



**Risk Assessment Mitigation Phase**  
**(Chapter SCG-3)**  
**Contractor Safety**

**November 27, 2019**

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## Risk: Contractor Safety

### I. INTRODUCTION

The purpose of this chapter is to present the Risk Mitigation Plan for Southern California Gas Company's (SoCalGas or Company) Contractor Safety risk. Each chapter in this Risk Assessment Mitigation Phase (RAMP) Report contains the information and analysis that meets the requirements adopted in Decision (D.) 16-08-018 and D.18-12-014 (and the Settlement Agreement included therein (SA Decision)).<sup>1</sup>

SoCalGas has identified and defined RAMP risks in accordance with the process described in further detail in Chapter RAMP-B of this report. On an annual basis, SoCalGas' Enterprise Risk Management (ERM) organization facilitates the Enterprise Risk Registry (ERR) process, which influenced how risks were selected for inclusion in the 2019 RAMP Report, consistent with the SA Decision's directives.

The purpose of RAMP is not to request funding. Any funding requests will be made in SoCalGas' General Rate Case (GRC). The costs presented in this 2019 RAMP Report are those costs for which SoCalGas anticipates requesting recovery in its Test Year (TY) 2022 GRC. SoCalGas' TY 2022 GRC presentation will integrate developed and updated funding requests from the 2019 RAMP Report, supported by witness testimony.<sup>2</sup> For this 2019 RAMP Report, the baseline costs are the costs incurred in 2018, as further discussed in Chapter RAMP-A. This 2019 RAMP Report presents capital costs as a sum of the years 2020, 2021 and 2022 as a three-year total; whereas, operations and maintenance (O&M) costs are only presented for TY 2022.

Costs for each activity that directly addresses each risk are provided where those costs are available and within the scope of the analysis required in this RAMP Report. Throughout this 2019 RAMP Report, activities are delineated between controls and mitigations, which is consistent with the

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<sup>1</sup> D.16-08-018 also adopted the requirements previously set forth in D.14-12-025. D.18-12-014 adopted the Safety Model Assessment Proceeding (S-MAP) Settlement Agreement with modifications and contains the minimum required elements to be used by the utilities for risk and mitigation analysis in the RAMP and GRC.

<sup>2</sup> D.18-12-014 at Attachment A, A-14 ("Mitigation Strategy Presentation in the RAMP and GRC").

definitions adopted in the SA Decision’s Revised Lexicon. A “Control” is defined as a currently established measure that is modifying risk. A “Mitigation” is defined as a measure or activity proposed or in process designed to reduce the impact/consequences and/or likelihood/probability of an event. Activities presented in this chapter are representative of those that are primarily scoped to address SoCalGas’ Contractor Safety risk; however, many of the activities presented herein also help mitigate other risk areas as outlined in Chapter RAMP-A.

As discussed in Chapter RAMP-D, Risk Spend Efficiency (RSE) Methodology, no RSE calculation is provided where costs are not available or not presented in this RAMP Report (including costs for activities that are outside of the GRC and certain internal labor costs). Additionally, SoCalGas did not perform RSE calculations on mandated activities. Mandated activities are defined as activities conducted in order to meet a mandate or law, such as a Code of Federal Regulation (CFR), Public Utilities Code (PUC) statute, or General Order (GO). Activities with no RSE score presented in this 2019 RAMP Report are identified in Section VII below.

SoCalGas has also included a qualitative narrative discussion of certain risk mitigation activities that would otherwise fall outside of the RAMP Report’s requirements, to aid the California Public Utilities Commission (CPUC or Commission) and stakeholders in developing a more complete understanding of the breadth and quality of SoCalGas’ mitigation activities. These distinctions are discussed in the applicable control/mitigation narratives in Section V. Similarly, a narrative discussion of certain “mitigation” activities and their associated costs is provided for certain activities and programs that may indirectly address the risk at issue, even though the scope of the risk as defined in the RAMP Report may technically exclude the mitigation activity from the RAMP analysis. This additional qualitative information is provided in the interest of full transparency and understandability, consistent with guidance from Commission staff and stakeholder discussions.

#### **A. Risk Definition**

For purposes of this RAMP Report, SoCalGas’ Contractor Safety risk is defined “as the risk of a safety event, caused by a contractor or subcontractor not following safety standards and/or procedures, which results in serious injuries and/or fatalities while conducting work on behalf of the Company.”

## B. Summary of Elements of the Risk Bow Tie

Pursuant to the SA Decision,<sup>3</sup> for each control and mitigation presented herein, SoCalGas has identified which element(s) of the Risk Bow Tie the mitigation addresses. Below is a summary of these elements.

**Table 1: Summary of Risk Bow Tie Elements**

<b>ID</b>	<b>Description of Driver/Trigger and Potential Consequence</b>
DT.1	Deviation from policy/procedure, inadequate reporting of near misses
DT.2	Inexperience or lack of training
DT.3	Inadequate oversight
DT.4	Inadequate use of Job Site Safety Plans or Job Safety Analysis
DT.5	Inadequate utility and/or substructure location information
DT.6	Unsafe operation of equipment or motor vehicle
DT.7	Contractor crew fatigue or complacency, or impairment
PC.1	Serious injuries <sup>4</sup> and/or fatalities
PC.2	Property damage
PC.3	Additional compliance safety inspections
PC.4	Operational and reliability impacts
PC.5	Adverse litigation
PC.6	Penalties and fines
PC.7	Additional regulations

<sup>3</sup> D.18-12-014 at Attachment A, A-14 (“Mitigation Strategy Presentation in the RAMP and GRC”).

<sup>4</sup> A “serious injury” is defined in the California Code of Regulations as “any injury or illness occurring in a place of employment or in connection with any employment which requires inpatient hospitalization for a period in excess of 24 hours for other than medical observation or in which an employee suffers a loss of any member of the body or suffers any serious degree of permanent disfigurement, but does not include any injury or illness or death caused by the commission of a Penal Code violation, except the violation of Section 385 of the Penal Code, or an accident on a public street or highway.” 8 California Code of Regulations (CCR) § 330(h).

PC.8	Erosion of public confidence
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**C. Summary of Risk Mitigation Plan**

Pursuant to the SA Decision,<sup>5</sup> SoCalGas has performed a detailed pre- and post-mitigation analysis of controls and mitigations for each risk selected for inclusion in RAMP, as further described below. SoCalGas’ baseline controls for this risk consist of the following programs/activities:

**Table 2: Summary of Controls**

<b>ID</b>	<b>Control Name</b>
SCG-3-C1	Contractor Safety Oversight
SCG-3-C2	Contractual Requirements
SCG-3-C3	Stop the Job/Near Miss/Close Call Reporting Program
SCG-3-C4	Third-Party Administration Tools
SCG-3-C5	Contractor Engagement

SoCalGas will continue the baseline controls identified above and identifies one mitigation project/program as follows:

**Table 3: Summary of Mitigations**

<b>ID</b>	<b>Mitigation Name</b>
SCG-3-M1	Expanded Contractor Safety Oversight

Finally, pursuant to the SA Decision,<sup>6</sup> SoCalGas presents considered alternatives to the Risk Mitigation Plan for the Contractor Safety risk and summarizes the reasons that the alternatives were not included into the Risk Mitigation Plan in Section VIII.

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<sup>5</sup> D.18-12-014 at Attachment A, A-11 (“Definition of Risk Events and Tranches”).

<sup>6</sup> *Id.* at p. 33.

## II. RISK OVERVIEW

The Contractor Safety risk was included in SoCalGas' 2018 ERR and for purposes of this RAMP filing is defined as the risk of a safety event, caused by a contractor or subcontractor not following safety standards and/or procedures, which results in serious injuries and/or fatalities while conducting work on behalf of the Company. While 2018 is used as the base year for mitigation planning presented in the RAMP, risk management has been occurring, successfully, for many years within the Company and is continuously evolving. SoCalGas takes compliance and managing risks seriously as evidenced by the many actions taken to mitigate each risk. The baseline mitigations are determined based on the relative expenditures during 2018; however, SoCalGas does not currently track expenditures in this way, so the baseline amounts reflect the best effort of SoCalGas to benchmark both capital and O&M costs during a year.

