

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



August 16, 2023

Advice Letter No. 4777-G/6993-E

Sidney Bob Dietz II
Director, Regulatory Relations
c/o Megan Lawson
300 Lakeside Drive
Oakland, CA 94612

SUBJECT: Pacific Gas and Electric Company's Advice Letter, Pursuant to D. 23-05-009, Ordering Paragraph 3

Dear Sidney Bob Dietz II:

On May 19, 2023, the Commission issued D.23-05-009, closed Investigation (I.) 15-08-019, and adopted Safety Policy Division's (SPD) Modified Staff Report. The Modified Staff Report provides a plan for tracking (13) recommendations from the 2017 NorthStar Report on PG&E's safety culture and the 2019 First Update of the NorthStar Report. SPD selected recommendations for further monitoring that met one or more of the following criteria: 1) the recommendation would have a tangible impact on safety outcomes, as advised by NorthStar or as determined by SPD review; 2) the recommendation was marked as incomplete or not implemented within NorthStar's 2021 Final Update Report; and 3) the recommendation was not being monitored or tracked through other Commission oversight efforts.

Decision (D.) 23-05-009 directed PG&E to file an Advice Letter (AL) to SPD that includes responses to the data requests corresponding to the recommendations in the SPD Modified Staff Report, dated April 2023. PG&E has fulfilled the requirements¹ of this Decision to file an AL no later than 60 days after the issuance of this Decision.

D. 23-05-009 states² that in its review and disposition of the Advice Letter, SPD will determine if any recommendations can be closed out and marked complete based on PG&E's responses to the initial data requests. Following the review of Advice 4777-G/6993-E submitted by

¹ D.23-05-009, OP #. 3: *No later than 60 days after the issuance of this decision, Pacific Gas and Electric Company must file an Advice Letter to the Safety Policy Division that includes responses to the data requests corresponding to the recommendations included in the Safety Policy Division Modified Staff Report, dated April 2023, attached to decision as Attachment A.*

² See D.23-05-009, Section 4. Next Steps: No. 2, pg. 32

PG&E on July 18, 2023, SPD determined that the following recommendations can be closed out and marked as complete:

- F-4 and III-3
- U-10 and U-14
- U-4

Per D. 23-05-009, PG&E will continue to respond to the questions corresponding to each recommendation not marked complete by the Director of SPD for any follow-up data requests or questions through a semi-annual Advice Letter to the SPD. For PG&E's subsequent semi-annual Advice Letter due to SPD on September 31st, SPD will issue data requests for the recommendations marked as incomplete by August 31st, 2023. The following recommendations are still marked as incomplete:

- U-6
- IV-1 and IV-5
- VII-7
- X-8 and X-9
- XI-1
- XI-4

Sincerely,



Danjel Bout
Director for Safety Policy Division



July 18, 2023

Advice 4777-G/6993-E

(Pacific Gas and Electric Company ID U 39 M)

Public Utilities Commission of the State of California

Subject: Pacific Gas and Electric Company's Advice Letter, Pursuant to D. 23-05-009, Ordering Paragraph 3

Purpose

Pacific Gas and Electric Company (PG&E) hereby submits this Tier 1 Advice Letter ("AL") in compliance with California Public Utilities Commission ("CPUC") Decision ("D.") 23-05-009, Ordering Paragraph (OP) 3. This OP requires that, within 60 days of issuance of the decision, PG&E shall file an advice letter with the Safety Policy Division (SPD) that includes responses to the data requests corresponding to the recommendations included in the SPD's Modified Staff Report adopted in D.23-05-009.

Background

On May 19, 2023, the CPUC issued D.23-05-009, closing Investigation (I.) 15-08-019 and adopting SPD's Modified Staff Report, dated April 2023. The Modified Staff Report provides a plan for tracking 13 recommendations from the 2017 NorthStar Report on PG&E's safety culture and 2019 First Update of the NorthStar Report. SPD selected recommendations for further monitoring that met one or more of the following criteria: 1) the recommendation would have a tangible impact on safety outcomes, as advised by NorthStar or as determined by SPD review; 2) the recommendation was marked as incomplete or not implemented within NorthStar's 2021 Final Update Report; and 3) the recommendation was not being monitored or tracked through other Commission oversight efforts.

This AL addresses requirements included in OP 3 of D. 23-05-009, which requires that:

No later than 60 days after the issuance of this decision, Pacific Gas and Electric Company must file an Advice Letter to the Safety Policy Division that includes responses to the data requests corresponding to the recommendations included in the Safety Policy Division Modified Staff Report, dated April 2023, attached to decision as Attachment A.

Following disposition of this AL, PG&E will continue to respond to the questions corresponding to each recommendation that is not marked complete by the Director of

SPD or any follow up data requests or questions through a semi-annual AL to the SPD, unless otherwise directed by the CPUC.

Discussion

PG&E has included as Attachment A to this Tier 1 AL, responses to the data requests corresponding to the recommendations included in the SPD's Modified Staff Report, dated April 2023, adopted in D. 23-05-009.

Protests

Anyone wishing to protest this submittal may do so by letter sent electronically via E-mail, no later than August 7, 2023, which is 20 days after the date of this submittal. Protests must be submitted to:

CPUC Energy Division
ED Tariff Unit
E-mail: EDTariffUnit@cpuc.ca.gov

The protest shall also be electronically sent to PG&E via E-mail at the address shown below on the same date it is electronically delivered to the Commission:

Sidney Bob Dietz II
Director, Regulatory Relations
c/o Megan Lawson
E-mail: PGETariffs@pge.com

Any person (including individuals, groups, or organizations) may protest or respond to an advice letter (General Order 96-B, Section 7.4). The protest shall contain the following information: specification of the advice letter protested; grounds for the protest; supporting factual information or legal argument; name and e-mail address of the protestant; and statement that the protest was sent to the utility no later than the day on which the protest was submitted to the reviewing Industry Division (General Order 96-B, Section 3.11).

Effective Date

PG&E requests that this Tier 1 advice submittal become effective upon date of submittal, which is July 18, 2023.

