ ruling. In response to an October 8, 2015 e-mail inquiry of Joint Utilities, the Administrative Law Judge (ALJ) granted the request to consider formal comments pertaining to annual reporting comments earlier in the proceeding than scheduled in the Scoping Memo.

⁴ On November 13, 2015, the ALJ granted the Joint Utilities' request to late-file joint Investor-owned Utilities (IOUs) reply comments on annual reporting requirements due November 6, 2015.

year for all information including the system leak rate.

- Add the requirement to report all open leaks no matter when they were found.
- Add a column to report leaks by Zip Code.
- Add a column to report the material of the leaking component.
- Add a spreadsheet for leaks caused by 3rd parties or nature.
- Add columns for the date of temporary leak repairs and time to temporarily repair them.
- Add a row for report emissions caused by catastrophic failures such as pipeline or storage well failures.
- Add a column to indicate whether a leak was Above Ground or Below Ground.
- Add more definitions of terms, consistent with Pipeline and Hazardous Materials Safety Administration (PHMSA), where applicable.
- Improve System Wide Leak Rate calculation.
- Add Standardized Emission Factors.

Refer to Attachment 1 for more details.

The Joint Parties suggest that jurisdictional gathering lines be included in the scope of this proceeding. This issue was investigated and it was determined that none of the respondents in this proceeding own gathering lines.

The Joint Parties also suggest that the development of a comprehensive emission and leak database should be searched in real time. While this suggestion could be a useful long term goal, it is not a project that can be accomplished by the annual data request and report template due date, or May 15, 2016.

2. Questions for Comments

Comments should respond to the proposed changes to the data request and report template described in Sections 3A and 3B of this ruling. Comments of not more than 15 pages may be filed and served not later than February 17, 2016. Reply comments of not more than 5 pages may be filed and served not later than February 24, 2016. Once comments are received, SED staff shall make any needed adjustment to the template and distribute a formal data request to respondents with a due date of May 15, 2016.

2.1. Overall Comments on Revised Data Request and Annual Report Template:

Please provide overall comments on the changes and enhancements to the revised data request and report template found in Attachments 1, 2, and 3 of this ruling:

Attachment 1: Changes to the May 15th Data Request and Report Template;

Attachment 2: Draft Data Request for 2016; and

Attachment 3: Draft May 15th Report Template.

Note: Attachment 3 contains 9 appendices, which are Excel spreadsheets that the respondents are required to use to report emission and leak data. Please also review these appendices and provide your comments. The appendices are not attached to this ruling, however they can be found on the CPUC Risk Assessment website at: <http://www.cpuc.ca.gov/General.aspx?id=8829>.

2.2. Comments on Specific CPUC and ARB Staff Recommendations

Based on the preliminary California Public Utilities Commission (Commission) and the California Air Resources Board (ARB) staff recommendations regarding proposed enhancements to the template, including Emission Factors (EFs), and System-Wide Gas Leak Rate Equation, please

provide comments on how these related enhancements meet the requirements of SB 1371 and preliminary scoping memo objectives:

A brief description of and rationale for these newly proposed fields for gas storage facilities and transmission and distribution systems are as follows:

2.2.1. Emission Factors

The May 15, 2015 reports contained gas emission volumes based on a wide variety of EFs. There was no consistent set of EFs used by all respondents. Consequently, it was impossible to compare gas leaks and emissions between the systems of the respondents or determine an accurate total amount of gas being emitted and leaked. In addition, the ARB noticed that some respondents were not using the most up-to-date EFs. As a result, the ARB conducted a series of meetings with the respondents to attempt to identify a consistent set of EFs that the ARB and the respondents could agree on. The meetings resulted in a set of EFs, however there was not agreement on all of the EFs. ARB continues to work with the utilities to arrive at mutually agreeable EFs that can be used in the May 15, 2016 report. The EFs in this ruling are considered a draft for the purpose of obtaining comments from the respondents.

The draft EFs are found in Appendix 9, titled "Emission Factors."

2.2.2. System-Wide Gas Leak Rate

The System-Wide Gas Leak Rate equation used in the May 15, 2015 Report was based on the PHMSA equation for Lost and Unaccounted For (LAUF) gas. However, CPUC and ARB staff determined that the equation was not an accurate indicator of gas being emitted and leaked from the system. From the equation, it was impossible to determine whether the volume of "lost" gas was actually being emitted and leaked, was the result of the measuring tolerances of the gas meters, or was the disappearance of the gas from the system. Therefore, staff

recommends a System-Wide Gas Leak Rate equation, as shown in the Data Request, Attachment 2, and the Leak Rate tab in Appendix 8.