The Commission has ordered that RAMP be focused on safety-related risks and mitigating those risks.<sup>7</sup> For many risks, safety and reliability are inherently related and cannot be separated, and the mitigations reflect that fact. Compliance with laws and regulations is also inherently tied to safety and SoCalGas takes those activities very seriously. In all cases, the 2018 baseline mitigations include activities and amounts necessary to comply with the laws in place at that time. Laws can rapidly evolve, however, and if new laws have been passed since September 2018 the RAMP baseline has not taken these into account.

As noted above, the purpose of RAMP is not to request funding. Any funding requests will be made in the TY 2022 GRC. The forecasts for mitigation are therefore not for funding purposes but are rather to provide an anticipated range of costs for the future GRC filing. This range will be refined with supporting testimony in the GRC.

This Contractor Safety risk chapter focuses on mitigations that address safety, education, training, and other internal procedural enhancements, whereas SoCalGas' High- and Medium-Pressure Pipeline chapters focus on pipeline infrastructure improvements and thus the risk is more appropriately captured within those chapters. Thus, not included in the Contractor Safety risk is the risk of potential injuries or fatalities associated with medium-pressure or high-pressure natural gas pipelines. While the

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<sup>7</sup> D.16-08-018.



consequences of those risk events could fall under the risk definition here, those risk events are captured in the High-Pressure Gas Pipeline Incident (SCG-5) and the Medium-Pressure Gas Pipeline Incident (SCG-6) chapters of this report.

Finally, this RAMP Report is the first instance where SoCalGas has had to apply the SA Decision to its risk analysis of this risk (and all of its risks in RAMP). SoCalGas looks forward to feedback from the Commission on its application of the SA Decision to this risk.

### **III. RISK ASSESSMENT**

In accordance with the SA Decision,<sup>8</sup> this section describes the Risk Bow Tie, possible drivers, and potential consequences of the Contractor Safety risk.

#### **A. Risk Bow-Tie**

The Risk Bow Tie shown in Figure 1, below, is a commonly-used tool for risk analysis. The left side of the Risk Bow Tie illustrates drivers/triggers that lead to a risk event and the right side shows the potential consequences of a risk event. SoCalGas applied this framework to identify and summarize the information provided above. A mapping of each Control/Mitigation to the element(s) of the Risk Bow Tie addressed is provided in Appendix A.

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<sup>8</sup> D.18-12-014 at 16 and Attachment A, A-11 (“Bow Tie”).

**Figure 1: Risk Bow Tie**



**B. Asset Groups of Systems Subject to the Risk**

The SA Decision<sup>9</sup> directs the utilities to endeavor to identify all asset groups or systems subject to the risk. This is a “cross-cutting” risk and therefore is associated with human systems, rather than particular asset groups.

**C. Risk Event Associated with the Risk**

The SA Decision<sup>10</sup> instructs the utility to include a Risk Bow Tie illustration for each risk included in RAMP. As illustrated in the above Risk Bow Tie, the risk event (center of the Risk Bow Tie) is a contractor safety event that results in a serious injury or fatality along with any of the Potential

<sup>9</sup> *Id.* at Attachment A, A-11 (“Definition of Risk Events and Tranches”).

<sup>10</sup> *Id.* at Attachment A, A-11 (“Bow Tie”).

Consequences listed on the right. The Drivers/Triggers that may contribute to this risk event are further described in the section below.

#### **D. Potential Drivers/Triggers<sup>11</sup>**

The SA Decision<sup>12</sup> instructs the utility to identify which element(s) of the associated Risk Bow Tie each mitigation addresses. When performing the risk assessment for Contractor Safety, SoCalGas identified potential leading indicators, referred to as Drivers or Triggers. These include, but are not limited to:

- **DT.1 – Deviation from policy/procedure, inadequate reporting of near misses:** SoCalGas has many safety-related policies and procedures for contractors to follow. Failure of a contractor to adhere to a Company safety policy or procedure could result in a safety-related event. In addition, contractors failing to report near misses and sharing lessons learned with SoCalGas can result in the incident occurring again with potentially more significant results.
- **DT.2 – Inexperience or lack of training:** Contractors and sub-contractors used by SoCalGas are expected to hire experienced employees and provide adequate training to perform the work required. Failure of contractors to hire experienced employees as well as a failure to provide training for the jobs they are required to perform may lead to an increase in the occurrence of a safety-related event.
- **DT.3 – Inadequate oversight** – Oversight is an integral part of managing work performed by contractors, not only from a quality of work perspective, but also to verify that safe work practices are being followed. The lack or failure to engage in overseeing the work of a contractor can lead to departures from safe work practices that could result in a safety-related event.
- **DT.4 – Inadequate use of Job Site Safety Plans of Job Safety Analysis** – Insufficient knowledge of the work environment or improper planning for potential job hazards may lead to contractors sustaining a safety-related event while on the job.

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<sup>11</sup> An indication that a risk could occur. It does not reflect actual or threatened conditions.

<sup>12</sup> D.18-12-014 at Attachment A, A-11 (“Bow Tie”).

- **DT.5 – Inadequate utility and/or substructure location information** – Contractors need to have the proper information about the assets, systems or infrastructure that are part of the SoCalGas facilities they are contracted to work on, but also the auxiliary substructures in the vicinity of their work activities. Inadequate or inaccurate utility and/or substructure information can lead to instances of serious injuries to contractor employees.
- **DT.6 – Unsafe operation of equipment or motor vehicle** – Contractors may utilize their own company vehicles/equipment or vehicles/equipment owned by SoCalGas. The unsafe operation of such may lead to consequences such as serious injuries or fatalities.
- **DT.7 – Contractor crew fatigue or complacency, or impairment** – Contractors working excessive hours can create unsafe work environments. Complacency may reduce the level of awareness to hazards which can lead to a safety-related event. Also, factors such as heat, night work, high-risk work locations (e.g. busy roadways), etc. may lead a contractor becoming impaired and increase the likelihood of being seriously injured.

#### **E. Potential Consequences**

Potential Consequences are listed to the right side of the Risk Bow Tie illustration provided above. If one or more of the Drivers/Triggers listed above were to result in an incident, the Potential Consequences, in a reasonable worst-case scenario, could include:

- Serious injuries and/or fatalities;
- Property damage;
- Additional compliance safety inspections;
- Operational and reliability impacts;
- Adverse litigation;
- Penalties and fines;
- Additional regulations; and
- Erosion of public confidence.

These Potential Consequences were used in the scoring of the Contractor Safety risk that occurred during the development of SoCalGas' 2018 Energy Risk Registry.

#### IV. RISK QUANTIFICATION

The SA Decision sets minimum requirements for risk and mitigation analysis in RAMP,<sup>13</sup> including enhancements to the Interim Decision 16-08-018.<sup>14</sup> SoCalGas used the guidelines in the SA Decision as a basis for analyzing and quantifying risks, as shown below. Chapter RAMP-C of this RAMP Report explains the Risk Quantitative Framework which underlies this Chapter, including how the Pre-Mitigation Risk Score, Likelihood of Risk Event (LoRE), and Consequence of Risk Event (CoRE) are calculated.

**Table 4: Risk Quantification Scores<sup>15</sup>**

<b>Contractor Safety</b>	<b>Low Alternative</b>	<b>Single Point</b>	<b>High Alternative</b>
<b>Pre-Mitigation Risk Score</b>	109	<b>1037</b>	2582
<b>LoRE</b>	<b>1.1</b>		
<b>CoRE</b>	104	<b>984</b>	2451

##### A. Risk Scope & Methodology

The SA Decision requires a pre- and post-mitigation risk calculation.<sup>16</sup> The below section provides an overview of the scope and methodologies applied for the purpose of risk quantification.

<sup>13</sup> *Id.* at Attachment A.

<sup>14</sup> *Id.* at 2-3.

<sup>15</sup> The term “pre-mitigation analysis,” in the language of the SA Decision (at Attachment A A-12 (“Determination of Pre-Mitigation LoRE by Tranche,” “Determination of Pre-Mitigation CoRE,” “Measurement of Pre-Mitigation Risk Score”)), refers to required pre-activity analysis conducted prior to implementing control or mitigation activity.

<sup>16</sup> D.18-12-014 at Attachment A, A-11 (“Calculation of Risk”).