Notice

In accordance with General Order 96-B, Section IV, a copy of this advice letter is being sent electronically to the parties shown on the attached list and the parties on the service lists for I.15-08-019 and R.21-10-001. Address changes to the General Order 96-B service list should be directed to PG&E at email address PGETariffs@pge.com. For changes to any other service list, please contact the Commission's Process Office at



ADVICE LETTER SUMMARY

ENERGY UTILITY



MUST BE COMPLETED BY UTILITY (Attach additional pages as needed)

Company name/CPUC Utility No.: Pacific Gas and Electric Company (U 39 M)

Utility type:

- ELC GAS WATER
 PLC HEAT

Contact Person: Stuart Rubio

Phone #: 279-789-6210

E-mail: PGETariffs@pge.com

E-mail Disposition Notice to: stuart.rubio@pge.com

EXPLANATION OF UTILITY TYPE

ELC = Electric GAS = Gas WATER = Water
 PLC = Pipeline HEAT = Heat

(Date Submitted / Received Stamp by CPUC)

Advice Letter (AL) #: 4777-G/6993-E

Tier Designation: 1

Subject of AL: Pacific Gas and Electric Company's Advice Letter, Pursuant to D. 23-05-009, Ordering Paragraph 3

Keywords (choose from CPUC listing): Compliance

AL Type: Monthly Quarterly Annual One-Time Other:

If AL submitted in compliance with a Commission order, indicate relevant Decision/Resolution #: D.23-05-009

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: No

Summarize differences between the AL and the prior withdrawn or rejected AL: N/A

Confidential treatment requested? Yes No

If yes, specification of confidential information:

Confidential information will be made available to appropriate parties who execute a nondisclosure agreement. Name and contact information to request nondisclosure agreement/ access to confidential information:

Resolution required? Yes No

Requested effective date: 7/18/23

No. of tariff sheets: 0

Estimated system annual revenue effect (%): N/A

Estimated system average rate effect (%): N/A

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected: N/A

Service affected and changes proposed¹: N/A

Pending advice letters that revise the same tariff sheets: N/A

¹Discuss in AL if more space is needed.

Protests and correspondence regarding this AL are to be sent via email and are due no later than 20 days after the date of this submittal, unless otherwise authorized by the Commission, and shall be sent to:

California Public Utilities Commission
Energy Division Tariff Unit Email:
EDTariffUnit@cpuc.ca.gov

Contact Name: Sidnev Bob Dietz II. c/o Megan Lawson
Title: Director, Regulatory Relations
Utility/Entity Name: Pacific Gas and Electric Company

Telephone (xxx) xxx-xxxx: (415)973-2093
Facsimile (xxx) xxx-xxxx:
Email: PGETariffs@pge.com

Contact Name:
Title:
Utility/Entity Name:

Telephone (xxx) xxx-xxxx:
Facsimile (xxx) xxx-xxxx:
Email:

CPUC
Energy Division Tariff Unit
505 Van Ness Avenue
San Francisco, CA 94102

Clear Form

ATTACHMENT A
PACIFIC GAS AND ELECTRIC COMPANY'S (U 39 E)
RESPONSES TO SAFETY POLICY DIVISION'S DATA REQUESTS FOR
ON-GOING MONITORING
IN COMPLIANCE WITH CPUC DECISION 23-05-009
SUBMITTED ON JULY 18, 2023

PACIFIC GAS AND ELECTRIC COMPANY

ATTACHMENT A

RESPONSES TO SAFETY POLICY DIVISION'S DATA REQUESTS FOR ON-GOING MONITORING

NorthStar Recommendations F-4 and III-3

F-4: Development of a comprehensive safety strategy, with associated timelines/ deliverables, resource requirements and budgets, personnel qualifications, clear delineation of roles and responsibilities; action plans, assignment of responsibility for initiatives, and associated metrics to assess effectiveness. This should be followed with the identification of necessary corporate and Line of Business (LOB) safety resource requirements and development of an appropriate organization structure.

III-3: Develop a comprehensive safety plan (by the end of 2017) that incorporates LOB and Corporate Safety activities to eliminate duplication, prevent gaps and appropriately prioritize expenditures. The plan should address culture, employee health and wellness, contractor safety, employee safety and public safety. Solicit input from throughout the organization, particularly the field, in the development of the plan. The environmental function was removed [from] the Safety, Health & Environment organization. It should have its own plan. Elements of the [Safety and Health] plan should include:

- Clear definition of the problem
- An in-depth, data-driven evaluation of the current as-is state
- Definition of the to-be state (i.e., what does good look like)
- Roles and responsibilities of corporate safety vis-a-vis LOB personnel
- Tangible goals and objectives
- Staffing/resource requirements and personnel qualifications
- Clear assignment of responsibilities
- Realistic timeline
- Metrics to assess effectiveness
- Defined budget
- Action plans
- Communications and change management plan.

The plan should be updated annually for at least two years and then at least every three years thereafter, with quarterly/annual monitoring of progress relative to the plan. The comprehensive plan should include all safety plans and programs of the Company, except for specific asset-related safety plans (such as asset management plans, leak survey programs or vegetation management) that should continue to be the responsibility of the various LOBs. The plan should be approved by the NOS (Nuclear Operations and Safety), now the Safety and Nuclear Operations (SNO) Committee and the Boards, and endorsed and supported by executive management and the CPUC. The plan must be clearly communicated throughout the organization.

Data Requests for Ongoing Monitoring by SPD

Data Request F-4 & III-3 (a): Provide current safety strategy and implementation status, and an update on implementation of recommendations F-4 and III-3.

Response to Data Request F-4 & III-3 (a): PG&E’s Safety Strategy is currently developed and documented through the Business Plan Deployment process. This is a planning process for a two-year look and includes defining outcomes needed to deliver on our True North Strategy stands, development of workplans that will achieve those outcomes, and alignment of resources to implement the workplan. From this process a plan is documented (referred to as a “Plan on a Page”) which includes key performance indicators, budget, activities, owners, and due dates. The 2023 Plan on a Page is attached as “*F4 and III3_EHS Plan on a Page_Redacted*” and includes activities supporting Workforce Safety, Contractor Safety, Public Safety, Safety Culture, Transportation Safety and Personal Safety. From this plan, Tactical Implementation Plans (TIP) are developed which include detailed activities, owners, due dates and status of completion and expected effectiveness. These TIPs are reviewed at weekly and monthly operational reviews at all levels of the enterprise including with the Executive team in the weekly Safety Weekly Operational Review (WOR). During these reviews, we track progress against our outcomes, identify where we have gaps and the drivers behind these gaps. Any off-track activities or outcomes require a recovery plan. An example of the 2023 EHS TIP is attached as attachment “*F4 and III3_2023_EHS TIP_Redacted*”. This TIP corresponds with the first item listed under Workforce Safety in the Plan on a Page. PG&E is currently in the process of developing our 2024/2025 Plan.

Note, employee names have been redacted from the attachments being provided in this response.

Data Request F-4 & III-3 (b): Provide status of asset management systems/certifications.

Response to Data Request F-4 & III-3 (b): PG&E’s Gas Operations maintains certifications to ISO 55001, Pas55 and certificates for API 1173 and API 754. PG&E’s Electric Operations and Power Generation maintain certifications to ISO 55001.

Data Request F-4 & III-3 (c): Provide implementation status of the PG&E Safety Excellence Management System (PSEMS). Describe how PSEMS addresses public safety.

