THE UTILITY REFORM NETWORK DATA REQUEST
TURN-DR-008
SDG&E/SOCALGAS 2021 RAMP REPORTS- A.21-05-011/014
DATE RECEIVED: AUGUST 11, 2021
DATE RESPONDED: AUGUST 25, 2021

Question 1:
For the "RSE Workpaper" generally, please provide a written explanation of the meaning and purpose of each of the following columns: % Risk Addressed, % Mitigation Scope, and % Effectiveness. Jeff gave verbal explanations today, but it would be helpful to have those explanations in writing.

SoCalGas and SDG&E Response 01:

The three components shown in the "RSE Workpaper" tab are key components in the determination of risk reduction for each activity. The overarching principle is risk reduction can be determined by calculating – on a percentage basis – the risk addressed, the mitigation scope, and the effectiveness of the mitigation. Those percentages can then be used to demonstrate a change in risk score compared to the pre-mitigation risk score. The benefit lifetime of the mitigation is also a factor in the overall RSE calculation.

As noted in the August 11, 2021 workshop and as depicted in SoCalGas's & SDG&E's supplemental workpapers, risk scores were determined using a set of internal, industry and national incident data. The risk score, therefore, is an indexed representation of the entire risk quantified by the incident data and expected impacts. Using this method, a percentage of risk addressed can be determined by evaluating the drivers/triggers that the specific mitigation addresses as a percentage of the risk event. The mitigation scope is the percentage of total work to be done by the mitigation, and the effectiveness becomes a percentage of how well the mitigation reduces risk. The resulting risk reduction, as shown in the formula below, can be calculated by multiplying these percentages together subtracted by the pre-mitigation risk score.

$$Risk\ Reduction = \%\ risk\ addressed * \%\ mitigation\ scope * \%\ effectiveness * Pre - Mitigated\ Risk\ Score$$

In other words, start with the overall risk event, which may include several sub-events, and determine the percentage of the overall risk that will be addressed by a given activity (*e.g.*, % Risk Addressed). The % mitigation scope is calculated as the percentage of units that will be addressed over the duration of the activity, relative to the number of units in the system prior to the start of the activity. For example, completing 100% of the scope will result in the fully realized reduction of the portion of the overall risk which the activity addresses. The % effectiveness is a factor that represents how well the execution of the scope reduces the portion of the overall risk addressed by that activity. The three percentages are multiplied together to estimate how much the activity reduces the overall risk.

It should be noted that this is only a representative approach to the actual risk reduced by the mitigation scope. Certain activities, such as on-going O&M, are designed to address reoccurring risk, so a 100% scope execution does not always equate to 100% of the risk reduced. In these instances, the activity helps maintain current risk levels and mitigates the potential for increases in risk. Additionally, the profiles of risks to the enterprise are constantly changing, so the depiction of risk reduction is relative to the state of the risks at a point in time.

SoCalGas and SDG&E Response 01 Continued:

In these instances, the execution of an activity with a 100% mitigation scope may not produce the same risk reduction when based on using a future point in time.

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Question 2:
For the "RSE Workpaper" for each risk, please provide the inputs and input sources for the values in the following columns: % Risk Addressed, % Mitigation Scope, % Effectiveness, and Lifetime Benefit.

SoCalGas and SDG&E Response 02:

Please refer to the attached spreadsheets/workpapers identified below that are provided with this reply. The explanations for each of these four values are on the tab "RSE Workpaper."

Final 2021 RSE Workpaper - SCG CONT_TURN DR8 Q2_1.xlsx
Final 2021 RSE Workpaper - SCG EMPL_TURN DR8 Q2_2.xlsx
Final 2021 RSE Workpaper - SCG HP_TURN DR8 Q2_3.xlsx
Final 2021 RSE Workpaper - SCG HPDG_TURN DR8 Q2_4.xlsx
Final 2021 RSE Workpaper - SCG MP_TURN DR8 Q2_5.xlsx
Final 2021 RSE Workpaper - SCG MPDG_TURN DR8 Q2_6.xlsx
Final 2021 RSE Workpaper - SCG STOR_TURN DR8 Q2_7.xlsx
Final 2021 RSE Workpaper - SDGE HP_TURN DR8 Q2_8.xlsx
Final 2021 RSE Workpaper - SDGE HPDG_TURN DR8 Q2_9.xlsx
Final 2021 RSE Workpaper - SDGE MP_TURN DR8 Q2_10.xlsx
Final 2021 RSE Workpaper - SDGE MPDG_TURN DR8 Q2_11.xlsx