**Table 5: Risk Quantification Scope**

<p><b>In-Scope for purposes of risk quantification:</b></p>	<p>The risk of a work-related as defined by Occupational Safety and Health Administration (OSHA) safety incident involving a Class 1 contractor(s) which causes serious injuries or fatalities while conducting work on behalf of SoCalGas.</p> <p>SoCalGas is focusing its Contractor Safety Program on Class 1 Contractors. Class 1 Contractors are:  <i>“A Class 1 Contractor is a Contractor engaged by the Company to perform work that can reasonably be anticipated to expose the Contractor’s employees, subcontractors, SoCalGas employees, or the general public to one or more hazards that, if not properly mitigated, have the potential to result in Serious Safety Incident. Examples of a Class 1 Contractor include contractors that are subject to and covered by the Operator Qualification Program and contractors performing construction, repair, or maintenance work on any aspects of SoCalGas’ natural gas pipeline system and appurtenances, including gas distribution, transmission, or storage systems or any building construction, repair, or maintenance work involving elevated work surfaces, confined space, energized equipment, hazardous chemicals, or other similar hazards.”</i></p>
<p><b>Out-of-Scope for purposes of risk quantification:</b></p>	<p>The risk of a work-related safety incident involving a non-Class 1 contractor(s), or the risk of a work-related safety-incident involving a Class 1 Contractor(s) while conducting work for a company other than SoCalGas. Safety incidents involving a Class 1 contractor(s) that are not work-related (as defined by OSHA regulation) and impacts to the public resulting from work-related safety incidents involving Class 1 contractor(s).</p>

Pursuant to Step 2A of the SA Decision, the utility is instructed to use actual results, available and appropriate data (e.g., Pipeline and Hazardous Materials Safety Administration data.)<sup>17</sup> SoCalGas’ safety risk assessment primarily utilized data from the Bureau of Labor Statistics (BLS), OSHA, and the Department of Labor (DOL).

Calculating serious injury and fatality incidence rates required data on total employment by sector. Therefore, the BLS Employment & Earnings data was used to determine total employment by sector. This data was filtered by NAICS (North American Industry Classification System) sector codes which were determined by analyzing SoCalGas Class 1 Contractor data from ISN (ISNetworld, a third-party administrator of the SoCalGas contractor safety program) to find the NAICS codes for companies

<sup>17</sup> *Id.* at Attachment A, A-8 (“Identification of Potential Consequences of Risk Event”).

contracted with SoCalGas. Based on this data and subject matter expert (SME) input from the Contractor Safety Programs and Safety Compliance groups, total hours of Class 1 Contractor work for SoCalGas were estimated at 4.750 million hours per year.

From the BLS industry data, total employees per sector were converted to total hours per sector using the following guidance from the BLS: Total hours by Sector = Total Employees by sector \* 40 hours per week \* 50 weeks per year. The total contractor hours were then allocated to the Class 1 Contractor sectors contracted by SoCalGas.

Injuries, Illnesses, and Fatalities (IIF) program historical data from the BLS was used to determine the serious injury and the fatality incidence rates per year. From this data, the serious injury frequency was calculated as the ratio of serious injuries to recordable incidents by sector during 2015-2016. Industry serious injury and fatality rates were applied to total SoCalGas Class 1 Contractor work hours to obtain the respective incidence rates for SoCalGas.

OSHA Enforcement Data, supplemented with OSHA Severe injury Reports, from the DOL was used to determine the distribution of safety consequence resulting from a single safety event. The NAICS code structure used in the data from the BLS is consistent with the NAICS codes in the OSHA enforcement data used for determining the distribution.

A Monte Carlo simulation was used to yield the probabilistic safety and financial consequences. The safety consequence scoring was based on a publication from the Federal Aviation Administration (FAA): a fatality is represented by 1.000 and a serious injury is represented by 0.253. Internal SME input was provided to estimate the financial consequence of a contractor safety incident. Based on SME input, reliability is not directly impacted by contractor safety related incidents.

## **B. Sources of Input**

The SA Decision<sup>18</sup> directs the utility to identify Potential Consequences of a Risk Event using available and appropriate data. The below provides a listing of the inputs utilized as part of this assessment.

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<sup>18</sup> *Id.* at Attachment A, A-8 (“Identification of the Frequency of the Risk Event”).

- Injuries:
  - Agency: Bureau of Labor Statistics- Injuries, Illnesses, and Fatalities Program (IIF);
  - Link: [https://www.bls.gov/iif/oshsum.htm#15Summary\\_Tables](https://www.bls.gov/iif/oshsum.htm#15Summary_Tables);
  - Report Title: TABLE Q1. Incidence rates of total recordable cases of nonfatal occupational injuries and illnesses by quartile distribution and employment size, 2009-2016, All establishment sizes.
- Fatalities:
  - Agency: Bureau of Labor Statistics- Injuries, Illnesses, and Fatalities Program (IIF);
  - Link: <https://www.bls.gov/iif/oshcfoi1.htm#2015>;
  - Report Title: Census of Fatal Occupational Injuries-TABLE A-3. Fatal occupational injuries to private sector wage and salary workers, government workers, and self-employed workers by industry, all United States.
- Distribution Fitting Data:
  - Agency: Department of Labor (DOL);
  - Link: [https://enforcedata.dol.gov/views/data\\_catalogs.php](https://enforcedata.dol.gov/views/data_catalogs.php);
  - Report Title: OSHA Enforcement Data: osha\_accident, osha\_accident\_injury, osha\_inspection.
- Severe Injury Assumption:
  - Agency: Occupational Safety and Health Administration (OSHA);
  - Link: <https://www.osha.gov/severeinjury/index.html>;
  - Report Title: Severe Injury Reports.
- Support Data:
  - Agency: Bureau of Labor Statistics- Office of Publications & Special Studies;
  - Link: <https://www.bls.gov/opub/ee/archive.htm>;
  - Report: Employment & Earnings- Table B-1b. Employees on nonfarm payrolls by industry sector and selected industry detail, not seasonally adjusted, 2011-2016.
- North American Industry Classification System - NAICS



- Agency: US Census Bureau;
- Link: [https://www.census.gov/cgi-bin/sssd/naics/naicsrch?chart\\_code=22&search=2017%20NAICS%20Search](https://www.census.gov/cgi-bin/sssd/naics/naicsrch?chart_code=22&search=2017%20NAICS%20Search)

## V. RISK MITIGATION PLAN

The SA Decision requires a utility to “clearly and transparently explain its rationale for selecting mitigations for each risk and for its selection of its overall portfolio of mitigations.”<sup>19</sup> This section describes SoCalGas’ Risk Mitigation Plan by each selected Control and Mitigation for this risk, including the rationale supporting each selected Control and Mitigation.

As stated above, SoCalGas’ Contractor Safety Risk is defined as the risk of a safety event, caused by a Class 1 Contractor or subcontractor not following safety standards and/or procedures, which results in serious injuries and/or fatalities while conducting work on behalf of the Company. The Risk Mitigation Plan discussed below includes both Controls that are expected to continue and Mitigations for the period of SoCalGas’ TY 2022 GRC cycle.<sup>20</sup> The Controls are those activities that were in place as of 2018, most of which have been developed over many years, to address this risk and include work to comply with laws that were in effect at that time.

### A. SCG-3-C1: Contractor Safety Oversight

SoCalGas’s Contractor Safety Oversight consists of contractor safety program policies and procedures, Contractor Safety Manual for Class 1 Contractors, field inspections and oversight, post-job safety evaluation, stop-the-job, near-miss and close-call reporting, internal audits, enforcement actions, and management of the pipeline safety risk by the pipeline safety oversight committee. The purpose of having these key controls in place is to enhance the safety of SoCalGas construction projects from inception to completion. Each specific control is further described below:

#### Internal Contractor Safety Standard

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<sup>19</sup> *Id.* at Attachment A, A-14 (“Mitigation Strategy Presentation in the RAMP and GRC”).

<sup>20</sup> *Id.* at 33. A “Control” is defined as a currently established measure that is modifying risk. A “Mitigation” is defined as a measure or activity proposed or in process designed to reduce the impact/consequences and/or likelihood/probability of an event.