Response to Data Request F-4 & III-3 (c): PG&E published the PG&E Safety Excellence Management System (PSEMS) Manual in April 2023. PG&E contracted Lloyd’s Register Quality Assurance (LRQA) to conduct Pre-Assessments in 19 Functional Areas. The Pre-Assessments compare the company’s performance against the requirements in PSEMS. Gap Closure Plans will be created and gaps will be tracked in PG&E’s Corrective Action Program (CAP). The third party Pre-Assessments began on May 31, 2023 and will run through September 30, 2023.

PSEMS addresses public safety by requiring the elimination of hazards and reduction of risks to create healthy and safe conditions for our workforce, customers, and our hometowns and requires PG&E to manage our assets, mitigate associated risks, and improve system

performance throughout lifecycles to protect our customers, workforce, and environment. PSEMS conforms to the requirements in ISO 55001, ISO 45001 and API 1173. PSEMS is the systematic management of our processes, assets, and occupational health & safety to prevent injury and illness including effectively and safely controlling and governing our assets and managing the integrity of operating systems and processes. PSEMS drives continuous improvement in four areas: Asset Management, Occupational Health & Safety, Process Safety, and Organizational Culture & Safety Mindset.

Data Request F-4 & III-3 (d): Provide an update on Electric Operations and Power Generation’s plans to adopt process safety and safety culture standards.

Response to Data Request F-4 & III-3 (d): PG&E’s Enterprise Health & Safety (EHS) organization is currently drafting the Safety Culture Guidance Documents that will govern safety culture for PG&E and will also implement the requirements adopted in the CPUC’s Order Instituting Rulemaking (OIR) to develop Safety Culture Assessments for Electric and Natural Gas Utilities. In addition to the requirements in the OIR, EHS is also setting up a Safety Culture Monitoring Process and a Safety Culture Assessment Process. Power Generation and Electric Operations are ISO 55001 certified and are currently implementing PSEMS, which conforms to ISO 55001, ISO 45001 and API 1173. The PSEMs implementation started with the publication of the PSEMS Manual in April 2023 and PG&E is currently undergoing the third party Pre-Assessments described above.

NorthStar Recommendation U-6

U-6. Increase CSO [Chief Safety Officer] oversight and governance over public and other aspects of safety to mitigate potential silos and ensure risks are adequately addressed.

Data Requests for Ongoing Monitoring by SPD

Data Request U-6 (a): Provide an update on the status of and plans for the CRO/CSO/CSRO role.

Response to Data Request U-6 (a): The consolidated position of Chief Safety and Risk Officer (CSRO) was led by Sumeet Singh who brought a unique set of skills in both Safety and Risk, as explained in PG&E’s Petition to Modify D.20-05-053. In February 2023, Mr. Singh was elected to serve as Executive Vice President (EVP), Operations and Chief Operating Officer (COO). Following the new appointment, the Chief Safety and Risk Officer (CSRO) role was separated into a Chief Safety Officer (CSO) and a Chief Risk Officer (CRO). PG&E appointed a new CSO, who reports to the EVP, Operations and COO, which enables the synergies and visibility necessary for our enterprise safety organization and operational teams to execute our workforce safety strategy. The CSO has dotted line reporting relationships to the Board of Directors and the Chief Executive Officer (CEO), with a minimum of monthly one-on-one meetings. There is currently an interim CRO who reports to the Chief Financial Officer (CFO), while a search for a new enterprise CRO continues.

Data Request U-6 (b): Provide documentation to show how reporting to the CSO/CRO position, implementation of NorthStar’s recommendation, and coordination of safety and risk activities have changed since the CSO/CRO roles were consolidated.

Response to Data Request U-6 (b): As described above, the CSRO role has now been separated and the current CSO reports to the COO while the CRO reports to the CFO.

NorthStar Recommendations IV-1 and IV-5

IV-1: Appoint a Corporate Safety Officer who has both operations and professional safety experience.[...].

IV-5: Improve the safety credentials of personnel in PG&E’s safety functions and organizations.

Data Requests for Ongoing Monitoring by SPD

Data Request IV-1 & IV-5: Provide proposed electric and gas utility operations and safety training curriculum for current and future CRO/CSO/CSROs.

Response to Data Request IV-1 & IV-5: The Commission states in D.23-05-009 that “there is still a need to better understand PG&E’s plan for the CRO/CSO/CSRO roles and future training curriculum as it relates to the NorthStar recommendation”, referring to the February 2023 reorganization of PG&E’s senior leadership team with its previous CSRO taking another officer position. As described above, following Mr. Singh’s appointment to EVP, Operations and COO, PG&E has separated the CSO and CRO roles. PG&E has appointed a new CSO, who has both operations and professional safety experience.

PG&E’s CSO, Dr. Matt Hayes, comes from PG&E’s Utility Operations functional area. He has been a senior leader in nuclear and power generation, has training in electric and gas utility operations, and has supported numerous cross-functional utility operations initiatives such as:

- Creating and facilitating the Utility Operations Excellence Council (UOEC) from 2020 to 2021. The purpose of the UOEC was to “drive sustainable error-free performance across utility operations through cross-functional challenge with a shared responsibility to ensure that everyone and everything is always safe.” The quorum membership was all Utility Operations Officers and Senior Directors and they met monthly to review recent performance events across operations.
- Mentoring, leading, or sponsoring cross-functional root cause evaluations in Nuclear/Power Generation, Vegetation Management, Electric, and Gas Operations.
- Supporting various Public Safety Power Shutoff and utility Emergency Operations Center activations.
- Serving as a Qualified Company Spokesperson for PG&E Emergency Response Organization, which required utility operations training and emergency drill performance objectives.

- Leading the 2020 PG&E Corporation Evaluation with partnership from the Institute for Nuclear Power Operations, which evaluates the following six corporate performance objectives:
 - Corporate Leadership;
 - Corporate Governance;
 - Corporate Oversight and Monitoring;
 - Corporate Independent Oversight;
 - Corporate Support Services;
 - Corporate Human Resource Management and Leadership Development; and
 - Corporate Communications.

Additionally, Dr. Hayes has received training related to wildfire risk management, Incident Command, and New to Leadership at PG&E. He holds a PhD in Organizational Change and Leadership, a Masters degree in Nuclear Engineering Technology and a Senior Reactor Operator License Certification. He conducts observations in the field on a weekly basis.

Regarding future training, Dr. Hayes is studying for the Associate Safety Professional (ASP) and Certified Safety Professional (CSP) certifications which he expects to complete by the end of 2023.

NorthStar Recommendation U-10 and U-14

U-10: Increase the number of Supervisors in Electric Operations, Gas Operations and Power Generation field operations to comply with Corporate Procedure HR-2010-P01 thereby limiting the span of direct reports to a maximum of 1:20.29

U-14: Move completed work review to the jobsite, allowing for immediate feedback before electronic records and paperwork are finalized, as discussed in PG&E’s January 8, 2018, Testimony (p. App 2A-4/Adobe p. 129/521).

