

SED EVALUATION REPORT
FOR SOUTHERN CALIFORNIA GAS COMPANY
2018 LEAK ABATEMENT COMPLIANCE PLAN

I) EXECUTIVE SUMMARY

On March 15, 2018, Southern California Gas Company (SoCalGas) submitted a Methane Leak Compliance Plan, as directed by Commission decision (D.) 17-06-015 in R. 15-01-008, the Rulemaking to Adopt Rules and Procedures Governing Commission-Regulated Natural Gas Pipelines and Facilities to Reduce Natural Gas Leakage Consistent with Senate Bill 1371.¹ Pursuant to D. 17-06-015, the Commission's Safety and Enforcement Division, in cooperation with the CA Air Resources Board, has evaluated the Compliance Plan and provides this written response.

SoCalGas and other gas utilities participated in an April 19 workshop to review major elements of their Compliance Plans, especially proposals for Pilot/Research & Development programs and plans for addressing the 26 Best Practices for methane emissions detection, quantification and reduction, as well as for operations and training, as detailed in D. 17-06-015.

Based on subsequent communications with staff of the Safety & Enforcement Division and the California Air Resources Board (CARB), and in response to comments and inquiries from Working Group members², SoCalGas on July 20 submitted an amended Compliance Plan.

SED has evaluated and approves the SoCalGas 2018 Methane Leak Abatement Amended Compliance Plan, with the following key observations:

Emissions Reduction Estimate. SoCalGas has discussed the 2030 emission reduction goal in its Amended Plan including a review of the practical challenges to projecting attainment. Meeting the goal will depend on the results of R&D projects, less reliance on emission-factor estimates, and incalculable effects of the proposed policy changes. SED expects the 2020 Plan will incorporate the lessons learned during the first Compliance Plan period to provide a more comprehensive reduction plan.

Pilot and R&D Projects: SED approves the proposed Pilot and R&D projects as clarified in the set of Pilot/R&D Summaries, which have been provided in a Data Request response, according to a Project Summary template mutually developed with Pacific Gas & Electric and SED. All such projects will be subject to regular progress review by SED and CARB Staff with SoCalGas R&D representatives not less than every six months, the first review to occur before December 30, 2018.

Best Practice 15: SED approves the proposed alternative to a blanket three-year leak survey for those pipelines currently under a five-year survey interval per GO-112F. SoCalGas has analyzed the

¹ The Plan is available online at <http://www.cpuc.ca.gov/riskassessment/>

² Working Group members who gave informal comments are the Environmental Defense Fund (EDF) and the Coalition for Utility Employees (CUE).

effectiveness of various survey intervals for different pipe material types in their network. That analyses supports the SoCalGas proposal to adopt more-frequent, annual surveys for the most leak-prone pipe materials and to continue five-year surveys on the least leak-prone materials. This approach will focus personnel on inspection of pipes that have the most leaks.

SED cautions that should the program fail to achieve targeted reductions, there might be a more stringent approach adopted for the future.

BP-18 Stationary Methane Detection

SoCalGas proposes two options under this best practice but has requested funding for Option 1, a pilot program to evaluate cost effectiveness, in the Advice Letter. SED approves Option 1.

II) INTRODUCTION

BACKGROUND: D. 17-06-015 ordered jurisdictional gas pipeline operators to file a Biennial Compliance Plan, detailing how they would adopt the Decision's 26 Best Practices for methane emissions methane emissions detection, quantification and reduction, as well as for operations and training. The Compliance Plans were required to be part of the operator's annual Gas Safety Plan under CPUC GO 112-F. Some of the Best Practices included allowance for Pilot or R&D programs to evaluate potential methods and technologies for cost effectiveness and application to the utility's specific operating conditions before adoption.

EVALUATION APPROACH: SED reviewed the SoCalGas Compliance Plan in collaboration with California Air Resources Board (CARB) and considered comments received from members of the Best Practices Working Group. Elements of the Compliance Plan which raised concerns will be discussed in detail in below.