SoCalGas has formalized its contractor safety program in the Company Operations Standard 167.04 – Contractor Safety Program. The standard is for internal use only and applies to SoCalGas employees who oversee Class 1 Contractors and subcontractors on behalf of the company. The standard establishes the policy, scope and approach used by SoCalGas to manage contractor safety, requirements for pre-qualification of contractors, roles and responsibilities for various employees who work with Contractors, and expectations on contractor oversight, periodic safety inspections, and investigations of contractor safety incidents.

SoCalGas’s longstanding commitment to safety focuses on three primary areas: employee safety, customer safety, and public safety. This commitment to safety is embedded in what we do and is the foundation for who we are – from initial employee training, to the installation, operation, and maintenance of SoCalGas’ infrastructure, to providing safe and reliable service to our customers. When working on SoCalGas projects, SoCalGas employees and Contractors are expected to adhere to SoCalGas’ commitment to safety.

#### Contractor Safety Manual for Class 1 Contractors

In 2017, SoCalGas issued a contractor safety manual for use by all of SoCalGas’ Class 1 contractors. This manual consolidated in one place all the safety requirements and expectations SoCalGas has established for Contractors working for SoCalGas. These include:

- The Contractor must comply with all applicable federal, state, regional, municipal, and local laws, ordinances, rules, codes, regulations, and executive orders, including all laws, ordinances, rules, codes, regulations, and executive orders applicable to health and safety, the SoCalGas Contractor Safety Manual, and all contract terms as set forth in the contract entered into with the Company, and must confirm that all employees and subcontractors working on Contractor’s behalf meet or exceed these same requirements.
- Contractors must provide a safe working environment for their employees and subcontractors and make sure their operations do not adversely impact the safety of SoCalGas employees or the public. The personal safety of a Contractor’s employees and subcontractors is the Contractor’s responsibility.
- The Company reserves the right to take action, including, but not limited to, issue warnings, withhold payment, suspend work, require the removal of contractor personnel from the

project, notify enforcement agencies, and terminate the contract if the Contractor does not comply with applicable laws, all site and system-related safety requirements, the SoCalGas Contractor Safety Manual, and all terms and conditions required by the contract entered into with the Company.

- A process for pre-qualification of contractors for safety, including a defined set of pre-qualification criteria as listed below:

Criteria	Target	Below Target
3-Year TRIR (Total Recordable Incident Rate)	Equal to or less than BLS industry average for applicable NAICS code	Greater than BLS industry average for applicable NAICS code
3-Year DART (Days Away Restricted/Transfer Rate)	Equal to or less than BLS industry average for applicable NAICS code	Greater than BLS industry average for applicable NAICS code
EMR (Experience Modification Rate)*	Equal to or less than 1.1	Greater than 1.1
5 -Year Fatality Data	Zero (0) fatalities within the last five (5) years	One (1) or more fatalities within the last five (5) years
5-Year Non-Fatal, Serious Safety Incident Data (e.g., life altering/life threatening, including incidents affecting the public)	Zero (0) non-fatal, serious safety incidents within the last five (5) years	One (1) or more non-fatal, serious safety incidents within the last five (5) years
3-Year OSHA Serious, Willful, or Repeat Citations	Zero (0) serious, willful, or repeat OSHA citations within the last three (3) years	One (1) or more serious, willful, or repeat citations within the last three (3) years
3-Year OSHA Non-Serious Citations	Zero (0) non-serious OSHA citations within the last three (3) years	One (1) or more non-serious citations within the last three (3) years
Written Safety Programs	Company has comprehensive written safety programs that are in compliance with environmental, health, and safety laws and regulations and are specific to the hazards associated with the work to be performed	Company does not have comprehensive written safety programs that are in compliance with environmental, health, and safety laws and regulations and are specific to the hazards associated with the work to be performed
Drug and Alcohol Plan	Company has a comprehensive written drug and alcohol plan that is in compliance with applicable laws and regulations	Company does not have a comprehensive written drug and alcohol plan that is in compliance with applicable laws and regulations
Subcontractor Management Plan	Company has a written plan to monitor subcontractors and hold them accountable for the same requirements as themselves	Company does not have a written plan to monitor subcontractors and hold them accountable for the same requirements as themselves
Employee Disciplinary Action Plan	Company has a written employee disciplinary action plan	Company does not have a written employee disciplinary action plan
Safety Culture Evaluation	Company has a positive safety culture that it is working to advance	Company does not have a positive safety culture that it is working to advance

\* **Experience modification rate (EMR)** is a number insurance companies use to represent a business' prior workers' comp claims and potential for future injuries.

- The manual provides guidelines on the process to be followed in managing safety on construction projects, including reviewing applicable compliance requirements, providing appropriate oversight on contractor work, and reporting safety incidents.

#### Construction Inspections and Contractor Performance Review

SoCalGas requires its representatives overseeing contractors to conduct documented job-site safety inspections of Contractors working at a facility, property, or worksite owned, operated, or managed by the Company (including leased premises and rights-of-ways) on SoCalGas projects at a frequency of once per week per Contractor. When there are multiple crews for a specific Contractor working on similar projects, one safety inspection per Contractor per week meets this requirement. The Construction Inspection Report, Company Form 2849, built in ISNetworld, is used for documenting such inspections.

The SoCalGas Representative must also complete a post-job safety evaluation of Class 1 Contractors at the completion of every contract or annually, whichever is earlier, including the final at the end of the term for Master Services Agreements and multi-year contracts. Company Form #6350, Report of Contractor's Performance, built in ISNetworld, is used to appraise and document the safety performance of Contractors performing work for the Company.

The inspections and evaluations represent SoCalGas' oversight responsibilities and are designed to provide valuable feedback on contractors' overall performance on SoCalGas projects.

#### Corporate Safety Audits, Ad Hoc Contractor Audits, and Enforcement Activities

SoCalGas utilizes mechanisms to monitor and evaluate safety requirements for Class 1 Contractors, including conducting formal safety audits, requiring contractors to conduct their own evaluations, and imposing corrective actions in response to safety issues identified as a result of its oversight activities. For example, in 2018, based on observing several serious close call incidents associated with one prime contractor on a pipeline integrity project, SoCalGas utilized several measures to address the risk of a potential serious injury or fatality. This included stopping the job, putting the contractor on probation, conducting an audit of their safety program, asking the contractor to evaluate their safety culture, and following up on all the

corrective actions resulting from this effort to elevate the importance of safety on SoCalGas projects.

### Pipeline Safety Oversight Committee

SoCalGas has established a high-level internal committee comprising of executives and directors to oversee pipeline safety programs and activities, including oversight over contractors. This committee meets periodically and reviews the progress made in the contractor safety area and provides direction on steps needed to be taken to continue to reduce the contractor safety risk. This committee and its oversight serve as a proactive approach to have a senior level committee overseeing the development, implementation and growth of the contractor safety program to address the overall safety risk associated with hiring contractors and strengthening public trust.

#### **B. SCG-3-C2: Contractual Requirements**

The contractual requirements control is in place to add appropriate language to all contracts in order to hold all Class 1 Contractors accountable to follow the Class 1 Contractor Safety Manual. All new and existing contracts and Master Service Agreements between SoCalGas and a primary contractor include Contractor Safety Program related requirements as part of the contract terms and conditions. Moreover, contractors are made aware of the Class 1 contractor safety requirements upfront during the RFP process.

#### **C. SCG-3-C3: Stop the Job/Near Miss/Close Call Reporting Program**

SoCalGas requires all its Class 1 contractors to develop and implement Stop the Job policy on SoCalGas projects. Stop the Job is a critical process and gives authority to everyone onsite to stop a job or task if an unsafe work condition, behavior or activity is identified. All work must immediately cease in the area of concern once the Stop the Job is declared until site supervision and the involved Contractor(s) have done an investigation, the identified situation is abated, controlled, or otherwise determined to be safe and the situation and outcome are explained to affected personnel. SoCalGas also encourages its contractors to report near miss or close calls or good catch incidents so that everyone can learn from these incidents and prevent injuries and/or reduce/eliminate safety risks on the job and to our pipeline delivery system.

These incidents are shared with contractors so that SoCalGas and the contractors can learn from one another.

SoCalGas defines a Near Miss/Close Call as follows:

- Non-Serious Near Miss: A Work-Connected incident in which Property Damage less than \$50,000 or an injury or illness (other than a Serious Safety Incident) could have occurred but did not.
- Serious Near Miss: A Work-Connected incident in which Property Damage, a Spill/Release resulting in damages of \$50,000.00 or more, or a Serious Safety Incident could have occurred but did not.