Data Requests for Ongoing Monitoring by SPD

Data Request U-10 & U-14: To implement this recommendation PG&E shall provide: The results of PG&E’s 2020 study correlating safety incident rates and leader in the field time.

Response to Data Request U-10 & U-14: The 2020 study found that increasing leaders in the field (LITF) for Electric Operations, Gas Operations and Power Generation did not result in a statistically significant difference in injury rates. Injuries of all types were lower for electric operations during the LITF effort, but not consistently for generation and gas operations. Only a correlation between the LITF effort and lower injuries could be observed, not causation. Since multiple interventions to lower injuries were being applied, it is not possible to strictly isolate the impact of LITF efforts unless a pilot is conducted with the proper controls. Behavioral factors, employee risk tolerance, stress, fatigue, health, experience and culture all also play a role in injuries. The span of data was limited to comparing 8 months prior to LITF implementation (Oct 2018 to June 2019) to the 8 months following LITF implementation (July 2019 to March 2020).

NorthStar Recommendation VII-7

VII-7: Improve the internal sharing of best practices. Increase the level of involvement by different groups and employee levels. As an example, NorthStar performed a management audit of National Grid Gas’ New York operations a few years ago for the New York Public Service Commission. The utility had a fairly robust process improvement program. NorthStar’s report describing the process is available on the New York State Department of Public Service’s website.

Data Requests for Ongoing Monitoring by SPD

Data Request VII-7 (a): Describe how sharing of best practices has changed with the deployment of Lean throughout the organization (not just within Enterprise Health and Safety). Provide metrics PG&E is using to measure the efficacy of Lean in sharing information and best practices.

Response to Data Request VII-7 (a): As part of our True North Strategy (TNS), PG&E rolled out the Lean Operating System across the Enterprise. Specifically, the five Plays of Lean are: Visual Management, Operating Reviews, Problem Solving, Standard Work, and Waste Elimination. Changes in best practice sharing are most apparent in Play 2: Operating Reviews and Play 3: Problem Solving.

Operating Reviews are used to share critical information both within functional areas at all levels and across functional areas at all levels. The sharing of information and best practices is meant to be timely, therefore Operating Reviews are setup with Daily, Weekly, and Monthly cadences. Problem Solving at PG&E is broken up into two types: Simple Problem Solving (SPS) and Practical Problem Solving (PPS). SPS is used for less complex issues within a functional area and PPS is used for more complex issues that span multiple functional areas. SPS and PPS are 5-step and 8-step processes, respectively. Each requires sharing of best practices as a step in the process.

The roll out of Lean has increased the cadence in providing visibility to key performance indicators across the company. Through the Lean daily-weekly-monthly operating review process, risks and safety issues are quickly shared, addressed and remediated across the system, horizontally, vertically and regionally. Each day, issues from the field escalate to the executive-level of the company for awareness, confirmation, and action where appropriate. Action plans related to ongoing safety strategies and remediation plans are evaluated weekly for effectiveness and efficiency. Monthly confirmation is performed to ensure that plans are adjusted to control for safety risks.

As for metrics, the Lean Maturity Assessment is the best method to measure the efficacy of Lean in sharing information and best practices. Maturity scores for Plays 2 and 3 are 77% and 42%, respectively.

Data Request VII-7 (b): With Lean, are best practices shared across different lines of business and throughout the organization overall, or just within the organizational workstream? If so, how?

Response to Data Request VII-7 (b): Operating Reviews are setup within functional areas (line of businesses) at all levels, from Supervisor-level up to Executive Officer-level. Cross-functional Operating Reviews are also setup to quickly share information across functional areas. Some examples of cross-functional Daily Operating Reviews (DORs) that have been successful include the DART Reduction DOR, PMVI DOR, Cross-functional Regional DORs, and Regional EPSS DORs.

Additionally, Corporate Command Centers are used for functional & cross-functional problem solving, Go-see tours (open to the Enterprise), and functional & cross-functional Weekly and Monthly Operating Reviews (WOR and MOR). Below are examples of Corporate Command Centers:

- Customer & Communications Command Center
- Safety Command Center
- Regional Command Center(s)
- Central Command Center
- Waste Elimination Center
- Plan Delivery Center(s)
- Wildfire Risk Command Center
- Commitment Information Center
- People Command Center
- Results Command Center
- Bill Ownership Center

Similarly, cross-functional sharing of best practices from Problem Solving is done through Operating Reviews in the Corporate Command Centers. The efficacy of information and best practice sharing within the Corporate Command Centers is done through Process Confirmation. The Safety WOR and Customer Satisfaction Score WOR are the most mature WORs with average scores of 50% and 54%, respectively.

- The Safety Command Center requires Simple Problem Solving (SPS) for every incident. The Safety WOR is used to share information and best practices from SPS with other functional areas that may be impacted or benefit. An estimated 40+ SPS's have been completed and shared.
- Similarly, Customer & Communications Command Center requires SPS for issues impacting the Customer Satisfaction Score. Information and best practices from SPS are shared with cross-functional teams during the bi-weekly Customer Satisfaction Score WOR.

Lastly, Practical Problem Solving (PPS) is used for complex cross-functional issues and requires sharing of best practices. Over 30 PPS are completed or currently active.

X-8: Develop a single, consistent enterprise causal evaluation standard combining Utility Standard: SAFE-1004S (Serious Investigation Standard) and the Enterprise Causal Evaluation Standard (Utility Standard: GOV-6102S) [referred to as the Kern Standard]. Incorporate the following improvements:

- Determine whether Root Cause Evaluations (RCEs) should be required for: 1) an injury involving inpatient hospitalization for a period in excess of 24 hours for other than medical observation; and 2) a loss of any part of the body (including eye), or any serious degree of permanent disfigurement (includes tissue damage without loss of bone).
- Require documentation of the rationale for the selection of the Causal Evaluation (CE) type for all incidents, including near hits.
- Require assignment of responsibility for ensuring all corrective actions are thorough, appropriate, have been completed, and have been appropriately communicated.
- Require assignment of responsibility for ensuring that the effectiveness evaluation has been completed, is thorough, and any findings have been effectively addressed.
- Include a process flow/timeline that extends to the completion of the effectiveness evaluation, similar to that included in Utility Standard: SAFE-1004S Publication Date: 05/31/2015, Rev: [1].
- Provide a summary to all employees for the cause and corrective actions taken/to be taken once an incident investigation is complete (Apparent Cause Evaluation [ACE]/RCE). All PG&E employees are notified via email within 24 hours of the incident providing a brief summary of the incident. There is no such requirement for closure. NorthStar's review of safety-related communications to all employees evidenced the initial notification and the lack of any commensurate notification upon completion of the investigation.

