

San Diego Gas & Electric

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
San Diego Gas & Electric R15-01-008 2017 Annual Report

By: San Diego Gas & Electric

Date: 6/16/17

Introduction

The following data¹ have been prepared to comply with Senate Bill 1371 (Leno, 2014), Section 2, Article 3, Order Instituting Rulemaking (OIR) 15-01-008, and to provide our responses to Data Requests [Company Name] R15-01-008 2017 Annual Report.²

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

- (1) A summary of changes to utility leak and emission management practices from January 1st, 2016 to December 31st, 2016. The report must include a detailed summary of changes, including the reasoning behind each change and an explanation of how each change will reduce methane leaks and emissions.

Response:

SDG&E already has various methane emission reduction measures in place that support the objectives of SB 1371. During 2016, SDG&E initiated several additional practices to address methane emissions. Please see Attachment Q1 & Q7 for a description of changes to the utility leak and emission management practices conducted from January 1st, 2016 to December 31st, 2016.

¹ As described in Data Request [Company Name] R.15-01-008 2016 Annual Report

² During SDG&E's process of gathering and compiling data for its 2017 Annual Report, SDG&E identified corrections in its underlying data that may affect its 2016 Annual Report. SDG&E notified Energy Division Staff and will work with Energy Division Staff to determine the procedure for updating SDG&E's 2016 Annual Report, if necessary.

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- (2) A list of new graded and ungraded gas leaks discovered, tracked by geographic location in a Geographic Information System (GIS) or best equivalent, by grade, component or equipment, pipe size, schedule and material, pressure, age, date discovered and annual volume of gas leaked for each, by month, from January 1st, 2016 through December 31st, 2016.

Response:

See Appendices

- (3) A list of graded and ungraded gas leaks repaired, tracked by geographic location in a Geographic Information System (GIS) or best equivalent, by month, from January 1st, 2016 through December 31st, 2016. Include the grade, component or equipment, pipe size, schedule and material, pressure, age, date discovered, date of repair, annual volume of gas leaked for each and the number of days from the time the leak was discovered until the date of repair.

Response:

See Appendices

- (4) A list of ALL open graded and ungraded leaks, regardless of when they were found, tracked by geographic location in a Geographic Information System (GIS) or best equivalent that are being monitored, or are scheduled to be repaired, by month, from January 1st, 2016 through December 31st, 2016. Include the grade, component or equipment, pipe size, schedule and material,

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pressure, age, date discovered, scheduled date of repair, and annual volume of gas leaked for each.

Response:

See Appendices

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

Response:

See Appendices

- (6) Calculable or estimated emissions and non-graded gas leaks, as defined in Data Request [Company Name] R15-01-008 2017 Annual Report for the 12 months ending December 31st, 2016.

Response:

See 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. The report must include a detailed summary of changes, including the reasoning behind each change and an explanation of how each change will reduce methane leaks and emissions.

Response:

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SDG&E hereby submits its proposed bundle of strategies to reduce gas leaks and emissions in the following year as Attachment Q1 & Q7 of this data request.

SDG&E
Attachment Q1 & Q7

No.	Related Proposed Mandatory Best Practice(s)	Title	Emission Source	Question 1: A summary of changes to utility leak and emission management practices from January 1st, 2016 to December 31st, 2016.	Question 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.
1	N/A	Refinement of Emission Factors	Various Sources (e.g. Customer Meters and Meter and Regulator Stations etc.)	This work is being done in collaboration with California Air Resources Board (CARB) and the California Public Utilities Commission, and it was initiated in 2017, so there were no activities in 2016.	Customer meters are the largest source of emissions for SDG&E. SDG&E will support any further research on the emissions factors (EFs) and/or identification of leakiest components to support reductions in this area. In 2017, SoCalGas, with support from SDG&E, will be working on the following projects: <ul style="list-style-type: none"> - Department of Transportation (DOT) / Operations Technology Development (OTD) project to investigate emissions from Commercial and Industrial meter sets. - DOT / OTD project to investigate emissions from leaks on vintage plastic pipelines and components - CARB / Gas Technology Institute (GTI) project to investigate emissions from leaks on Distribution buried Mains and Services - CARB / GTI project to investigate emissions from leaks on Distribution meter set assemblies Investing in studies for EFs will improve quantification efforts and identify the leakiest components for targeting for emissions reduction

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Attachment Q1 & Q7

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					<p>opportunities. Currently required Annual Facility EFs do not provide a means for the System Operator to demonstrate emissions reduction. Developing component leak rates to replace annual facility-based factors will better support emissions reduction accounting because it will be estimating emissions based on actual leak data and component counts. Identifying the most leak-prone components will also improve system knowledge and may provide opportunity for component redesigns to improve emission performance. Improved estimates of methane emissions will help provide a more realistic assessment on magnitude of emission source for prioritizing resources.</p> <p>In addition, SoCalGas is willing to participate with CARB in state-wide studies to measure emissions from these types of facilities and develop component-level EFs. These factors will facilitate emission estimates from actual leak data that is currently available, and identify any additional data that will need to be collected to</p>