#### **D. SCG-3-C4: Third-Party Administration Tools**

SoCalGas utilizes three best-in-class third-party tools to manage various aspects of its contractor safety. These are discussed below.

##### ISNetwork

The purpose of the ISNetwork platform (created and managed by ISN) is to pre-qualify, vet, and monitor Class 1 Contractors for safety. ISNetwork is an online contractor and supplier management platform of data-driven products and services that help manage risk through data collected across the contractors' operations nationally. ISNetwork helps reduce unnecessary duplication associated with traditional qualification processes. It streamlines the contractor pre-qualification process and is intended to improve workplace safety. Each Class 1 Contractor currently performing or seeking to perform work for SoCalGas must have an ISN account. Before performing any work for SoCalGas, Class 1 Contractors must upload the information specified in the SoCalGas Pre-Qualification Criteria to ISN. ISN's Review and Verification Services (RAVS) Team reviews self-reported information against regulatory our requirements. ISN safety experts also review contractor safety compliance programs and validates their accuracy and completeness. ISN uses an "A," "B," "C," and "F" grading system to measure Contractors' safety performance against criteria established by SoCalGas. Contractors who receive an "A" or "B" grade and continue to maintain an "A" or "B" grade, are deemed qualified and are approved to work for SoCalGas. Contractors who receive a "C" or "F" grade, and those

whose grade changes from an “A” or “B” to a “C” or “F,” must be approved through SoCalGas’s Variance Request Process. Variances are approved at the director and officer levels. This process promotes safer contractors to be used by SoCalGas and thereby reduces the risk of safety incidents on SoCalGas projects.

### Veriforce

SoCalGas utilizes Veriforce® to centrally track records for covered task qualifications, along with related certifications and training. SoCalGas also utilizes Veriforce® to monitor contractors’ compliance with PHMSA/DOT drug and alcohol program requirements. Veriforce® delivers a comprehensive solution for D&A compliance, combining software with audit services to help streamline management of contractor drug and alcohol compliance program and drive improvements that mitigate contractor risk. The purpose of utilizing the Veriforce® platform is to streamline Operator Qualification program administration and facilitate compliance with PHMSA OQ Rule requirements for Class 1 Contractors who work on safety sensitive tasks. Veriforce® delivers a comprehensive solution for DOT/PHMSA OQ Rule compliance that supports OQ processes from end to end, uniting software with audit, consulting, and training services to support the management of our OQ program.

### Gold Shovel Standard

Gold Shovel Standard (GSS) is a nonprofit organization committed to improving workforce and public safety and the integrity of buried infrastructure. GSS believes that greater transparency in all aspects of damage prevention among buried-asset operators, locators and excavators is essential to drive continuous improvement, and vital to increasingly safe working conditions and communities. GSS works to prevent life-threatening damages, empower field teams to operate safely, and protect excavation crews and the public. SoCalGas utilizes the GSS platform to enhance excavation safety associated with its pipeline infrastructure projects. SoCalGas requires all of its prime gas infrastructure contractors to be members of the GSS and follow best practices in promoting excavation safety.

To obtain Gold Shovel Standard Certification, an excavator must have a complete Damage Prevention-Safety Management System (DP-SMS). This includes:

- A leadership and management commitment to infrastructure damage prevention



- Requiring specific training for all workers on jobs with excavation
- Enforcing whistleblower and stop work responsibility for workers
- Maintaining a policy to adhere to specialized best practices of excavation operations
- Maintaining a policy to hire Gold Shovel Standard subcontractors with few exceptions
- Using thorough investigation and corrective action procedures
- Using specialized software to track and manage their operations to prevent damages

In the past, businesses often learned about potential excavation risks by their occurrence. A quality DP-SMS reveals risks before they happen, giving businesses the opportunity to improve without catastrophic catalysts.

#### **E. SCG-3-C5: Contractor Engagement**

SoCalGas aims to reinforce our strong safety culture by engaging contractors in a variety of ways, including hosting an annual Contractor Safety Congress and three Quarterly Meetings with its Class 1 contractors.

SoCalGas' annual Contractor Safety Congress was initiated in 2015 as a way to share safety best practices and learn from one another's experiences. The event is expected to continue to further strengthen our collective "safety culture" and provide a foundation for safety improvement. Attendees include representatives from a wide variety of contractors, including diverse business enterprises, and select representatives from SoCalGas who oversee contractors. The forum provides an opportunity for SoCalGas executives to share their safety vision and expectations with contractors and offer opportunity for contractors to showcase their safety successes and challenges and share serious safety incidents and lessons learned so others can benefit from their experience and improve their safety performance.

The quarterly meetings on the other hand are limited to signatory contractors who perform the vast majority of pipeline construction work for the company. These meetings are established as a forum to give our contractors the opportunity to collaborate with SoCalGas on safety, share issues and challenges faced by contractors on SoCalGas projects, communicate new

requirements, and overall foster an improved safety culture for contractors and the company.

#### **F. SCG-3-M1: Expanded Contractor Safety Oversight**

SoCalGas plans to add approximately seven safety advisors to conduct comprehensive safety audits of contractor construction projects to further improve the effectiveness of the oversight element in SoCalGas' Contractor Safety program. Safety advisors will perform detailed review of contractors' safety programs, audit pipeline contractors field crews, oversee contractor safety incident investigations, and share corrective actions and lessons learned from incidents and audits within SoCalGas and with other SoCalGas contractors to promote continual risk reduction and improvement. As a result of this program, SoCalGas will be able to assess contractors' adherence to SoCalGas' Contractor Safety Manual requirements, identify potential weaknesses in the contractors' safety programs, and assist with taking corrective actions to prevent incidents. This program will also benefit SoCalGas field supervisors who oversee contractors and manage construction projects to enable them to learn from the audits and integrate lessons learned into their routine oversight to prevent injuries associated with contractor construction projects.

### **VI. POST-MITIGATION ANALYSIS OF RISK MITIGATION PLAN**

As described in Chapter RAMP-D, SoCalGas has performed a Step 3 analysis where necessary pursuant to the SA Decision. SoCalGas has not calculated an RSE for activities beyond the requirements of the SA Decision but provides a qualitative description of the risk reduction benefits for each of these activities in the section below.

#### **A. Mitigation Tranches and Groupings**

The Step 3 analysis provided in the SA Decision<sup>21</sup> instructs the utility to subdivide the group of assets or the system associated with the risk into Tranches. Risk reduction from controls and mitigations and RSEs are determined at the Tranche level. For purposes of the risk

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<sup>21</sup> D.18-12-014 at Attachment A, A-11 ("Definition of Risk Events and Tranches").

analysis, each Tranche is considered to have homogeneous risk profiles (*i.e.*, the same LoRE and CoRE). SoCalGas’s Contractor Safety risk is a “cross-cutting” risk that applies to contractors. Therefore, a single tranche is appropriate.

SoCalGas’s comprehensive Contractor Safety program consists of the pre-qualification, oversight, observations, pre-work safety meetings and efforts all aimed to reduce risk of a safety event caused by Class 1 contractors while conducting work on behalf of SoCalGas. Given the vast number of activities SoCalGas performs to mitigate Contractor Safety risk, SoCalGas grouped similar activities with similar risk profiles into mitigation programs. Since all Class 1 contractors have the potential for serious safety incidents and fatalities, and each of SoCalGas’ Contractor Safety risk mitigations have the same goal of reducing the frequency and consequence of safety events caused by contractors, all controls and mitigations have the same risk profile and are not further trached.

## **B. Post-Mitigation/Control Analysis Results**

For the post-mitigation and post-control analysis, SoCalGas reviewed the historical contractor OSHA injury rates for the time span beginning in 2015, which is when SoCalGas began tracking this metric. It was quickly recognized that fluctuations were occurring in the injury rates over the short term that were not a reliable predictor of the effectiveness of SoCalGas’ evolving controls. SoCalGas attributes this to:

- The small data set associated with the short time span (only four years);
- Within those same four years, SoCalGas implemented several additional controls like ISNetworld which changed how Contractors reported their data;
- More positive emphasis placed on reporting safety incidents and encouraging learning from such incidents; and
- More and more Class 1 contractors and subcontractors being added to vetting, monitoring, and reporting via ISNetworld.