III) EMISSIONS REDUCTION

The Decision ordered that the "Compliance Plans shall include information on how each Respondent plans to achieve a 40% reduction of emissions below 2013 levels by 2030, what level of reduction would be achieved by 2020, and how they plan to achieve the 2020 reduction level." For convenience of measurement, it has been established that the baseline will be represented by the 2015 emissions inventory as reported in the annual Leak Inventory under D. 17-06-015, since 2015 was the first year that the comprehensive emissions inventory was compiled.

In the Amended Compliance Plan, SoCalGas estimates a 14% annual reduction by 2020 and discusses challenges in meeting the 40% reduction target and provides descriptions of how the 2020 reductions will be achieved. SoCalGas notes that the effects of some of the Best Practices cannot be accurately estimated before they are put into practice. Further, SoCalGas points out that a significant portion of the baseline emissions inventory was calculated from a population-based emissions factor (for example, emissions from residential meter sets was determined by multiplying the number of meter sets times a CARB-determined emissions factor). Those emissions inventory figures will remain the same until the emissions factors are changed or alternative methods of measuring those emissions are used.

Another consideration is that SoCalGas has been active in the US EPA Energy STAR program to reduce methane emissions since 1993, as described in the historical section of BP 23. SoCalGas reports that cumulative reduction from this program through 2016 was 2.6 Billion cubic feet. The average reduction over 22 years is 119 Million cubic feet or 119,000 MCF. The steady-state annual reduction from the Energy STAR program is probably greater than this average, but a conservative estimate of 119,000 MCF represents about 4% of the baseline emissions inventory.

SED recognizes the challenges faced by SoCalGas in reaching the 40% reduction target. SED notes that some of the proposed Pilot/R&D programs aim to establish better methods for determining emission factors that represent actual performance on the SoCalGas system.

However, SoCalGas does not specify how the 40% by 2030 reduction will be achieved as required in the Decision. SED expects the 2020 Compliance plan will provide a more comprehensive analysis for how SoCalGas plans to meet the 2030 goal, possibly including new ideas beyond the 26 Best Practices.

Included in the analysis, SoCalGas may propose alternative means of determining emission volumes that currently rely on emissions factors, such as the application of results from the pilot and R&D projects. These proposals to change the emission measurement methods would be reviewed by interested parties in Workshops and if uniformly applicable would be approved for use by CARB.

IV) BEST PRACTICES

BP-1 to BP-8. Policies and Procedures

The first eight best practices are largely policy and procedure statements. SED finds these BP statements are consistent with D. 17-06-015 expectations. In BP-1, SoCalGas discusses the challenges of meeting the 40% reduction target.

BP-9. Recordkeeping

As a recordkeeping improvement to better track leak reduction activity, SoCalGas proposes a major database integration program that will require three to four years to fully implement. The program will begin in 2018-2019 but will extend into the 2020 compliance period. SoCalGas plans to request funding to finish the project in the 2020 Compliance Plan period.

BP-10 to BP-13. Personnel Training.

SoCalGas proposes to develop new training programs to educate their numerous staff about the methane leak abatement best practices and policies. This training would be delivered using on-line methods rather than a traditional classroom format to more quickly instruct the employees than would be possible with their space-limited central classroom location. SoCalGas also points out that classroom training at a central location requires travel expense for many of the technical service employees who are based in the field.

SED Staff notes that on-line training is a newer and more cost-effective technology, as emphasized by SB 1371, which is more likely to reach the large number of employees affected in a shorter time than traditional classroom instruction. SoCalGas has written that the proposed on-line training will include a final hands-on observation by the instructor of employees performing the activities in the field. SED approves the training programs as proposed in the Compliance Plan.

BP-14. Job Classifications.

SoCalGas reviewed current job classifications to assess adequacy in addressing methane emissions reduction and best practices. SoCalGas found the current job profiles do not require changes. SED Staff agrees that the jobs of gas leak detection and gas pipeline repair already address methane, since any activity involving natural gas automatically involves methane.