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					support this approach. Changes in data collection requirements will require changes to certain procedures, forms, and enterprise systems to manage the new information and data collection effort. Once understood, cost estimates can be provided and funding will be needed to fund the necessary system changes and any incremental labor to collect, QC, monitor, and report the data.
2	23	Reduce Venting During Blowdowns and Improve Data Collection	Transmission Pipeline Blowdowns	SDG&E Transmission Pipelines routinely require maintenance and/or repair to maintain system integrity and safety. Maintenance activities on high pressure pipelines are inherently dangerous due to the high pressure gas in the line. The gas must be evacuated from the pipelines to a safe level in advance of any repair work to be completed. As a best practice in 2016, SDG&E lowered the pipeline pressure where feasible to reduce to potential volume of gas that could be blown to atmosphere, and thus reduce methane emissions to the atmosphere. In	In order to identify key constraints and institute effective blowdown strategies, it is necessary to evaluate current practices and improve data collection practices, and employee training. SDG&E will revise their blowdown data collection forms to improve data collection activities to support emission reduction, including electronically capturing the data to improve the ability to quickly calculate and record emission reductions, making sure all operating groups use consistent practices, and capturing the costs of emission reduction activities. New data collection practices and tools will require associated training to improve

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				2016, SDG&E avoided blowing 113 Mcf of natural gas to atmosphere.	on collection and documentation practices. In addition, SDG&E is looking for opportunities in the upcoming year to use the new methane capture system which SoCalGas started using in 2016. This process compressed pipeline gas into a compressed natural gas tube trailer and then re-introduced the gas into the pipeline. SoCalGas shared this information during the November 2016 EPA Natural Gas STAR / Methane Challenge Blowdown workshop, and has shared the following press releases: http://sempra.mediaroom.com/index.php?s=19080&item=137192 http://sempra.mediaroom.com/index.php?s=19080&item=137297 http://sempra.mediaroom.com/index.php?s=19080&item=137300
3	24 - 26	Excavation Damage Prevention	Distribution and Transmission Pipeline Damages	SDG&E continues to conduct damage prevention programs that address the nine damage prevention elements found within the PIPES Act listed in legislation, Title 49 U.S.C. (United States Code) §60134(b). Reduction of damages to the	In 2017, SDG&E will require that all company excavation contractors be certified in Gold Shovel, a program that is designed to reduce dig-ins. The Gold Shovel Standard aims to be a universally accepted, widely adopted, and ultimately legislatively mandated standard, which, within 3 years, reduces

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				<p>system can support public safety, integrity of the system as well as environmental methane reduction goals.</p> <p>SDG&E also continues to promote other damage prevention measures such as protection of gas facilities from outside force damage, monitoring of certain third party excavation activities and proactive monitoring of Company facilities. Effective March 30, 2016, SDG&E committed to participate in the EPA Methane Challenge Program and implement the options for the Excavation Damages Best Management Practice.</p>	<p>dig-ins from professional excavators by 50%.¹</p> <p>In addition, the SDG&E is hiring two damage prevention advisors in 2017 as part of a pilot program to address areas with high dig-in rates. These advisors will check on excavation projects around our pipelines and be our ambassadors with the excavation contractors.</p> <p>Also, a company-wide enhancement of the use of Geographic Information System (GIS) with the integration of USA ticket management system (KorTerra) is being tested and will be rolled out in the next year. The GIS and KorTerra integration will provide additional tools to support responsive and accurate locate and mark as well as provide a means to develop algorithms for determining high risk areas that may need standby or periodic inspections. The locations of company personnel via their mobile data terminal (MDT) unit's GPS also will be overlaid onto the GIS to support efficient dispatch of</p>

¹ <http://www.goldshovelstandard.com/wp-content/uploads/2015/10/10-10-15-Gold-Shovel-Standard-QA.pdf>

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					<p>personnel.</p> <p>The company is also looking into other ways to improve locate and mark tools and processes, such as:</p> <ul style="list-style-type: none"> - Enhancing the data collection software for damages to allow better analysis and identification of any program deficiencies. - Evaluating options to allow taking pictures of our marks to help identify the need for additional training. - Enhancing the quality assurance for locate and mark activities.
4	17	Mobile Methane Mapping Assessment of Pipelines Identified for Replacement by Distribution Integrity Management Program	Distribution Pipelines	<p>SDG&E began to evaluate the feasibility of using existing mobile methane mapping technologies to model atmospheric methane levels in the vicinity of pipeline Main segments or Services identified through the Distribution Integrity Management Program (DIMP) risk model for replacement.</p> <p>This practice supports methane reduction as well as the DIMP. As beta-test models of mobile leak quantification technologies become available, these areas provide locations for field trials.</p>	<p>For 2017 there are 63 Main replacement projects in the Assessment Plan totaling 144,633 ft of Main, plus 2,082 associated Services for an estimated total system mileage of 248,733 ft.</p>