That said, SoCalGas used the results of a long-range study of another energy infrastructure company, Kinder Morgan, as a proxy to estimate the probable effectiveness of controls that can be anticipated to be achieved by utilizing ISNetworld along with other controls

over a longer period of time. Kinder Morgan has been using ISNetworkworld in conjunction with its oversight program for more than a decade, and over the last 16 years (2002 through 2018), it has seen a reduction in its OSHA recordable injury rates of 79%. This equates to a compounded yearly reduction of 3.67%. For new and/or incremental mitigations, we expect to achieve further risk reduction.

Through the controls described below, SoCalGas is estimating a 3.67% overall decrease in OSHA recordables per year as the controls mature. Additional assumptions made in estimating the effectiveness include the following: Control SCG-3-C1, being the primary control covering internal oversight efforts of SoCalGas, is assumed to be twice as effective as each of the supporting controls SCG-3-C4 and SCG-3-C5. Furthermore, it is assumed that the new mitigation SCG-3-M1 adding substantial oversight will provide incremental benefit of half of the overall decrease of 3.67% allocated to the existing controls. The specific risk reduction benefit percentages used for each identified control/mitigation are included under each program heading below.

## **1. SCG-3-C1: Contractor Safety Oversight**

### **a. Description of Risk Reduction Benefits**

Through the Contractor Safety Program, and with introduction of ISNetworkworld use in 2017, SoCalGas has provided its Business Units using Class 1 Contractors with a consistent Contractor Safety Program that is easily understood by SoCalGas and its contractors. Each of the elements included in SCG-3-C1 supports SoCalGas not only in the selection/engagement of contractors with acceptable safety records, but also with the ongoing management of worksite safety and evaluation.

As noted previously, SoCalGas has formalized its contractor safety program through Company Operations Standard 167.04. The standard is for internal use only and applies to SoCalGas employees who oversee Class 1 Contractors and subcontractors on behalf of the Company. In 2017, SoCalGas issued a contractor safety manual for use by all of SoCalGas' Class 1 Contractors, which establishes the safety requirements and expectations SoCalGas has established for Contractors working for SoCalGas:

- Contractor must comply with laws and regulations;

- Contractors provide a safe working environment;
- Company has the right to take action;
- Contractors must be processed for pre-qualification; and
- Contractors must be processed for managing safety on construction projects.

Through the development and use of an internal contractor safety standard and the development and implementation of the contractor safety manual, which is considered an industry common practice, SoCalGas is able to effectively manage its Class 1 Contractors, provide consistent information to its employees on Class 1 Contractor safety policies and procedures, and further enhancing its safety-first culture.

SoCalGas requires its representatives overseeing contractors to conduct documented job-site safety inspections of Contractors working at a facility, property, or worksite owned, operated, or managed by the Company (including leased premises and rights-of-ways) on SoCalGas projects at a frequency of once per week per Contractor. The Construction Inspection Report, Company Form 2849, built in ISNetwork, is used for documenting such inspections. The SoCalGas Representative must also complete a post-job safety evaluation of Class 1 Contractors at the completion of every contract. The inspections and evaluations represent SoCalGas' oversight responsibilities and are designed to provide valuable feedback on contractors overall performance on SoCalGas projects. Through the use of these safety inspections, SoCalGas is able to demonstrate the importance and raise the level of awareness of safety amongst contractor crews at the construction job sites in a proactive way to prevent incidents.

SoCalGas utilizes a variety of ways to enforce safety requirements on Class 1 Contractors, including conducting formal safety audits, requiring contractors to do its own evaluations, and taking enforcement actions in response to safety issues identified as a result of its oversight activities. Sempra's Audit Services supports SoCalGas' quality assurance through random selection of projects to audit, including contractors. More specifically, Sempra's Audit Services has performed audits on Contractor projects managed by the Pipeline Safety Enhancement Program (PSEP), Pipeline Integrity (PIT), Underground Storage, Gas Storage, and Facilities departments and performed a construction contract and invoice compliance audit.

SoCalGas has established a high-level internal committee comprising of executives and directors to oversee pipeline safety programs and activities, including oversight over contractors. This committee meets periodically and reviews the progress made in the contractor safety area and provides direction on steps needed to be taken to continue to reduce the contractor safety risk. This committee not only provides oversight, but also demonstrates leadership involvement in contractor safety and executive commitment to SoCalGas’ safety culture.

Through these oversight controls covered by SCG-3-C1, SoCalGas estimates that it will achieve a decrease of approximately 1.84% in the annual OSHA recordable incident rate. This is just about half of the overall reduction of 3.67% to be anticipated per year for all existing controls.

**b. Elements of the Risk Bow Tie Addressed**

SCG-3-C1 addresses several Drivers/Triggers and Potential Consequences as outlined above in Section 1. The contractor oversight program is the way SoCalGas standardizes its approach to contractor safety. This oversight enhances the safety of SoCalGas construction projects from inception to completion. SoCalGas’ contractor safety oversight program therefore addresses all elements of the left side of the Risk Bow Tie (DT.1 through DT.7), and aims to reduce the Potential Consequences identified in the right side of the Risk Bow Tie (PC.1 through PC.8).

**c. Summary of Results**

		Low Alternative	Single Point	High Alternative
Pre-Mitigation	LoRE		1.053	
	CoRE	103.53	983.99	2451.43
	Risk Score	109.06	1036.56	2582.40
Post-Mitigation	LoRE		1.0728	
	CoRE	103.525	983.99	2451.43
	Risk Score	111.06	1055.60	2629.84

	RSE	1.06	10.12	25.22
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## 2. SCG-3-C2: Contractual Requirements

### a. Description of Risk Reduction Benefits

SoCalGas has updated the contractual requirements of all contract templates and Master Service Agreements for Class 1 work to include language that holds SoCalGas' Class 1 Contractors accountable for following the Company's policies, procedures, and safety practices. All Class 1 Contractors have executed contracts including the new language and without this control, SoCalGas may have difficulty enforcing its safety policies, procedures, and practices.

SoCalGas has not performed a Risk Spend Efficiency Evaluation on SCG-3-C2 because this control in itself does not have a monetary value/cost that could be calculated in any reasonable manner.

### b. Elements of the Risk Bow Tie Addressed

SCG-3-C2 addresses several Drivers/Triggers and Potential Consequences as outlined above in Figure 1 and in Appendix A. The contractual requirement control is in place to add updated language to all contracts in order to hold all Class 1 Contractors accountable to follow SoCalGas' Class 1 Contractor Safety Manual. SoCalGas' contractor requirements therefore address elements of the left side of the Risk Bow Tie such as contractor crew deviation from policies/procedures (DT.1) and inadequate use of Job Site Safety Plans or Job Safety Analysis (DT.4), and aims to reduce the Potential Consequences identified in the right side of the Risk Bow Tie such as adverse litigation (PC.5).

## 3. SCG-3-C3: Stop The Job/Near Miss/Close Call Reporting Program

### a. Description of Risk Reduction Benefits

Stop the Job/Near Miss/Close Call reporting (SCG-3-C3) helps prevent future incidents by alerting SoCalGas of an event that had the potential to result in injury, illness, or damage but did not. Integrating Near Miss reporting into the Contractor safety culture provides SoCalGas with an opportunity to investigate, conduct lessons learned, mitigate, communicate and educate

Contractors about the risk/hazard, improve future practices, and avoid similar incidents – thereby reducing risk.

SoCalGas has not performed a Risk Spend Efficiency Evaluation on SCG-3-C3 because this control in itself does not have a monetary value/cost that could be calculated in any reasonable manner.

#### **b. Elements of the Risk Bow Tie Addressed**

SCG-3-C3 addresses several Drivers/Triggers and Potential Consequences as outlined above in Figure 1 and in Appendix A. The Stop the Job process is a protocol SoCalGas has established for all contractors. It gives authority to everyone onsite to stop a job or task if an unsafe work condition or activity is identified. SoCalGas requires its contractors to report all incidents per the Class 1 Contractor Safety Manual including Near Miss/Close Call incidents immediately. SoCalGas' initiatives to reduce incidents starts with identifying potential incidents in order to mitigate future incidents from occurring. SoCalGas' contractor requirements therefore address all elements of the left side of the Risk Bow Tie (DT.1 through DT.7), and aims to reduce the Potential Consequences identified in the right side of the Risk Bow Tie (PC.1 through PC.8).