BP-15 Gas Distribution Leak Surveys

This best practice allows operators to choose between blanket 3-year leak surveys, or a less-frequent interval based on risk-assessment if that will provide a more cost-effective emission reduction.

SoCalGas used a risk-assessment approach to determine that instead of a blanket three-year survey, annual surveys of the most leak-prone pipelines, combined with five-year surveys of the best-performing pipelines, will yield superior emissions reduction and cost effectiveness compared to a uniform 3-year approach.

The estimated emission reduction for the proposed practice is 1.26 million MCF (1000 standard cubic feet) through 2030, compared to the much lower three-year survey estimate of 193,000 MCF. The cost effectiveness of the proposal is \$34/MCF versus the blanket three-year cost of \$470/MCF. The increased survey frequency for leak-prone materials might also be considered as a Special Leak Survey under BP-16 rather than BP-15, but the systematic continuing nature of the practice is more consistent with BP-15.

In terms of annual emissions reduction, the MCF estimates for each category compared to the total SoCalGas Baseline of 2,779,000 MCF are:

Pipeline Material	Proposed Survey Change	Baseline Emissions	2030 Estimate	Reduction from Baseline	% Reduction of Total Baseline	Cost per MCF
Unprotected Steel	3-year to 1-year	268,043	152,785	115,258	4.1%	\$34
Aldyl-A	5-year to 1-year	154,695	58,515	96,180	3.5%	*
Protected Steel	5-year to 3-year (not recc.)	15,554	10,659	4895	0.2%	\$611
State of Art Plastic	5-year to 3-year (not recc.)	44,126	30,252	13,874	0.5%	\$421

**Costs for the Aldyl-A survey are covered in the SoCalGas GRC; however, cost effectiveness is expected to be like the unprotected steel result.*

The analysis shows that the proposed survey plan is expected to produce an 7.6% reduction from the baseline level, a significant part of the total 40% reduction target, at greater cost effectiveness.

SED approves the proposed approach to BP 15, but cautions that should the program fail to achieve targeted reductions, there might be a more stringent approach adopted for the future.

BP-16. Special Leak Surveys

Under BP-16, SoCalGas proposes to move the current 3-year survey for unprotected steel to an annual survey as part of the alternative BP-15 proposal. This practice should really be considered part of BP-15, since the idea of a “special leak survey” is a temporary, focused program for a limited segment of the system rather than a permanent practice that involves a substantial portion of their pipeline. SED approves the proposed BP.

BP-18 Stationary Methane Detection

Both SoCalGas and SDG&E offer two options in the Compliance Plans. Option One is a pilot program with limited installation of currently available devices to better understand cost effectiveness. Option Two is full implementation of current devices without regard for cost effectiveness or consideration of research into emerging technologies which may be more effective. SED approves the first option.

BP-20a Leak Quantification

SoCalGas proposes to develop and use leak quantification methods to identify “large” leaks: defined as having an emissions rate of 10 CFH or greater. These large leaks would then be prioritized for repair within a short time, reducing the amount of time the leak is open and so reducing the emission volume.

While the proposed technical approach differs from PG&E’s proposal, the results are similar: 121,815 MCF vs. PG&E’s 129,000 MCF annual reductions for its “super emitter” program. SoCalGas’ estimated cost effectiveness of \$12/MCF compares favorably to PG&E’s \$22/MCF.

Traditional leak measurement has focused on leak location and concentration but not the gas flow rate. Leak quantification methods have been under development by various researchers recently. Although PG&E reports that their mobile quantification approach has enough accuracy to screen out the “super” leaks (initially defined as greater than 10 CFH), SoCalGas reports that the Southern California service territory presents challenges to mobile measurement. Background environmental levels of methane and industrial gas sources have produced excessive false positive measurements when mobile quantification studies have been done.

Nevertheless, SoCalGas is committed to further research projects to overcome those challenges as part of their proposal. In the meantime, they plan an approach that makes use of all available information to the surveyor for differentiating large leaks from smaller leaks.