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				<p>This information is evaluated against known system leaks in the area and then compared against atmospheric methane levels after replacement of the targeted pipelines to compare the emissions before and after replacement and observe the emissions reduction. In addition, the confirmation of any additional leakage prior to pipeline replacement through this work would result in a change of segment leak history and would affect the risk profiles of the segments. This additional information may also result in a re-prioritizing of some segments scheduled for replacement, thereby reducing emissions.</p>	
5	20	Electronically Track Verified Gas Leaks	Transmission and Distribution Pipelines - Leak Survey	<p>In 2016, SDG&E's started adding Bluetooth adapters to their leak detection equipment used for walking leak survey so that leak levels can be recorded via software placed on a smart device and matched with the GPS location. This will allow the electronic tracking of verified gas leaks.</p>	<p>In 2017, work is in progress to integrate the new technology with back-end systems, including GIS maps.</p>

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				<p>Once fully integrated with enterprise GIS and work management systems, this enhancement will:</p> <ul style="list-style-type: none"> • Improve operator knowledge of alignment of survey activities to location of buried pipeline assets • Provide means of validating proper equipment operation during survey operation • Capture equipment readings that could be missed by operators • Reduce paperwork & data entry labor • Reduce data entry errors and missed records 	
6	15	Post-Construction Leakage Survey	Distribution Pipelines	In 2016, the supporting data for this proposed project was reevaluated to help develop the project scope and requirements for implementation.	SDG&E conducted a pilot in 2017, and found that there was a low number of leaks compared to the effort, and has discontinued pursuing this practice.
7	16	Leverage eGIS to Prioritize Non-State-of-the-Art Pipeline Replacement	Distribution Pipelines	SDG&E continued to leverage eGIS to enhance prioritization and optimization of non-state-of-the-art pipeline replacement programs. Leveraging eGIS to more efficiently address the leakiest portions of the system increases	SDG&E's goal for 2017 and 2018 is to continue to use the eGIS system to prioritize pipeline replacements by identifying leaking segments.

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		Programs		the effectiveness of modernization programs and supports greater natural gas reductions.	
8		Replacement of High Bleed Pneumatic Devices	High Bleed Pneumatics	N/A	SDG&E will replace its high bleed pneumatic devices with low-bleed or no-bleed devices. In 2017, records research and field verifications lead to the identification of four high bleed pneumatic devices. These devices will be eliminated or replaced in 2018. This project will require a field site visit to each location to review the facility design and condition.
9	16	Move Pre-1986 Aldyl-A Mains and Associated Services on 5-Year Leak Survey Cycle to Annual Leak Survey	Distribution Pipelines	N/A	Approximately 1,200 miles of pre-1986 Aldyl-A mains located in non-business districts are currently surveyed on a five-year leak survey cycle (Aldyl-A pipe in business districts is surveyed annually). Pre-1986 Aldyl-A is a non-state-of-the-art pipe that is more prone to leaking than other state of the art pipe, so performing more frequent leak surveys and then addressing those leaks will help reduce emissions. In 2017, as part of the Distribution Integrity Management Program, these mains and associated services will start to be

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					converted to an annual leak survey cycle. This program will be funded under DIMP for 2017 and 2018, and is being included in the 2019 GRC application.
10	18	Synergies with Pipeline Safety Enhancement Plan (PSEP) Technology Plan	Distribution and Transmission Pipeline Leaks	Methane Sensors: SoCalGas and SDG&E requested funding under the Utilities’ PSEP Technology plan, to install approximately 2100 methane sensors that link to the Advanced Meter network. These sensors support early warning of a leak for schools, hospitals or hard to evacuate facilities (e.g. nursing homes). SDG&E installed about a dozen sensors as a pilot to integrate with the network, back office systems, and associated processes. If this program is funded, the Utilities would like to expand the program beyond pilot. Fiber Optics to Sense Encroachment: SoCalGas and SDG&E recommended under their PSEP Technology Plan to begin installing fiber optics above high pressure lines that can sense leaks and potential encroachments near	SoCalGas and SDG&E are waiting for approval of the methane sensors project proposed in the PSEP filing before expanding installation to additional high consequence areas. Moving forward, new Transmission Line installation projects 12” or greater in diameter for a mile or longer will include a fiber optic sensing line.

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				the pipeline. In 2016, SoCalGas installed as a pilot and for training a fiber optic line in their Situation Training facility at Pico Rivera. To further this effort, the Utilities changed their procedures to require any Transmission pipeline projects 12” or greater in diameter for a mile or longer to install a fiber optic sensing line.	
11	21	Increased Compressor Rod Packing Replacements	Transmission and Storage Compressors	N/A	California Air Resources Board's Oil and Gas Rule requires rod packing replacements based on leakage levels. This is anticipated to result in more incremental compressor rod packing replacements, reducing emissions.
12	All	Proposed 26 Mandatory Best Practices		N/A	SDG&E will comply with the SB 1371 Phase 1 Final Decision, including preparation of the Compliance Plan, participating in workshops, and forecasting incremental costs related to the best practices, pilot projects, and research and development.