#### **4. SCG-3-C4: Third-Party Administration Tools**

##### **a. Description of Risk Reduction Benefits**

SoCalGas uses different third-party administration tools ISNetworld, Veriforce, and Gold Shovel Standard to manage contractor data and compliance in accordance with SoCalGas and applicable rules and regulations. The use of ISNetworld verifies Class 1 Contractor compliance with SoCalGas safety rules and regulations, maintenance of a safe record in compliance with OSHA requirements and regulations, and provides SoCalGas with a centralized system to house contractor documents, pre-qualification requirements, and communications, thereby reducing the risk of safety incidents on SoCalGas work. The benefit of Veriforce is to allow only OQ trained and certified contractor employees to work on OQ tasks associated with SoCalGas projects to prevent incidents. Furthermore, ISNetworld, Veriforce, and Gold Shovel Standard, which are all used by the majority of utilities in California and are considered common practices, support SoCalGas in proactive identification of safety trends, provide a centralized system to store and



review safety data to validate compliance, and allow the Company to address Class 1 Contractor at-risk behavior before the occurrence of an incident. Finally, using third-party administration tools (rather than SoCalGas resources) allows the Company to verify Contractor data, conduct trend analyses, and manage safety compliance more cost-effectively.

All of SoCalGas' Class 1 Contractors involved in managing excavation activities (representing 100% of pipeline excavation work) are certified by Gold Shovel Standard, which certifies the Contractor as having best safety practices during excavations. The use of Gold Shovel certified companies for excavation work supports SoCalGas' safety program and prevents life-threatening damages and incidents, empowers field teams to operate safely, and protects excavation crews and the public. SoCalGas estimates that the use of these three administration tools combine to contribute to a 0.92% risk reduction. This is just about one-fourth of the overall reduction of 3.67% SoCalGas anticipates achieving per year for existing controls.

#### **b. Elements of the Risk Bow Tie Addressed**

SCG-3-C2 addresses several Drivers/Triggers and Potential Consequences as outlined above in Figure 1 and in Appendix A. SoCalGas currently uses three third-party administration tools to confirm contractors comply with SoCalGas' established safety requirements according to the Class 1 Contractor Safety Manual and the contractual requirements. SoCalGas' use of third-party administrative tools reduce risk and give SoCalGas a way to verify contractor data in an effective manner. SoCalGas' third-party administration tools therefore address elements of the left side of the Risk Bow Tie such as DT.1 – DT.3 and DT.5 and aims to reduce the Potential Consequences identified in the right side of the Risk Bow Tie such as PC.1, PC.2, PC.4, and PC.6

**c. Summary of Results**

		Low Alternative	Single Point	High Alternative
Pre-Mitigation	<b>LoRE</b>		<b>1.053</b>	
	<b>CoRE</b>	103.53	<b>983.99</b>	2451.43
	<b>Risk Score</b>	109.06	<b>1036.56</b>	2582.40
Post-Mitigation	<b>LoRE</b>		<b>1.0631</b>	
	<b>CoRE</b>	103.53	<b>983.99</b>	2451.43
	<b>Risk Score</b>	110.06	<b>1046.08</b>	2606.12
	<b>RSE</b>	21.78	<b>207.00</b>	515.70

**5. SCG-3-C5: Contractor Engagement**

**a. Description of Risk Reduction Benefits**

The four annual meetings (three Quarterly Safety Meetings and one Contractor Safety Congress) create a forum in which SoCalGas and Contractors can share industry leading best practices, discuss new safety policies and regulations, discuss lessons learned and opportunities for improvement, and collaborate to improve the Company’s and its Contractors safety culture. Having these meetings and the strong engagement shown in the same, is considered a leading practice and places emphasis on safety, demonstrates SoCalGas’ engagement in supporting a safety culture, has resulted in identifiable enhancements in Contractor safety practices, and supports dialog between Contractors and the Company, providing a means for Contractors to express questions, concerns and lessons learned. SoCalGas estimates that the use of these three administration tools combine to contribute to a 0.92% risk reduction. This is just about one-fourth of the overall reduction of 3.67% SoCalGas anticipates achieving per year for existing controls.

**b. Elements of the Risk Bow Tie Addressed**

SCG-3-C3 addresses several Drivers/Triggers and Potential Consequences as outlined above in Figure 1 and in Appendix A. The quarterly and annual meetings for contractors create a proactive approach towards sharing industry-leading best practices, communicating new requirements and promoting a collaborative environment. These meetings promote a strong safety culture and greater opportunity to learn from one another. SoCalGas’ contractor safety meetings therefore address all elements of the left side of the Risk Bow Tie (DT.1 through DT.7), and aim to reduce the Potential Consequences identified in the right side of the Risk Bow Tie (PC.1 through PC.8).

**c. Summary of Results**

		Low Alternative	Single Point	High Alternative
Pre-Mitigation	LoRE		1.053	
	CoRE	103.53	983.99	2451.43
	Risk Score	109.06	1036.56	2582.40
Post-Mitigation	LoRE		1.0631	
	CoRE	103.53	983.99	2451.43
	Risk Score	110.06	1046.08	2606.12
	RSE	25.47	242.07	603.08

**6. SCG3-M1: Expanded Contractor Safety Oversight**

**a. Description of Risk Reduction Benefits**

SoCalGas plans to add approximately seven safety advisors to conduct comprehensive safety inspections and audits of contractor construction projects to further improve the effectiveness of the oversight element of SoCalGas’ Contractor Safety program. Expansion of the Company’s Contractor Oversight Program is expected to result in a measurable impact on

Class 1 Contractor OSHA recordables and would allow SoCalGas to effectively oversee all Class 1 Contractor work and confirm compliance with contractor safety program enterprise-wide. Considering the types of work performed by the Class 1 Contractors that would be integrated in the expanded Program and the amount of work that would become subject to enhanced oversight, SoCalGas estimates a further 1.84% reduction in OSHA recordable rate through this new mitigation. This is just about half of the overall reduction of 3.67% SoCalGas anticipates achieving per year for existing controls.

**b. Elements of the Risk Bow Tie Addressed**

SCG-3-M1 addresses several Drivers/Triggers and Potential Consequences as outlined above in Figure 1 and in Appendix A. Expanding SoCalGas’ current Contractor Oversight program to include seven new advisors would aim to provide comprehensive inspections and audits of contractor construction projects. SoCalGas’ expansion of its oversight program therefore addresses all elements of the left side of the Risk Bow Tie (DT.1 through DT.7), and aims to reduce the Potential Consequences identified in the right side of the Risk Bow Tie (PC.1 through PC.8).

**c. Summary of Results**

		Low Alternative	Single Point	High Alternative
Pre-Mitigation	<b>LoRE</b>		<b>1.053</b>	
	<b>CoRE</b>	103.53	<b>983.99</b>	2451.43
	<b>Risk Score</b>	109.06	<b>1036.56</b>	2582.40
Post-Mitigation	<b>LoRE</b>		<b>1.0341</b>	
	<b>CoRE</b>	103.53	<b>983.99</b>	2451.43
	<b>Risk Score</b>	107.05	<b>1017.52</b>	2534.97
	<b>RSE</b>	2.26	<b>21.52</b>	53.63

## **VII. SUMMARY OF RISK MITIGATION PLAN RESULTS**

SoCalGas's Risk Mitigation Plan takes into account recent data and trends related to Contractor Safety, affordability impacts, possible labor constraints and the feasibility of mitigations. SoCalGas has performed RSEs, in compliance with the S-MAP decisions, but ultimate mitigation selection can be influenced by other factors including funding, labor resources, technology, planning, compliance requirements, and operational and execution considerations.

Table 6 below provides a summary of the Risk Mitigation Plan, including controls and mitigation activities, associated costs, the RSEs by tranche.

SoCalGas does not account for and track costs by activity, but rather, by cost center and capital budget code. Thus, the costs shown in Table 6 were estimated using assumptions provided by SMEs and available accounting data.