SED approves the proposed BP but cautions that should the program fail to achieve targeted reductions, there might be a more stringent approach adopted for the future.

BP-21 “Find-It/Fix-It”

This BP calls for the repair of all pipeline leaks no more than three (3) years after discovery, without regard to the leak’s classification as non-hazardous (Grade 3) by GO-112F standards. Exceptions are allowed for leaks that are costly to repair relative to the size of the leak.

SoCalGas proposes to eliminate their current backlog of below-ground distribution main Grade 3 leaks and then repair all future leaks within three years of discovery. The program will begin in 2019 with repair of approximately 3,500 leaks to eliminate the backlog of leaks older than three years. The estimated emission reduction is 120,685 MCF per year. Program cost is \$17.1 million annually, less the cost of gas saved, which gives a cost effectiveness of \$138/MCF abated. Costs include direct repair and the incremental survey costs for leaks discovered through BP’s 15, 16, 18, and 19. This program cost appears quite favorable compared to PG&E’s estimated \$591/MCF.

SED approves the proposed practice.

BP-23 Reduce Emissions from Operations.

One of the main areas for this best practice is elimination of “high-bleed” gas-actuated pneumatic devices. In the Amended Plan, SoCalGas notes they have nine remaining devices in their gas system. Eight of them will be replaced between 2018 and 2019 with the last one to be replaced as part of a major project in 2020. This was a substantive amendment from the initial Compliance Plan, which projected a much higher number of devices to be replaced at a greater cost.

SED approves the proposed practice.

BP-24. Expand Public Awareness Programs

This BP requires incremental efforts to publicize the Call-Before-You-Dig 811 damage prevention program, and to provide excavation guidelines to contractors, to reduce emissions from pipeline damage.

SoCalGas proposes to expand their programs to audiences beyond the currently covered High Consequence Area communities. SoCalGas will hire two full time employees and to purchase more advertising materials and media time. SoCalGas’ practice also includes distribution of the required contractor guidelines. The program is expected to reduce the number of pipeline dig-ins and thus reduce emissions.

SoCalGas provides an estimate of the emission reduction, and a cost effectiveness figure for this BP. The Amended Compliance Plan improves on their initial analysis of Public Awareness spending vs. pipeline dig-in damages. SoCalGas now incorporates the construction-related metrics of housing starts and precipitation data to better correlate the effect of Public Awareness spending on damage incidents, and thus estimate emissions reduced per dollar spent.

SED approves the proposed implementation of this best practice.

V) PILOT AND R&D PROGRAMS

Ordering Paragraph 10, part b, of Decision 17-06-015 requires that justifications for proposed R&D and Pilot projects are consistent with criteria in Pub. Util. Code Section 740.1.

SED reviewed the proposed Pilot and R&D projects according to PU Code 740.1 and considered suggestions and comments made by interested parties. SED asked SoCalGas to present detailed Project Summaries to provide project information in a standardized format, developed jointly by SED, PG&E and SoCalGas. In the Amended Compliance Plan, SoCalGas has summarized 30 projects using the adopted template. The summaries are consistent with descriptions provided in Advice Letter 5211-A.

SED observes that most of projects are focused on advanced leak measurement and leak quantification, which are appropriate studies needed to advance the practice of leak abatement. The R&D/Pilot funds requested in the Advice Letter for 2018 and 2019 represent about 5.5% of the total request to implement the Compliance Plan. Total incremental funding for the Compliance Plan is \$167.6 million, of which \$9.3 million is for the R&D/Pilot projects. SoCalGas has proposed rate increases of 1.2% and 2.5% in 2018 and 2019 to fund the total Compliance Plan activities, so the 5.5% R&D/Pilot portion is a very small increase to the ratepayer. SED finds that all the proposed projects meet the required criteria.

SED and CARB will be conducting review meetings with the SoCalGas R&D team to assess progress and results of these projects. These project reviews will examine progress towards meeting milestones and discuss whether to continue or cease projects based on trigger points. SED may direct SoCalGas to discontinue a project that SED determines is no longer in the ratepayers' interest.

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