

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



August 19, 2014

Mr. Sumeet Singh, Vice President
Pacific Gas and Electric Company
Gas Asset and Risk Management
6111 Bollinger Canyon Road, Room 4590-D
San Ramon, CA 94583

GA2012-19

Re: SED closure letter for the Distribution Integrity Management Program Audit of Pacific Gas and Electric

Dear Mr. Singh:

The Safety and Enforcement (SED) of the California Public Utilities Commission reviewed Pacific Gas and Electric's (PG&E) response letter dated October 7, 2013 for the findings identified during the Distribution Integrity Management Program (DIMP) Audit. This audit of PG&E's DIMP was conducted from December 10-13, 2012.

SED also reviewed PG&E's follow up letter dated March 20, 2014 notifying SED of the revisions made to its DIMP as a result of the 2012 DIMP Audit. A separate audit will be conducted at a future date to assess PG&E's implementation of the revised DIMP.

A summary of the audit findings documented by the SED, PG&E's response to our findings, and SED's evaluation of PG&E's response taken for each finding are outlined for each identified Violation and Area of Concern.

This letter serves as the official closure of the 2012 DIMP Audit and any matters that are being recommended for enforcement will be processed through the Commission's Citation Program or a formal proceeding.

Thank you for your cooperation in this Audit. Please contact Aimee Cauquiran at (415) 703-2055 or by email at aimee.cauquiran@cpuc.ca.gov if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "Kenneth Bruno".

Kenneth Bruno
Acting Program Manager
Gas Safety and Reliability Branch
Safety and Enforcement Division
California Public Utilities Commission

cc: Redacted
Raymond Thierry, PG&E

Probable Violations

- 1. Probable Violation #1 - 49 CFR §192.1007(a):** PG&E's Risk Management Program (RMP)-15 Attachment C lists various data sources used to identify threats and evaluate risks in its distribution system. However, PG&E mainly uses its Integrated Gas Information System (IGIS) and Riskmaster databases to extract data regarding leaks repaired in its natural gas distribution system to perform threat identification and analysis. During the audit, SED found that although RMP-15 lists the data fields in IGIS and Riskmaster databases that is utilized to support the threat and risk analysis, PG&E did not identify which of these data fields are required to perform its analysis. Since the IGIS information is dependent on the accuracy and thoroughness of the field personnel completing the A-forms, PG&E needs to specify in RMP-15 the data fields it uses for its threat and risk analysis. This will also provide better guidance in identifying "data gaps" which will require further research or review of other records. Furthermore, PG&E must provide additional specificity in RMP-15 to include identification of missing data, including a plan to acquire missing, inaccurate, or incomplete data necessary to fill in gaps by knowledge to avoid possibly skewing the risk ranking due to a large number of conservative default values in a threat population. PG&E must also include the use of other data sources to fill in missing required data for analysis and further minimize the use of default values. Although RMP-15 Section 4.5 describes other methods that PG&E uses to collect information about its gas distribution system, PG&E must develop an action plan that clearly emphasized the importance of collecting the missing required data.

PG&E's Response: "PG&E agrees with the finding. PG&E will revise the "Leak Repair Data Reformatting & Scrub Process" to clarify what steps are to be taken if data is incomplete or missing. Specifically, the following detail will be added: (1) Where possible, PG&E will identify a secondary source of data to be used if the primary data source is unavailable, (2) If a secondary source of data is not available, PG&E will evaluate the importance of the data to the DIMP. Through sensitivity analysis, PG&E will assess if the quantity and type of missing data has the potential to skew the risk results and areas identified for risk mitigation. If the RCA areas are changed as a result of the missing data, then PG&E will identify and document process changes to ensure the data is collected in the future."

SED's Conclusion:

SED recommends that no fine or penalty be imposed since the violation did not create any hazardous conditions for the public or utility employees.