**Table 6: Risk Mitigation Plan Summary<sup>22</sup>**  
**(Direct 2018 \$000)<sup>23</sup>**

ID	Mitigation/Control	Tranche	2018 Baseline Capital <sup>24</sup>	2018 Baseline O&M	2020-2022 Capital <sup>25</sup>	2022 O&M <sup>26</sup>	Total <sup>27</sup>	RSE <sup>28</sup>
SCG-3-C1	Contractor Safety Oversight	T1	0	950	0	1,600-2,400	1,600-2,400	1.06-25.22

<sup>22</sup> Recorded costs and forecast ranges were rounded. Additional cost-related information is provided in workpapers. Costs presented in the workpapers may differ from this table due to rounding.

<sup>23</sup> The figures provided are direct charges and do not include company loaders, with the exception of vacation and sick. The costs are also in 2018 dollars and have not been escalated to 2019 amounts.

<sup>24</sup> Pursuant to D.14-12-025 and D.16-08-018, the Company provides the 2018 “baseline” capital costs associated with Controls. The 2018 capital amounts are for illustrative purposes only. Because capital programs generally span several years, considering only one year of capital may not represent the entire activity.

<sup>25</sup> The capital presented is the sum of the years 2020, 2021, and 2022 or a three-year total. Years 2020, 2021 and 2022 are the forecast years for SoCalGas’s Test Year 2022 GRC Application.

<sup>26</sup> As previously stated, internal labor (e.g., employee time spent to complete training courses, employee time spent to perform inspections) are not included in SDG&E’s O&M cost forecasts since these costs would rely on cost assumptions (e.g., number of employees, x length of training course, x average hourly wage). Further, SDG&E does not track labor in this manner and thus would not be able to include such internal labor costs in future spending accountability reports.

<sup>27</sup> Total = 2020, 2021 and 2022 Capital + 2022 O&M amounts.

<sup>28</sup> The RSE ranges are further discussed in Chapter RAMP-C and Section VI above.

ID	Mitigation/Control	Tranche	2018 Baseline Capital <sup>24</sup>	2018 Baseline O&M	2020-2022 Capital <sup>25</sup>	2022 O&M <sup>26</sup>	Total <sup>27</sup>	RSE <sup>28</sup>
SCG-3-C2	Contractual Requirements	T1	0	0	0	0-0	0-0	-
SCG-3-C3	Stop the Job/Near Miss/Close Call Reporting	T1	0	0	0	0-0	0-0	-
SCG-3-C4	Third-Party Administration Tools	T1	0	40	0	40-50	40-50	21.78-515.70
SCG-3-C5	Contractor Engagement	T1	0	20	0	35-40	35-40	25.47-603.08
SCG-3-M1	Expanded Contractor Safety Oversight	T1	0	0	0	750-960	750-960	2.26-53.63
<b>TOTAL COST</b>			<b>0</b>	<b>1,010</b>	<b>0-000</b>	<b>2,425-3,090</b>	<b>2,425-3090</b>	

It is important to note that SoCalGas is identifying potential ranges of costs in this Risk Mitigation Plan and is not requesting funding herein. SoCalGas will integrate the results of this proceeding, including requesting approval of the activities and associated funding, in the next GRC.

SoCalGas notes that there are activities related to this Contractor Safety risk that will be carried over to the GRC for which the costs are a combination of external and internal labor (e.g., employee time spent for internal training, performing inspections or monitoring). The costs associated with these internal labor activities are not captured in this chapter because SoCalGas does not track labor in this manner.

In addition, as discussed in Section VI above, the table below summarizes the activities for which an RSE is not provided:

**Table 7: Summary of RSE Exclusions**

ID	Control/Mitigation Name	Reason for No RSE Calculation
SoCalGas-3-C2	Contractual Requirements	Excluded internal labor ; no identified costs
SoCalGas-3-C3	Stop the Job Near Miss/Close Call	Excluded internal labor; no identified costs

## VIII. ALTERNATIVE MITIGATION PLAN ANALYSIS

Pursuant to D.14-12-025 and D.16-08-018, SoCalGas considered alternatives to the mitigations for the Contractor Safety risk. Typically, analysis of alternatives occurs when implementing activities to obtain the best result or product for the cost. The alternatives analysis for this Risk Mitigation Plan also took into account modifications to the plan and constraints, such as budget and resources.

### A. SCG-3-A1: Use Internal Resources and Tools to Vet Contractors For Safety

This alternative would involve developing an in-house electronic platform using internal Information Technology (IT) resources at a cost exceedingly greater than the subscription fees incurred for outside third-party platforms, like the ISNetwork. It would also result in time delays to develop such a platform. Furthermore, this alternative would require hiring several safety professionals (around



5 FTEs) at a cost exceedingly greater than the subscription fees incurred for third-party services, like the ISNetwork, to review contractor compliance programs on an on-going basis for accuracy and completeness for meeting the regulatory requirements. Based on our experience of over two years with using ISNetwork, this alternative was judged to be not a cost-effective option.

### 1. Summary of Results

		Low Alternative	Single Point	High Alternative
Pre-Mitigation	LoRE		1.053	
	CoRE	103.53	983.99	2451.43
	Risk Score	109.06	1036.56	2582.40
Post-Mitigation	LoRE		1.0502	
	CoRE	103.53	983.99	2451.43
	Risk Score	108.72	1033.39	2574.50
	RSE	0.62	5.92	14.76

### B. SCG-3-A2: Use A Different Third - Party Administration Tool To Vet Contractors For Safety

SoCalGas utilizes another third-party electronic platform, Veriforce, for managing contractors for Operator Qualification and Drug & Alcohol program compliance. Veriforce also has the ability to vet contractors for employee safety and recently has strengthened its offering by merging with PEC Safety that provides services similar to ISNetwork. The cost of these third-party platforms is competitive, and SoCalGas ended up selecting ISNetwork in 2016 after a competitive bidding process. SoCalGas has had good experience and success with ISNetwork thus far, but as the landscape of third-party providers change, SoCalGas will consider this alternative through another round of competitive bidding process and make appropriate adjustments. As of now, switching to another provider may not save any money but may add costs to contractors for switching over to another platform. If we ever plan to switch the platforms, it must be done with long lead time to make it efficient all around.

## 1. Summary of Results

		Low Alternative	Single Point	High Alternative
Pre-Mitigation	LoRE		1.053	
	CoRE	103.53	983.99	2451.43
	Risk Score	109.06	1036.56	2582.40
Post-Mitigation	LoRE		1.0502	
	CoRE	103.53	983.99	2451.43
	Risk Score	108.72	1033.39	2574.50
	RSE	9.89	94.04	234.27

**Table 8: Alternative Mitigation Summary**  
(Direct 2018 \$000)<sup>29</sup>

ID	Mitigation	2020-2022 Capital <sup>30</sup>	2022 O&M	Total <sup>31</sup>	RSE <sup>32</sup>
SCG-3-A1	Use internal resources and tools to vet contractors for safety	0	480-580	480-580	0.62-14.76
SCG-3-A2	Use a different third-party administration tool to vet contractors for safety	0	30-40	30-40	9.89-234.27

<sup>29</sup> The figures provided are direct charges and do not include company loaders, with the exception of vacation and sick. The costs are also in 2018 dollars and have not been escalated to 2019 amounts.

<sup>30</sup> The capital presented is the sum of the years 2020, 2021, and 2022 or a three-year total.

<sup>31</sup> Total = 2020, 2021 and 2022 Capital + 2022 O&M amounts.

<sup>32</sup> RSE ranges are further discussed in Chapter RAMP-C and Section VI above.

**APPENDIX A: SUMMARY OF ELEMENTS OF RISK BOW TIE ADDRESSED**

<b>ID</b>	<b>Control/Mitigation Name</b>	<b>Elements of the Risk Bow Tie Addressed</b>
SCG-3-C1	Contractor Safety Oversight	DT.1 – DT.7 PC.1 – PC.8
SCG-3-C2	Contractual Requirements	DT.1, DT.4, PC.5
SCG-3-C3	Stop the Job/Near Miss/Close Call Reporting Program	DT.1 – DT.7, PC.1 – PC.8
SCG-3-C4	Third-Party Administration Tools	DT.1 – DT.3, DT.5, PC.1, PC.2, PC.4, PC.6
SCG-3-C5	Contractor Engagement	DT.1 – DT.7, PC.1 – PC.8
SCG-3-M1	Expanded Contractor Safety Oversight	DT.1 – DT.7, PC.1 – PC.8