X-9: Compare all LOB CE Standards to ensure the processes are consistent and all required elements are defined. As an example, the Power Generation Procedure includes a discussion of the Work Group Evaluation (WGE) process. Electric T&D and Gas Operations procedures do not. Gas Operations procedures do not include an RCE process timeline and appear to group RCE and ACE. The RCE communications plan for all procedures should include the communications process for follow-up on the Effectiveness Review Plan. Establish guidelines for communication of the corrective actions and the effectiveness reviews, as these are currently tracked separately by LOB.

Data Requests for Ongoing Monitoring by SPD

Data Request X-8 & X-9: Provide redline versions of the 2021 guidance documents for the Enterprise Cause Evaluation Standard and the Cause Evaluation Procedure or provide a summary of changes from the prior versions. Describe how a summary of the causes of incidents and corrective actions is shared with employees.

Response to Data Request X-8 & X-9: We have hired a new Enterprise Corrective Action Plan (CAP) Director with extensive nuclear CAP experience and have reconstituted the Senior CAP Governance Committee to drive consistency in CAP across all functional areas. Accordingly, many of our CAP and Cause Evaluator (CE) procedures have been updated and

simplified. We have also reinstated Cause Evaluator refresher training for Cause Evaluators, Leads, and Sponsors.

Attached are versions of the Enterprise Cause Evaluation Standard and Enterprise Cause Evaluation Procedure in effect in 2021. All revisions are noted in the table at the bottom of each document.

- Enterprise Cause Evaluation Standard ,GOV-6102S, Revision 3, Published March 2021; see attachment “X-8_X-9_GOV-6102S_rev3_Redactedf”
- Enterprise Cause Evaluation Procedure, GOV-6102P-06, Revision 1, Published August 2021; see attachment “X-8 and X-9_GOV-6102P-06_rev2_Redacted”

PG&E is also attaching the versions of the Enterprise Cause Evaluation Standard and Enterprise Cause Evaluation Procedure in effect in 2020 for comparison:

- Enterprise Cause Evaluation Standard ,GOV-6102S, Revision 2, Published March 2020, Published March 2021; see “X-8 and X-9_GOV-6102S_rev2_Redacted”
- Enterprise Cause Evaluation Procedure, GOV-6102P-06, Revision 1, Published March 2020; see attachment “X-8 and X-9 GOV-6102P-06_rev1”

A summary of causes and corrective actions is shared with the broad organization via a daily communication that goes out to the entire organization daily. This is a requirement that is tracked and audited to ensure that it happens. This requirement has been in place for many years and remains in place today.

Note, employee names have been redacted from the attachments being provided in this response.

NorthStar Recommendation XI-1

XI-1: Corporate Contractor Safety should select the projects for review rather than the LOBs and conduct surprise field visits to assess contractor safety practices.

Data Requests for Ongoing Monitoring by SPD

Data Request XI-1 (a): Provide the targeted and actual number for both announced and unannounced contractor field safety observations by LOB. Explain how these targets are determined for each LOB.

Response to Data Request XI-1 (a): Assessments are conducted throughout all PG&E service territories for in-scope LOBs. Quarterly targets are adjusted for each LOB based on their contractor spend and scheduled work. Additionally, projects are selected based on risk levels as determined by the Contractor Safety assessor.

Corporate Contractor Safety selects the projects for review, and in most cases announces to the LOB that they planned to assess the contractor (in some cases the LOB is not notified) but in all cases, the assessments are surprise visits and not announced to the contractor.

One main reason why the assessors continue to notify the LOB prior to an assessment is to acquire the exact crew locations.

Actual Assessments Completed Yearly:

2018: 182 (announced) = 182 (total)

2019: 191 (announced) + 17 (unannounced) = 208 (total)

2020: 233 (announced) + 11 (unannounced) = 244 (total)

2021: 21 (announced) + 18 (unannounced) = 39 (total)

2022: 10 (announced) + 5 (unannounced) = 15 (total)

2023: 0 YTD (total) – [assessments are scheduled to begin in Oct 2023]

Data Request XI-1 (b): With reference to the Contractor Safety Assessment Process, provide: 1) the LOB compliance assessment targets assigned to each Contractor Safety Assessor, 2) the projects selected for review by each Assessor and the basis for their selection, 3) all documentation showing that these field visits were scheduled and completed, including assessment results and any follow-up actions that were to be taken by the contractor or by PG&E.

Response to Data Request XI-1 (b):

Assessor Targets/Actuals

- 2018: 7 total assessors (target/actual): Assessor 1 (29/17); Assessor 2 (48/44); Assessor 3 (73/51); Assessor 4 (16/15); Assessor 5 (8/8); Assessor 6 (41/22); Assessor 7 (25/25).
- 2019: 7 total assessors (target/actual): Assessor 1 (13/13); Assessor 2 (62/54); Assessor 3 (6/5); Assessor 4 (50/47); Assessor 5 (67/66); Assessor 6 (15/14); Assessor 7 (9/9).
- 2020: 5 total assessors (target/actual): Assessor 1 (68/66); Assessor 2 (74/73); Assessor 3 (52/51); Assessor 4 (43/42); Assessor 5 (12/12).
- 2021: 4 total assessors (target/actual): Assessor 1 (17/17); Assessor 2 (9/8); Assessor 3 (6/5); Assessor 4 (9/9).
- 2022: 3 total assessors (target/actual): Assessor 1 (7/7); Assessor 2 (3/3); Assessor 3 (5/5).
- 2023: Not yet set.

Projects Selected for Review and Why

The projects selected for review by each Assessor are based on the geographical location of the project in relation to the assessor's assigned territory and subject matter expertise. The

projects selected for assessment are based on LOB spend reports obtained from Supply Chain on a quarterly basis to use as an input into the methodology for calibrating quarterly LOB assessment targets in addition to previous quarter assessment data to trend non-conformances and use calibrating quarterly LOB assessment targets. Lastly, contractor safety also evaluates contractors with approved variances and uses this information to calibrate quarterly LOB assessment targets.

Below is a list of assessors who have performed assessments over the years and their geographical territories:

- Assessor 1: Northern Valley Territory; Vegetation Management Operations
- Assessor 2: Southern Valley Territory; All Lines of Business
- Assessor 3: Central Valley Territory; All Lines of Business
- Assessor 4: Bay Area Territory; Shared Compliance Operations
- Assessor 5: Northern Coast Territory; Vegetation Management & Nuclear Operations
- Assessor 6: Central Coast Territory; Nuclear Operations & Electric Operations
- Assessor 7: Northern Coast Territory; Vegetation Management Operations & Nuclear Operations
- Assessor 8: Southern Coast Territory; Electric Operations & Nuclear Operations
- Assessor 9: Southern Valley Territory; Gas Operations & Electric Operations

Assessment Trackers/Documentation

PG&E maintains documentation in the form of assessment trackers which provide the requested data regarding the assessments. Trackers for the years 2018 through 2022 are attached to this data request.