- 2. Probable Violation #2(a) and (b) - 49 CFR §192.1007(b):**
 - (a) SED found that RMP-15 did not describe how PG&E uses additional data sources, such as excavation damage not resulting in a release of natural gas, near-miss events, and Operations and Maintenance (O&M) records to identify Potential threats in its system. Also, PG&E did not include a review of Potential threats during its Threat Steering Committee (TSC) meetings to ensure that it validates and addresses the Potential Threats. Although these threats may not have caused damage in PG&E's facilities, this will allow an opportunity for the company to be proactive and address the threats before they cause significant damage or injury. After the audit, PG&E revised its RMP-15 Attachment E to include discussion of new Potential Threats in the TSC meeting agenda template. However, SED determined that the RMP-15 is still not clear how the DIMP Team or the TSC uses other available information such as O&M records to identify Potential Threats. Although PG&E discusses the Division-specific issues or concerns during its DIMP Field review, SED believes that PG&E must consider reasonably available resources including a separate review of the O&M records to validate if the records reflect any concerns brought up during the DIMP Field review, and if there are any other areas that could potentially have been missed during the discussion with Division personnel.
 - (b) PG&E's RMP-15 lacked detail on how the DIMP Team gains more knowledge of Potential Threats, including those concerns raised during its DIMP Field Review and Field Questionnaires. During the

audit, the PG&E DIMP Team discussed a concern raised by a local distribution engineer regarding anode replacement cycle. Although the PG&E DIMP Team appeared to have taken additional steps to validate the concern, the procedure did not describe the validation process for Potential Threats. Furthermore, although PG&E revised its RMP-15 to state that the DIMP Team collects Potential Threats from various sources and that the appropriate TSCs revise and approve the final list of Potential Threats, RMP-15 did not describe in detail how the DIMP Team considers the pipeline's designs, operations, maintenance, and environmental factors that can affect the integrity of the pipeline in assessing applicability and validity of potential threats.

PG&E's Response: "PG&E agrees with this finding. PG&E agrees that a more detailed process is needed for identifying and documenting potential threats, validating their applicability to the gas distribution system, and evaluating their risk. A new Attachment to RMP-15 will be developed to address potential threats for the 2014 DIMP Cycle. The following items will be detailed in this new process:

- Identify data sources to be used for potential threats reviews.
- Review of the data for potential threats.
- Threat Steering Committee review of identified potential threats.
- Assess risk significance of the potential threats.
- Documentation of the results of the review.
- Document action that will be taken to address the potential threat."

SED's Conclusion:

SED recommends that no fine or penalty be imposed since the violation did not create any hazardous conditions for the public or utility employees.

3. **Probable Violation #3(a) - 49 CFR §192.1007(c):** SED found that the RMP-15 lacked detail on how PG&E evaluates and addresses Emerging and Potential Threats. Emerging Threats in particular, although contributing to less than 0.5% of the total leaks, are existing threats that PG&E must address beyond the manner of Potential Threats. Although such a threat can occur at a low frequency, it may result in a high consequence event. Since the audit, PG&E revised RMP-15 to identify pipeline threats as Known Threats (resulted to leaks) and Potential Threats (non-leaking events). PG&E uses a relative risk model to rank risks of Known Threats, while it continues to use a qualitative method to evaluate Potential Threats to determine the need for mitigative actions. PG&E needs to describe in RMP-15 how it conducts qualitative ranking of Potential Threats.

PG&E's Response: "PG&E agrees with this finding. PG&E agrees that a more detailed process is needed for identifying potential threats, validating their applicability to the gas distribution system, and evaluating their risk. A new Attachment to RMP-15 will be developed to address potential threats for the 2014 DIMP Cycle. The following items will be detailed in this new process:

- Identify data sources to be used for potential threat reviews.
- Review of the data for potential threats.
- Threat Steering Committee review of identified potential threats.
- Assess risk significance of the potential threats.
- Documentation of the results of the review.
- Document action that will be taken to address the potential threat."

SED's Conclusion:

SED recommends that no fine or penalty be imposed since the violation did not create any hazardous conditions for the public or utility employees.