IT IS RULED that:

1. The Commission's Safety Enforcement Division Draft Data Request is accepted into the record of this proceeding as Attachments 1, 2, and 3 to this Ruling and Appendices 1 thru 9 to the Draft Data Request (spreadsheet located on the California Public Utilities Commission website) at:

<http://www.cpuc.ca.gov/General.aspx?id=8829>.

2. Comments of not more than 15 pages in response to this ruling may be filed and served no later than February 17, 2016.

3. Reply comments of not more than five pages may be filed and served no later than February 24, 2016.

4. Based on comments in response to this Ruling, the Commission's Safety and Enforcement Division shall issue a data request with revised spreadsheet template to respondents by March 15, 2016 and responses from respondents shall be due by May 15, 2016.

Dated January 26, 2016 at San Francisco, California.

/s/ COLETTE E. KERSTEN

Colette E. Kersten

Administrative Law Judge

Attachment 1

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.

Proposed Changes to the May 15th Data Request and Report Template

CHANGES TO THE DATA REQUEST AND REPORT TEMPLATE	PARTIES' COMMENTS LEADING TO THE CHANGES TO THE DATA REQUEST AND REPORT TEMPLATE. (PARTIAL LIST)
Baseline Year will be 2015.	Most, if not all parties, agree that the 2015 (May 2016) report would be the first year that an updated report template would be used with updated definitions, consistent EFs and improved system-wide gas leak rate equation.
Change the reporting year from fiscal year to calendar year for all information including the system leak rate.	Most parties agree that the calendar approach is best.
Add a requirement to report all open leaks no matter when they were found.	In the May 2015 reports, some utilities reported all open leaks no matter when they were found and other utilities only reported open leaks found since 2009. All parties agree that all open leaks should be reported, no matter what year they were found.
Add a column for Zip Codes.	The Joint Parties request information regarding where leaks are geographically located so that leaks can be monitored. The utilities believe that the physical addresses where leaks are found constitute personal information that should not be made public. Most agree that reporting leaks by Zip Code is the best option to solve this issue.
Add a column for Material	All parties recommend a column for Material.
Add a column for Damage	The Joint Utilities recommend a column to report

	third party damage or forces of nature.
Add columns for the Date of Temporary Leak Repairs and Time to Temporarily Repair Leaks	The Joint Utilities recommend a column to report the Date of Temporary Leak Repairs, in addition to a column to report the Date of Permanent Repairs.
Add a row for catastrophic failures such as pipeline or storage well failures	The Joint Parties suggest that the report capture the amount of methane emissions from large accidents.
Add a column to indicate whether a leak was Above Ground or Below Ground	The Joint Utilities and Joint Parties request information that distinguishes above ground leaks from below ground leaks.
Add more definitions of terms, consistent with PHMSA, where applicable. Due to the confusion that was caused by conflicting definitions for "LEAK", the CPUC and ARB recommend breaking out emissions and leaks into three categories: "Graded Leaks," "Ungraded Leaks," and "Emissions." Each category is defined in the "Definitions" section of the Data Request. These three categories encompass the intent of SB 1371 while eliminating conflicts with the PHMSA definitions.	The definition of leak is revised to agree with the PHMSA definition on the Rev 5, 2015 revision of the PHMSA form F 7100.1-1 instructions. The instructions state, "A 'leak' is defined as an unintentional escape of gas from the pipeline. Do NOT report a leak determined to be non-hazardous and eliminated by lubrication, adjustment, or tightening." So, the PHMSA definition of leak has now been changed from that recommended by the utilities. Previous instructions for PHMSA form F 7100.1-1 stated, "As defined by PHMSA, a 'minor' release is "a non-hazardous release that can be eliminated by lubrication, adjustment, or tightening, is not a leak".
Improved System- Wide Gas Leak Rate calculation.	The original system-wide gas leak rate calculation was based on the PHMSA LAUF gas. However, this is not a very good indication of lost methane consistent with SB 1371. The utilities propose a leak rate which is just the amount of methane leaked and emitted; however, this is not a leak rate and can indicate a false improvement in leak mitigation