Data Request XI-1 (c): Explain how implementation of the recommendation has changed with PG&E's adoption of a new contractor safety standard as part of the 2025 Safety Strategy initiative.

Response to Data Request XI-1 (c):

PG&E has drafted a new process that outlines the requirements and instruction for the Enterprise Contractor Safety team in evaluating the implementation of the functional area's contractor safety oversight procedures. This assessment process will determine if the functional areas have successfully implemented the oversight requirements as specified in Utility Standard: SAFE-3001S Contractor Safety Standard.

Performing assessments of the functional area's Contractor Safety Oversight Procedures will ensure that processes are in place to mitigate the risk exposures to contractors, PG&E employees, and the public, as associated with the work performed for PG&E. This assessment process applies to PG&E project sites and locations, wherever medium and high-risk activities are performed by contractors/subcontractors that are within the scope of the Contractor Safety Program as defined in SAFE-3001S, Appendix A.

Each assessment includes a desk top assessment and a field assessment:

Desk Top Assessment

The desktop assessments will be conducted on an annual basis and completed no later than the end of Q3 and will include the following:

- a. Enterprise Contractor Safety (ECS) will schedule a 1+ hour meeting (face-to-face or Teams meeting) with a functional area Champion to evaluate and validate their compliance with SAFE-3001S. (The functional area Champion can invite other interested parties to assist in this assessment).
- b. ECS will review the functional area assessment template (a list of compliance items) with the functional area Champion and validate their compliance with the SAFE-3001S requirements.
- c. ECS will obtain any existing documents to validate their compliance with the SAFE-3001S requirements.
- d. ECS will obtain any additional documents (i.e. contractor safety observations) where indicated as validation.
- e. ECS will complete the functional area assessment template and identify those sections that were a “Not Met” as a non-compliance.
- f. ECS will submit a CAP issue into the Enterprise Corrective Action Program (ECAP) system for all non-compliance issues (with 1 or more CAP Actions) identified for further evaluation and tracking corrective actions to closure.
- g. ECS will retain a copy of the completed functional area assessment in a Microsoft Teams page.
- h. ECS will report findings for each functional area on the Quarterly Contractor Safety Blue-Red-Amber-Green (BRAG) Report. (This report is shared with all Functional Areas who oversee contractors. It illustrates where we have non-compliance issues and who needs to take action to improve).

Field Assessment

In accordance with Contractor Safety Standard, SAFE-3001S, Enterprise Contractor Safety (previously Corporate Safety and Health Department) performs assessments on the implementation of the Functional Area (previously LOB) contractor oversight procedures to validate compliance with the requirements within, including assessing the contractor’s safe work performance. The field portion of the assessments will be performed by the Contractor Safety (CS) team assigned to the respective Functional Area. They will be unannounced and include the following:

- a. CS assessor will review the ECS Field Assessment Tracker and confirm monthly/quarterly assignments.
- b. CS assessor will schedule field assessment to assess work being managed by the functional area at the PG&E project site.

- c. CS assessor will invite the functional area Champion to field assessment to jointly determine if the contractor is performing work safely in accordance with PG&E standards.
- d. CS assessor will evaluate the following areas for implementation and document on the SafetyNet Contractor Safety Checklist (list is not all inclusive).
 - (1) Verify contractors/subcontractors have completed the pre-qualification process by the third-party administrator (TPA) and have an acceptable pre-qualification status (A or B grade).
 - (2) Verify all contractors have an ISNetWorld (third party administrator) badge available to scan, including subs at any tier.
 - (3) Verify that a Job Hazard Analysis (JHA)/Tailboard was conducted, all personnel were brief on the JHA, and that it was adequate and specific to the work being performed.
 - (4) Verify that the JHA/Tailboard included the nearest medical facility in case of an emergency.
 - (5) Verify that site safety controls are in-place to prevent unauthorized access and to make sure that all personnel and visitors on-site are briefed on hazards and required safety controls.
 - (6) Verify if a safety plan (Programmatic Safety Plan (PSP)/ Project Specific Safety Plan (PSSP) is required (Always required for high risk, may be required for medium risk per functional area procedure).
 - (7) Verify if safety plan was reviewed and approved by a functional area Safety Plan Approver.
 - (8) Verify if the safety plan is readily available to the workers and being adhered to.
 - (9) Verify if the workers are trained to meet the requirements within the safety plan.
 - (10) Verify each scope of work (SOW) is well-defined and clearly communicated the work objectives, area hazards that are present at the job-site locations and mitigation strategies.
 - (11) Verify that work being performed is safe in accordance with all regulatory and PG&E specific safety requirements.
 - (12) Verify that any certifications/licenses for specialized operations (forklift, crane, etc.) are available and that they are current and non-expired.

- (13) Verify that all workers are wearing required personal protective equipment (PPE), including subs at any tier.
 - (14) Verify that workers utilize the equipment in the safety plan to safely perform the work.
 - (15) Verify that first aid kits, blood-borne pathogen (BBP) kits, AED(s), and fire extinguisher(s) have been inspected and documented monthly.
 - (16) Verify that the required Driver’s Vehicle Inspection Report (DVIR) has been completed for all vehicles with a gross vehicle weight (GVW) of 10,000 lbs. or greater.
 - (17) Verify if any unsafe work practices were observed during the field visit or if any best practices conducted by the contractor should be shared.
- e. CS assessor will conduct a post-assessment conference with the functional area Champion responsible for the work to review the assessment findings.
 - f. CS assessor and functional area Champion will coach the contractor on all “at risk” safety issues on the SafetyNet Contractor Safety Checklist.
 - g. CS assessor will provide a completed SafetyNet Contractor Safety Checklist to the functional area Champion and upload a copy to the completed Field Assessment Folder Completed Field Assessments.
 - h. CS assessor will report findings for each functional area on the Quarterly Contractor Safety BRAG Report.

To ensure PG&E representatives know and understand this process, ECS will publish the document in PG&E’s Guidance Document Library and communicate the new process via enterprise contractor safety partnership meetings with all PG&E Functional Areas who oversee contract partners and host learning sessions with each functional area to communicate the process and answer any questions.

The new process is scheduled to “go live” October 2023. At which time, ECS will begin performing functional area assessment in accordance with the new procedure. Once we have the results data, we can provide examples of implementation and effectiveness.

NorthStar Recommendation XI-4

XI-4: Facilitate the sharing of best practices and lessons learned regarding the LOBs’ implementation of the Contractor Safety Standard, addressing both organizational and procedural issues, including:

- Roles of safety specialists, inspectors and work supervisors with respect to Contractor Safety (See discussion of Recommendation XI-5)
- Benefits of a separate contractor safety group
- Contractor safety training for safety specialists and inspectors
- Frequency of field observations (See discussion of Recommendation XI-5)
- Field observation data and trend analyses.