4. **Probable Violation #3(b) - 49 CFR §192.1007(c):** SED found the assigned default weight values for the following attributes to be zero if the data is unknown:
- Other Injury: Number of non-employees injuries
 - Employee Injury: Number of employee injuries
 - Other Fatality: Number of non-employee fatalities
 - Employee Fatality: Number of employee fatalities

Defaulting of these unknowns to zero can potentially rank a higher threat lower than it should be (a less conservative approach). Although PG&E lists in its revised RMP-15 these consequence factors as either required data or a mandatory field, PG&E needs to emphasize to its field crews that they need to provide accurate information and shall not leave fields blank on the A-Form. In which case, if these are truly required data fields, there should be no default values for these consequence factors.

PG&E's Response: "PG&E agrees with this finding, and that the use of default data in the risk algorithm should be minimized. PG&E does not agree that field personnel are the appropriate source for this consequence data (injury, fatality, damage). Field personnel's primary responsibility is to respond to the event, make conditions safe and restore service. Once this is complete, incident investigation and claims processing is turned over to other personnel. As a result, IGIS consequence data should not be the primary source of data since it is only as accurate as what is known by the field at the time of event response. Riskmaster is the best source of information for injury and fatality data and damage costs. The consequence data (injury, fatality, damage) used in the DIMP risk algorithm uses Riskmaster as the primary source of data with IGIS as a secondary source. However, RMP-15 currently identifies IGIS as the primary source of data. PG&E will revise RMP-15 section 4.4 to reflect injury, fatality, and damage as required data fields for Riskmaster."

SED's Conclusion:

SED recommends that no fine or penalty be imposed since the violation did not create any hazardous conditions for the public or utility employees.

5. **Probable Violation #3(c) – 49 CFR §192.1007(c):** The subdivision used for risk analysis if non-excavation related threats should not be constrained at the PG&E Division level. PG&E must modify its process to provide for additional subdivision of its assets into areas with similar characteristics to effectively identify threats and rank risks across its varying areas. PG&E must establish subdivisions in its DIMP that adequately demonstrate where a threat is occurring based on its highest density, and appropriately address the threat in that specific area, not to be masked across a wider geographical area.

PG&E's Response: "PG&E agrees with this finding. PG&E agrees that our risk results need to be further subdivided to gain greater insights. For the 2013 DIMP cycle, PG&E had incorporated line-use and leak source data. PG&E is continuing to evaluate if the DIMP group can further refine the risk results."

SED's Conclusion:

SED recommends that no fine or penalty be imposed since the violation did not create any hazardous conditions for the public or utility employees.

6. **Probable Violation #3(d) – 49 CFR §192.1007(c):** During the audit, SED expressed its concern that the current procedure constrains the RCA process only to areas of high risk/poor performance, when PG&E should also conduct sufficient analysis in areas of high risk/fair performance and medium risk/poor performance. PG&E must not base its RCA process on its limitations in personnel resources. Instead, the amount of resources needed to implement its DIMP effectively must be dictated by PG&E's assessment of system risks. After the audit, PG&E expanded the RCA process to include areas of high

risk/fair performance and medium risk/poor performance. The revision made to the RCA process to expand quadrants requiring RCA satisfies this audit finding.

PG&E's Response: "PG&E agrees with this finding, and as noted by the CPUC, has made changes to the RCA process that satisfy this finding. PG&E implemented changes to address these concerns in Revision 4 of RMP-15 which became effective in March 14, 2013."

SED's Conclusion:

SED recommends that no fine or penalty be imposed since the violation did not create any hazardous conditions for the public or utility employees.

7. **Probable Violation #4 – 49 CFR §192.1007(f):** SED found that RMP-15 lacked detail on how PG&E conducts the annual review of threats, including a development of formal evaluation process defining certain milestones needed to complete the evaluation. For instance, the evaluation should identify certain tasks to be completed prior to the annual evaluation by the TSC. A structured agenda or guidance document for the TSC annual review could provide PG&E more understanding of the data sources, context of the review, and expected outcome of the review. RMP-15 must also require the TSC to review the PAAR performance measures, and the analysis used to determine which areas require RCAs, including the appropriateness of the distribution band used to make the determination for RCA. Similarly, RMP-15 Section 9.8 must also provide detail on the DIMP program re-evaluation every five years. PG&E must describe, at a minimum, what documents and records it reviews to measure the overall program effectiveness, and how PG&E uses the results of performance monitoring in RMP-15 Section 8 in its evaluation.