	<p>caused by a reduction in the amount of gas flowing through the system (e.g., caused by an economic downturn). Instead, in the new equation (which must be a ratio), the numerator will consist of leaks and emissions reported to the CPUC and ARB by the respondents.</p> <p>There will be two equations, one for storage facilities and one for transmission and distribution systems. The denominators for each equation were chosen to attempt to determine a leak rate in proportion to the gas contained or flowing in each system.</p>
<p>Standardized Emission Factors.</p>	<p>Meetings were held between the utilities and ARB to develop consistent EFs. However, both ARB and the utilities have not reached consensus on some of the factors, and some of the factors need revision. Therefore, the EFs are being circulated as a draft list for comment. A final version of EFs will likely be incorporated into the May 15, 2016 annual data request and report template.</p>

(END OF ATTACHMENT 1)

ATTACHMENT 2

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.

Draft Data Request

STATE OF CALIFORNIA

EDMUND G. BROWN JR., *Governor*

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298
XX XX, 2016



To: Title - Name
[Company Name](#)

From: Ed Charkowicz
(415) 703-2421
Ed.charkowicz@cpuc.ca.gov

Re: 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.

DATA REQUEST: [Company Name] R15-01-008 2016 May Report
Due Date: May 15, 2016

Dear Mr. /Ms. XXX,

Please Note: This data request, “[Company Name] R15-01-008 2016 May Report”, supersedes the following data requests in their entirety:

Company Name Data Request 01-09-15-01, dated 1/9/15
Company Name Data Request 01-09-15-01A, dated 2/24/15
Company Name Data Request 01-09-15-01B, dated 3/23/15

As you are aware, Senate Bill 1371, Leno (attached), was signed into law by Governor Brown on September 21, 2014. SB 1371 seeks to reduce methane leaks and associated greenhouse gas emissions from California utility gas systems. Methane has been determined to be a greenhouse gas many times more potent than carbon dioxide. Pursuant to SB 1371, the California Public Utilities Commission (CPUC), in cooperation with the California Air Resources Board (ARB) launched Rulemaking R.15-01-008 on January 22 2015. The data requested

today is being requested pursuant to A the Scoping Memo for this rulemaking issued July 24, 2015.

Please carefully review the specifics of the data request. If you have any questions, do not hesitate to contact the Commission's Safety and Enforcement Division via email (ed.charkowicz@cpuc.ca.gov) or telephone (415) 703-2421. Please submit your Data Response on or before **May 15, 2016** to Ed Charkowicz ed.charkowicz@cpuc.ca.gov and Terrel Ferreira tferreir@arb.ca.gov. If it is preferable to submit the data on DVDs, please send DVDs to the following individuals:

Ed Charkowicz Safety and Enforcement Division California Public Utilities Commission 2nd Floor 505 Van Ness Ave. San Francisco, Ca. 94102	Terrel Ferreira Industrial Strategies Division California Air Resources Board 1001 I Street, Sacramento, CA 95812
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If for any reason, you are unable to complete the data request by this date, please provide a written explanation -- by 5:00 pm on February 26, 2016 -- why you cannot meet the response date and when you can provide the information. After you have reviewed this data request, I shall be in contact to coordinate logistics and to answer clarifying questions.

Thank you for your cooperation.

Sincerely,

Ed Charkowicz
Public Utilities Rates Analyst
Risk Assessment Unit
Safety and Enforcement Division
California Public Utilities Commission
(415) 703-2421
ed.charkowicz@cpuc.ca.gov

DEFINITIONS AND INSTRUCTIONS
(Please Read Carefully)

- A. "You", "your", "responding party", and "respondent" refers to **[Company Name]**.
- B. "Data" refer to any and all documents, work papers, reports, reference materials, spreadsheets, diskettes and any other papers or files in the respondent's possession, or in the possession of its agents, staff or representatives, including all written, recorded or graphic matters, however produced or reproduced, records, notes, summaries, schedules, contracts or diaries, reports, forecasts or appraisals, memoranda of telephone or in person conversations by or with any person, or any other memoranda, correspondence, letters, mail, e-mail, attachments to e-mail and all other forms of correspondence (however recorded), telegraphs, telexes or cables – whether presently in electronic or hard-copy form.
- C. "Person" means, in the plural as well as the singular, any natural person, association, partnership, corporation, or other form of legal entity, including all representatives of any such person.
- D. In answering each request, please reiterate the text of the data request to which the respondent is responding.
- E. Please provide responses electronically via e-mail or DVD. For data available only in hard copy, please scan and send it electronically, if possible. If this is not practical and hard copies must be sent, state on your email response when the hard copy response was sent.
- F. For any response that requires computation and/or calculation, please provide any and all relevant calculations in Excel format.
- G. If any response refers to specific source document(s), please identify the source documents(s), specify the pages that are referenced and provide copies of the source documents(s).
- H. Provide the name and title of the person(s) who responded to the question(s) and his or her employer.
- I. "Pipeline" means all parts of those physical facilities through which gas moves in transportation, including pipe, valves, and other