Following the determination of best practices:

- Each LOB should update its Contractor Safety procedures to reflect its current organization, clarify responsibilities and reflect best practices. (See discussion of Recommendation XI-5.)
- Corporate Contractor Safety and LOB personnel with contractor safety experience should develop or revise contractor safety training for safety specialists and inspectors.
- Corporate Contractor Safety, or a LOB contractor safety representative, should work with appropriate PG&E personnel to update the Guardian observation tool to provide a useful mechanism to observe trends and track contractor safety performance.

Data Requests for Ongoing Monitoring by SPD

Data Request XI-4: Provide PG&E’s new Contractor Safety Standard and a summary of changes from the previous Standard. Explain if/ how implementation of the recommendation has changed with the adoption of the new standard.

Response to Data Request XI-4: PG&E expects to publish the Enterprise Contractor Safety Standard, Revision 6 in September 2023. We do not expect an issue with change management, since all changes have been previously implemented within various guidance document bulletins, which are in effect until the associated standard is revised. The expected summary of changes includes the following:

Additions to Revision 6 of the standard:

- At any tier, all contractors and their subcontractor(s) must provide and use appropriate personal protective equipment (PPE) as required per California Code of Regulations, Title 8, Section 3380, and PG&E’s regulatory requirements specific to the hazards of the related task.
- The Functional Area (FA) must ensure their Contractor Safety Oversight Procedures’ requirements are adhered to throughout the course of contracted work, even when there may be project management overlap between one or more Functional Areas
- The Contractor Safety Performance Evaluations will be factored in when determining future award contracts
- The FA contract owner must ensure their procedure requirements are adhered to throughout the course of work for the contractor, even when there may be project management overlap between one or more FA’s
- Contractor Safety Forums are intended to enhance the client-contractor relationship and create mutual ownership and responsibility of safety goals

- Forums are to be conducted at least quarterly and must include prime contractors that have active multi-year agreements
- Forums may be in-person or remote, or a combination of both
- The agenda must include PG&E specific safety topics, sharing lessons learned, and performance feedback
- Required topics for inclusion include:
 - PG&E Specific Safety Topics (applicable Keys to Life).
 - Lessons Learned based on observations and incidents.
 - Contractor safety performance (Leading / Lagging Indicators).
 - Focus areas for improvement (Leading / Lagging Indicators).
- Suggested topics for inclusion include:
 - Best practices
 - Subcontractor management
 - PG&E safety plan management
 - Safety & Security (i.e., disgruntled customers, acts of violence)
 - Wildfire risk mitigation
 - Incident reporting and Cause Evaluation Expectations
 - Driving Safety
 - Safety Culture
 - Safety Leadership
 - Training / Operator Qualifications
 - Fitness for Duty
 - ISN Grade Impacts (how to avoid them and recover)
- For assistance in completing, viewing, or editing an evaluation within ISN, see Attachment 3, “How to Complete and View/Edit an Evaluation Report.”
- If a contractor’s safety performance warrants a pause or work stoppage, then review and initiate SAFE-3001P-1, “Enterprise Contractor Safety Stand Down and Probation Procedure.” SAFE-3001P-24, Enterprise Contractor Safety Stand Down and Probation Procedure.
- (FA must) Schedule Contractor Safety Leadership/Engagement Annual Forums with our internal stakeholders to communicate Enterprise Contractor Safety projects.
- (FA must) Identify the top high-risk contractors who are experiencing an adverse trend in safety performance to determine if a Contractor Safety Quality Assurance Review (CSQAR) should be undertaken.
- (Definitions) Contractor – Company directly hired by PG&E to complete a specific SOW or service. This term also applies to all subcontractors, at any tier, which have been retained by a primary PG&E contractor to provide a service for PG&E related project work. Additionally, the term “subcontractor” may include an individual, a group of workers (crew), equipment or other items used on a PG&E facility, project or assets.
- (Definitions) Contractor Safety Forum – A valuable gathering for the purpose of discussing PG&E specific safety topics, sharing lessons learned, performance feedback, typically involving a panel of presenters and often including audience participation.
- (Definitions) Prime Contractor – Company directly hired by PG&E to complete a specific Scope of Work or service.

- (Definitions) Program – Multiple projects, across multiple locations which are managed and delivered as a single package.
- (Definitions) Programmatic Contract – An agreement between PG&E and a contractor to complete multiple projects within a set time, such as during a one-year period. Programmatic projects may support one or more programs. The contractor may be directed to perform various projects, and the projects may be unrelated.
- (Definitions) Project – A specific, singular endeavor to deliver a tangible output. A project may be a stand-alone effort, or it may be part of an overarching program. A project is typically referred to as a ‘job’ (i.e., pole replacement, a Rule 20), and work is typically performed at one location.
- (Definitions) Project-Specific Contract – An agreement between PG&E and a contractor to complete a single project, regardless of size or scope, including a formal project bundle. The contract scope is limited to the project or projects named in the contract. An additional contract or contracts would be required for the contractor to perform other projects.
- (Definitions) Subcontractor – Subcontractors are contractors that have been retained by a prime contractor to provide services on behalf of PG&E.
- (Supplemental Reference) GOV 7101S, Records Management Standard.
- (Supplemental Reference) SAFE-1002S, Motor Vehicle Safety Standard.

Deletions to Revision 6 of the standard:

- The requirement to define a process for providing contractor work schedules monthly to Corporate Enterprise Contractor Safety

NorthStar Recommendation U-4

U-4: In addition to the status of the implementation of NorthStar’s recommendations, continue to report to the Commission on any significant changes that might affect the sustainability of the recommendations.

Data Requests for Ongoing Monitoring by SPD

Data Request U-4: Report to the Commission on any significant changes that might have a significant impact on safety initiatives, reporting, or outcomes.

Response to Data Request U-4: There are no significant changes to report at this time that might affect the sustainability of these recommendations.