PG&E Response: "PG&E agrees with this finding. PG&E is in agreement that more detail needs to be provided in RMP-15 Section 9 which describes the processes involved when performing annual reviews and the five year program evaluation. PG&E will place the annual reviews described in Section 9.2 in the appropriate Sections 5 and 6 with the detailed processes that are needed to conduct the review. Section 9.2 will be eliminated and Section 9 will focus on the five year program evaluation. In addition, Section 9.8 will be updated to reflect the CPUC recommendations to:

1. List out documents used in review to measure the overall program effectiveness, and
2. Describe how the results of performance monitoring in RMP-15 Section 8 are used in the review to measure the overall program effectiveness

In regards to TSC review of PAAR and RCA identification, PG&E will create a new section in RMP-15 to specify in one location all the responsibilities for TSC review of DIMP cycle activities. Currently, these responsibilities are dispersed in the various sections of the RMP. Consolidating into a single section will improve clarity of the TSC responsibilities."

SED's Conclusion:

SED recommends that no fine or penalty be imposed since the violation did not create any hazardous conditions for the public or utility employees.

8. **Probable Violation #5 – 49 CFR §192.1011:** SED found that PG&E needs to include in RMP-15 additional guidance to identify specific documents and records that demonstrate compliance to this part of the code, requiring a 10-year retention period. PG&E revised RMP-15 Section 13.2 to include the list of documents and records that it uses through various phases of its DIMP and is required to maintain for at least 10 years. The revision made to the RMP-15 satisfied this finding.

PG&E's Response: "PG&E agrees with this finding, and as noted by the CPUC has appropriately revised RMP-15 to address this finding. During the audit exit meeting, the CPUC had identified concerns with the lack of specificity regarding documents for record retention to demonstrate compliance with the DIMP 49 CFR Part 192, subpart P. In response, PG&E implemented changes to address these concerns in Revision 4 of RMP-15 which became effective in March 14, 2013."

SED's Conclusion:

SED recommends that no fine or penalty be imposed since the violation did not create any hazardous conditions for the public or utility employees.

Areas of Concern / Recommendations

1. **Area of Concern/Recommendation #1:** SED recommends that PG&E perform a comprehensive review of its system annually, including a review of PG&E Drawing Number 086868 which lists pipelines operating over 60 psig, to ensure that PG&E covers all distribution pipelines in its DIMP.

PG&E's Response: "PG&E agrees with this recommendation, and...had made revisions to RMP-15 to incorporate this recommendation. During the audit exit meeting, the CPUC had identified concerns with the definition of covered facilities within the scope of the DIMP. In response, PG&E implemented changes to address these concerns in Revision 4 of RMP-15, which became effective in March 14, 2013."

SED's Conclusion:

SED has reviewed your response and feels the proposed corrective actions articulated by PG&E sufficiently address the AOC if implemented as indicated in your response. SED may opt to test this stated corrective action at a future date.

2. **Area of Concern/Recommendation #2(a):** SED reviewed PG&E's risk algorithm and identified the following assigned values that it believes need to be changed or reviewed:
- **Damage** – PG&E assigns a default value of zero if the damage is unknown. Loss of gas is almost always a given in a gas leak event which costs some monetary consequence. SED advised PG&E that the default value for this attribute should at least be five.
 - **Pressure and Proximity** – PG&E assumes that distribution pipelines operating above 60 psig are located farther away from structures and are assigned a Proximity value equivalent to a main operating at 60 psig or less. Although this may be true for most of these distribution pipelines, PG&E has high pressure regulating stations (HPR) or farm taps that are located closer to a building structure than a distribution main. PG&E should review these locations and assign an appropriate weight score commensurate to the amount of gas leak and proximity of the leak from a structure.
 - **Grade** – PG&E currently uses the final leak designation when assigning a value to this attribute. PG&E standard currently allows downgrading of hazardous leaks or Grade 1 leaks to Grade 2+ by safely allowing gas to vent, until repairs are completed. Downgrading via venting can provide a false sense of the magnitude of the leak. PG&E should use the more conservative assigned value for leaks that it downgrades via venting.