appurtenances attached to pipe, compressor units, metering stations, regulator stations, delivery stations, holders, and fabricated assemblies.”¹

- J. “Leak” is defined as unintentional escape of gas from the pipeline.”² SB 1371 uses the words “leaks and leaking components”. Some examples of leaking components are defective or worn gaskets, seals, valve packing, relief valves, pumps, compressors, etc.
- K. “Hazardous Leak” means gas leak that represents an existing or probable hazard to persons or property and requires immediate repair or continuous action until the conditions are no longer hazardous.”³
- L. “Graded Leaks” – Gas leaks which are hazardous, or which could potentially become hazardous as described below:
 - i. A "Grade 1" leak is a leak that represents an existing or probable hazard to persons or property and requiring prompt action, immediate repair, or continuous action until the conditions are no longer hazardous.⁴
 - ii. A "Grade 2" leak is a leak that is recognized as being not hazardous at the time of detection but justifies scheduled repair based on the potential for creating a future hazard.⁵
 - iii. A "Grade 3" leak is a leak that is not hazardous at the time of detection and can reasonably be expected to remain not hazardous.⁶

“Non-Graded Leaks” - Utility company leak grading programs usually apply to leaks below ground level or near ground level. Consequently it is possible to have hazardous and non-hazardous Non-Graded Leaks above ground. In the May 15th report template appendices, all types of hazardous and non-hazardous leaks have been accounted for and are tracked. Refer to the Comment Box in

¹ Refer to 49 CFR 192.3.

² Refer to instructions for completing PHMSA form F 7100.1-1 (rev 5-2015).

³ Refer to 49 CFR 192.1001 and instructions for completing PHMSA form F 7100.1-1 (rev 5-2015)

⁴ Refer to G.O. 112F for more information.

⁵ Refer to G.O. 112F for more information.

⁶ Refer to G.O. 112F for more information.

the “Leak Grade” column of the appendices for the correct codes to use when reporting leaks.

- M. “All Damages” is damage caused by external forces such as dig-ins, accidents and natural forces like settlement, land movement, floods or earthquakes.
- N. “Emissions” are releases of gas to the atmosphere which occur during the course of operations or maintenance. Some examples are:
 - i. Purging (a.k.a. “blowdown”) gas prior to hydro-testing a line.
 - ii. Releases of gas which are a design function of equipment such as gas emitting from relief valve vents or pneumatic equipment.
 - iii. Releases of gas caused by operations, maintenance, testing, training, etc.
- O. “System-Wide Gas Leak Rate” – For purposes of meeting the intent of SB 1371 and this equation, graded leaks, non-graded leaks and emissions will be included in the System-Wide Leak Rate. The system-wide gas leak rate shall be calculated for the 12 months ending December 31st of the reporting year. It shall be calculated as follows:
 - i. Gas Storage Facilities: $[\text{graded leaks}^* + \text{non-graded leaks}^* + \text{emissions}^*] \text{ divided by } [\text{average monthly storage inventory}^* \times 12 \text{ months}] = \text{System-Wide Gas Leak Rate.}$
 - ii. Transmission and Distribution Systems: $[\text{graded leaks}^* + \text{non-graded leaks}^* + \text{emissions}^*] \text{ divided by } [\text{gas transported to customers}^* \text{ inside California} + \text{gas transported to customers}^* \text{ outside of California}] = \text{System-Wide Gas Leak Rate.}$

*Notes:

1. For purposes of this equation 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.
2. All units of volume in Mmscf.

DATA REQUEST

Provide a Document Index that includes all requested documents relevant to this request. Uniquely number each document for identification.