Upon further review of the data in the SoCalGas Employee and Contractor risk chapters and workpapers, SoCalGas made an adjustment to the financial attribute. The financial attribute previously included safety impacts, which have subsequently been removed from the financial attribute in the file noted above. Safety impacts are instead reflected only in the safety attribute. This resulted in minor changes to the RSEs for some mitigations and controls in both chapters, e.g., RSE values in the Contractor and Employee risk chapters changed by less than 1.0%, with the majority changing by less than 0.1%.[1] SoCalGas has reflected this change in this DR response (in Final 2021 RSE Workpaper - SCG EMPL_TURN DR8 Q2_2.xlsx and Final 2021 RSE Workpaper - SCG CONT_TURN DR8 Q2_1.xlsx) for accuracy and will also reflect this update in the GRC.

Please also note that this reply applies to only those risks that used the "%%%" method to calculate RSE values.

[1] The initial RSE values are in a column next to the updated RSE values under the header "RSE per $M (in filed RAMP Report)".

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Question 3:
For the "RSE Workpaper" generally, please provide a written explanation of how a % Effectiveness value can exceed 100% and what exactly a value in excess of 100% signifies and is being compared to. Again, Jeff gave a verbal explanation today, but it would be helpful to have the explanation in writing.

SoCalGas and SDG&E Response 03:

As noted in Response 01 above, the effectiveness value is an indicator to how well the activity is accomplishing the risk reduction, not in the explicit execution of the activity. Below are examples of why an effectiveness value would be relatively very low (<10%) and relatively very high (>100%).

Relatively low effective value
For new and emerging activities that have little data surrounding the level or benefit realized upon execution, the effectiveness may be less than 100%. As was discussed in the January 27, 2021, Pre-RAMP filing workshop, SoCalGas and SDG&E showcased the Risk Spend Efficiency (RSE) calculation for Photo documentation of a locator's response to all USA Tickets. The premise behind the activity is to improve the accuracy of the locating activity and to inform process improvements based on investigations of gas incidents and quality assurance audits. The risk reduction is realized through lessons learned from a potential incident where the documentation could show incorrect markings or GIS mapping. The benefit for such a mitigation may not be realized for many years and/or the lessons learned may be relatively marginal, thus, the effectiveness of such a mitigation would be very low. For this example, an effectiveness of less than 1% was chosen.

Relatively high effectiveness value
In the same regard that an activity can yield marginal effectiveness, an activity can also garner an effectiveness at or greater than 100%. When examining asset replacement programs where subject matter expertise was the only means available to estimate effectiveness, in general, the effectiveness of the mitigation was determined to be close if not equal to 100%. As stated above, the % effectiveness is measuring how well the mitigation accomplishes the risk reduction. In the case of full asset replacement, the new asset theoretically should alleviate all existing risk beyond the operation of the asset; therefore, the effectiveness will be close to, if not, 100%.

Regarding the exceedance of 100% effectiveness, SDG&E and SoCalGas recognize that not all assets in operation face the same set of risks or are affected as such. Control activities regarding the replacement of vintage plastic pipe are discussed in both SDG&E's and SoCalGas's Medium Pressure RAMP risk chapters (SDG&E-Risk-9 and SoCalGas-Risk-3). For SoCalGas, the Vintage Integrity Plastic Program (VIPP) is a capital replacement program specifically targeting

SoCalGas and SDG&E Response 03 Continued:

Non-State-of-the-Art (NSOTA) plastic pipe that has significant vulnerabilities as compared to State-of-the-art (SOTA) pipe. Another example is steel pipe that has specific vulnerabilities due to the manufacturing process where other steel pipe of the same vintage and different manufacture process may not. These controls specifically target pipe with enhanced vulnerabilities compared to other pipe in the system.

When considering that the risk score is developed at the system level containing all asset types, and that the risk addressed percentage is also derived from a system perspective, an activity that is known to address a more vulnerable part of or asset within the system could potentially have a greater effect in reducing risk, since a more vulnerable asset would yield a greater number of incidents compared to a less vulnerable asset. Specific to the VIPP example, SDG&E and SoCalGas quantified a greater effectiveness value for a targeted program versus a non-targeted program that replaces plastic pipe at specified intervals by examining the effect of the greater vulnerability.