PG&E's Response: "PG&E agrees with this recommendation, and...had made revisions to RMP-15 to incorporate this recommendation.

- During the audit exit meeting, the CPUC had identified concerns with the default value used for damage consequence factor. In response, PG&E implemented changes to address these concerns in Revision 4 of RMP-15 which became effective in March 14, 2013.
- PG&E will perform a review of all leaks on distribution facilities greater than 60 psi to determine if any leaks on HPR facilities are in proximity of structures such that the consequence of the leak are understated. If necessary, PG&E will update the risk results associated with these leaks to reflect proximity information identified during the review.
- PG&E will perform a review of leaks that have been downgraded for the time period of 2009-2012 to see if there is any concentration of leaks that could influence the risk results. This review will be qualitative unless there are a significant number of downgraded leaks at the district regional level in which case, a quantitative assessment will be performed. If downgrading of leaks is determined to potentially influence risk

results, PG&E will update the Leak Data Reformatting and Scrub Process to specifically address downgrading of leaks."

SED's Conclusion:

SED has reviewed your response and feels the proposed corrective actions articulated by PG&E sufficiently address the AOC if implemented as indicated in your response. SED may opt to test this stated corrective action at a future date.

- 3. Area of Concern/Recommendation #2(b):** SED recommends clarifying and defining some of the consequence factors and attributes that PG&E uses. For instance, there should be a clear definition of what PG&E considers an injury, above ground, and in a subsurface.

PG&E's Response: *"PG&E agrees with this recommendation, and...had made revisions to RMP-15 to incorporate this recommendation. Definitions for the factors used in RMP-15 section 6.5 for consequence of failure are available in PG&E document TD-4110P-103-JA01, ("A Form Instructions")...PG&E will update RMP-15 to provide a reference to this document."*

SED's Conclusion:

SED has reviewed your response and feels the proposed corrective actions articulated by PG&E sufficiently address the AOC if implemented as indicated in your response. SED may opt to test this stated corrective action at a future date.

- 4. Area of Concern/Recommendation #2(c):** PG&E defines Known Threats as those leaks contributing to 0.5% or greater of the total leaks, and Emerging Threats as leaks contributing to less than 0.5% of the total leaks. The algorithm currently accounts for all leaks regardless of the 0.5% threshold. PG&E should evaluate whether the 0.5% threshold is necessary and adequate to account for these lower frequency threats.

PG&E's Response: *"During the audit exit meeting, the CPUC had identified concerns with use of Emerging Threats and the potential to mask these threats. In response, PG&E implemented changes to address these concerns in Revision 4 of RMP-15 which became effective in March 14, 2013."*

SED's Conclusion:

SED has reviewed your response and feels the proposed corrective actions articulated by PG&E sufficiently address the AOC if implemented as indicated in your response. SED may opt to test this stated corrective action at a future date.

- 5. Area of Concern/Recommendation #3:** PG&E should continue to include in its RMP a requirement to evaluate the various existing programs, including those not listed in the RMP, to ensure that correct PAAR are in place to address the identified threats in its system, and that it monitors the appropriate performance measures.

PG&E's Response: *"To better understand the CPUC intent with this recommendation, PG&E contacted CPUC staff to get clarification. As a result, PG&E agrees with this CPUC recommendation. When PG&E performs root cause analyses and recommends PAARs, one of the considerations is existing programs that PG&E has in place. If an existing program can effectively be utilized to address the RCA findings, PG&E will leverage this program (such as pipeline replacement) as the PAAR."*

SED's Conclusion:

SED has reviewed your response and feels the proposed corrective actions articulated by PG&E sufficiently address the AOC if implemented as indicated in your response. SED may opt to test this stated corrective action at a future date.