Pursuant to SB 1371, Leno - Natural gas: leakage abatement, the California Public Utilities Commission (CPUC) requests that the following information be transmitted to the CPUC and the State Air Resources Board (ARB) on May 15, 2016. Completion of the attached Report Template and Appendices is required to comply with this Data Request. **You are required to provide all information requested in this Data Request AND the Appendices of the Report Template.**

- (1) A summary of changes to utility leak management practices from January 1st, to December 31st of the previous calendar year.
- (2) A list of new graded gas leaks discovered, tracked by geographic location in a Geographic Information System (GIS) or best equivalent, by grade, component or equipment, pipe size, schedule and material, pressure, age, date discovered and annual volume of gas leaked for each, by month, from January 1st through December 31st of the previous calendar year.
- (3) A list of graded gas leaks repaired, tracked by geographic location in a Geographic Information System (GIS) or best equivalent, by month, from January 1st through December 31st of the previous calendar year. Include the grade, component or equipment, pipe size, schedule and material, pressure, age, date discovered, date of repair, annual volume of gas leaked for each and the number of days from the time the leak was discovered until the date of repair.
- (4) A list of ALL open graded leaks, regardless of when they were found, tracked by geographic location in a Geographic Information System (GIS) or best equivalent that are being monitored, or are scheduled to be repaired, by month, from January 1st through December 31st of the previous calendar year. Include the grade, component or equipment, pipe size, schedule and material, pressure, age, date discovered, scheduled date of repair, and annual volume of gas leaked for each.
- (5) The system-wide gas leak rate, along with any data and computer models used in making that calculation, for the 12 months ending December 31st, of the reporting year.

- (6) Calculable or estimated emissions and leaks for the 12 months ending December 31st of the reporting year, using the categories, emission factors and activity factors in the attachments sent with this data request.
- (7) An annual report on measures that will be taken in the following year to reduce leaks and emissions to achieve the goals of SB 1371.

Reporting Deadline: The above information shall be reported no later than May 15th, 2016.

(END OF ATTACHMENT 2)

Attachment 3

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

Draft May 15th Report Template

[Company Name]

Natural Gas Leakage Abatement Report

In partial fulfillment of

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

And In Response to Data Request
[Company Name] R15-01-008 2016 May Report

By:

Date: 5/15/2016

Introduction

The following data¹¹ have been prepared to comply with Senate Bill 1371 (Leno, 2014), Section 2, Article 3, Order Instituting Rulemaking (OIR) 15-01-008, and to provide our responses to Data Requests [Company Name] R15-01-008 2016 May Report.

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

- (1) A summary of changes to utility leak management practices from January 1st, 2015 to December 31st, 2015.

Response:

[Expand Section as Needed]

¹¹ As described in Data Request [Company Name] R15-01-008 2016 May Report

- (2) A list of new graded gas leaks discovered, tracked by geographic location in a Geographic Information System (GIS) or best equivalent, by grade, component or equipment, pipe size, schedule and material, pressure, age, date discovered and annual volume of gas leaked for each, by month, from January 1st, 2015 through December 31st, 2015.

Response:

See Appendices 1, 4, 8 and 9

- (3) A list of graded gas leaks repaired, tracked by geographic location in a Geographic Information System (GIS) or best equivalent, by month, from January 1st, 2015 through December 31st, 2015. Include the grade, component or equipment, pipe size, schedule and material, pressure, age, date discovered, date of repair, annual volume of gas leaked for each and the number of days from the time the leak was discovered until the date of repair.

Response:

See Appendices 1, 4, 8 and 9

- (4) A list of ALL open graded leaks, regardless of when they were found, tracked by geographic location in a Geographic Information System (GIS) or best equivalent that are being monitored, or are scheduled to be repaired, by month, from January 1st, 2015 through December 31st, 2015. Include the grade, component or equipment, pipe size, schedule and material, pressure, age, date discovered, scheduled date of repair, and annual volume of gas leaked for each.

Response:

See Appendices 1, 4, 8 and 9

- (5) The system-wide gas leak rate, as defined in Data Request [Company Name] R15-01-008 2016 May Report, along with any data and computer models used in making that calculation, for the 12 months ending December 31st, 2015.

See Appendices 8 and 9

- (6) Calculable or estimated emissions and non-graded gas leaks, as defined in Data Request [Company Name] R15-01-008 2016 May Report for the 12 months ending December 31st, 2015.

See All Appendices

- (7) An annual report on measures that will be taken in the following year to reduce gas leaks and emissions to achieve the goals of SB 1371.

[Expand Section as Needed]

(END OF ATTACHMENT 3)