Attachment

F4 and III3_2023_EHS TIP_Redacted

Attachment

F4 and III3_EHS Plan on a Page_Redacted



Enterprise Health & Safety

Functional Plan on a Page

Key Functional Targets (Annual)

Level	KPI	2022 Actual	2023 Target
L1.5	[1] Commitment Delivery Index	N/A	100%
L1.5	[2] DART Rate	0.67	0.64
L1.5	[3] Public SIF Incidents (asset failure)	6	1
L1.5	[4] Third Party Safety Incidents (non-asset failure)	14	TBD
L1.5	[5] Budget Attainment	N/A	0%
L1.5	[6] Lean Maturity	N/A	75%
L1.5	[7] Waste Elimination	N/A	>2%
L1.5	[8] Woman & Minority Leader Fill Rate	N/A	TBD
L1.5	[9] DEIB Adoption	N/A	75%
L1.5	[10] Joy at Work	N/A	70%
L2	[11] SIF-Potential Rate	0.11	Tracking only
L2	[12] Count of Off-Track KRI	1	0
L2	[13] OSHA Rate	1.59	Tracking only
L2	[14] High/Life Threat Finding Rate	1.2	Tracking only
L2	[15] Personal Safety Incidents	Tracking Only	
L2	[16] CAP Health Index (in dev)	TBD	

2023 Work Plan (\$M)



True North Strategy (TNS) Targets L1 KPIs

Level	KPI	2022 Actual	2023 target	2024 target	2025 target	2026 target
L1	[A] SIF-Actual Non-Fatal Rate	0.007	.003	.002	0	0
L1	[B] PMVI Rate	2.58	2.53	2.48	2.43	2.38

SQCDM	TNS	Key Work Plan Activities to Achieve Annual Targets		Owner	Date	KPIs
S	✓	Ergonomics	Complete 5 Industrial Ergo solutions for high-risk tasks related to material handling and meter work which account for 40% of DART		Q4	[2]
		Public Safety	Ensure delivery of public SIF target through oversight and reporting of key drivers (e.g. veg management, ungrounding, gas dig in) Improve public awareness on wires down, electric service drops, hydro and canal. Coordinate through Public Safety Specialists.		Q3	[3]
		Human Performance Tools	Develop Human Performance tools for the enterprise with learnings from DCPD		Q2	[3]
S D M	✓	Process Safety	Revise SIF investigation standard to (1) approach similar incidents as common cause, (2) require contractors to perform investigations		Q4	[A]
			Develop standardized SIF Response process including timelines for communications, investigations, etc.		Q2	[A] [7]
			Revise SIF RCE process - cross-functional Officer review of RCE, simplify the executive summary		Q3	[A]
S Q	✓	Work Force Safety	Improve effectiveness of ECAP program based on DCPD's independent program assessment		Q3	[A]
			Clarify Keys to Life standards, simplifying work methods, define essential controls, evaluate training, refresher and validation program starting with top 5 Keys to Life (Pre-job safety briefing, electrical safety testing and grounding, hazardous environment/line of fire, PPE, safe driving) including clarify written standards and procedures and improve employee training to build employee knowledge and skills.		Q4	[A] [16]
			Revise Safety Observation Program to focus on KTL and essential controls		Q4	[A]
			Leverage serious incident precursors to inform risk-based safety observation strategy (Urbint) with a focus on trends and observation quality focused on Vegetation Management		Q4	[A]
			Complete PSEMS Manual. Execute on LRQA gap assessment and develop a multi-year implementation roadmap.		Q2	[A]
			Implement SIF capacity model		Q4	[A]
			Improve Contractor Safety Plan Onboarding Review and Approval Process to meet or come under the 2023 contractor SIF Rate target.		Q4	[A]
			Perform Contractor Safety Quality Assurance Review for top 12 high-risk contractors which drive 50% of SIF incidents in 2022		Q1	[A]
			Establish and implement a standard for Contractor Leadership and Engagement Forum		Q2	[A]
			Improve Contractor Post Job Evaluation Process (IA High Risk Finding)		Q2	[A]
Create and implement a Contractor Safe Driving standard and validation program	Q1	[A]				



Enterprise Health & Safety

Functional Plan on a Page

SQCDM	TNS	Key Work Plan Activities to Achieve Annual Targets		Owner	Date	KPIs
S Q C D M	✓	Transportation Safety	Integrate 360 app information (links) into driver scorecard and provide greater visibility into telematics (target 5% of PMVIs)	[REDACTED]	Q3	[B]
			Targeted Smith Driving Training for new and transferred coworkers within 90 days (target 62% of PMVIs)		Q2	[B]
			Strategic and targeted deployment of engineering controls: Nauto for Lone Workers (27% of PMVIs), Truce for Rentals (22% of PMVIs), Brigade for Trouble Trucks (17% of PMVIs), Garmin devices. Evaluate range of essential controls		Q4	[B]
			Conduct common cause evaluation and Failure Modes Effects Analysis to identify common causes of PMVIs as well as other potential causes		Q1	[B]
			Benchmark Vehicle Safety Programs (utility industry and non utility Fleets)		Q3	[B]
			Require contractors to provide written 2023 Vehicle Safety and Roll-over Prevention Plans		Q2	[A] [B]
			Mature Hazardous roads programs resulting in decline of PMVI incidents.		Q4	[B]
			Reduce bad weather driving by staging equipment at specific locations during storm responses (existing process)		Q1	[B]
		Lean Maturity	Incorporate problem solving template into incident investigation process. Safety & Risk ELT to engage in at least one skip-level operating review per week to observe and provide feedback and coaching		Q4	[6]
S Q	✓	Fatigue Management	Align on Fatigue Management policy in partnership with IBEW and ESC		Q4	[2]
S D	✓	Personal Safety	Establish cross-functional team to develop best practice for personal safety including: Police officer assigned to crews in high-risk areas (starting in Oakland). Deploy two-way radios. More effective communication on incidents. Layering Police Department hazard data on Maps+ In-person situational awareness training. Develop a standard to double up resources. Create community of practice for Field Service teams with other service providers. Support legislative action to make assaulting a utility worker a felony Develop life system with connection to LiveSafe and geofencing		Q2	[15]
S D	✓	Safety Mindset	Develop roadmap considering elements such as culture of villages, safety barometer and DCCP learnings. Ensure linkage with Role of the Supervisor and Leadership Development Program. Roll-out safety culture monitoring program		Q4	[A]
			Create a culture of safety ownership - address middle management layer that may be focused on delivery over safety with culpability and accountability		Q3	[A]
			Develop Stop Work Authority Policy		Q2	[A]
			Establish enterprise grassroots safety program		Q3	[A]
S Q	✓	S&R Coworker Development	Establish professional development plans for Safety & Risk coworkers		Q2	All
S M	✓	Union Engagement Forum	Continued engagement with union partners on safety initiatives		Q4	All
		Technology	Develop a single Safety App for Daily Safety update, incident reporting, MVIR/360 app, PJB, JHAs, Safety Observations, KTL standards		Q4	All
C	✓	Budget Attainment	Deliver 2023 plan on-budget for EIE, non-EIE, and Cap by bringing visibility to financial performance to all Safety & Risk ELT foster stewardship and incorporating financial performance into monthly operating reviews.		Q4	[5]
M	✓	DEIB	Develop and implement a DEIB action plan informed by the "Team Belonging" Survey		Q4	[9]
M	✓	Safety Recognition	Develop and implement a standard for recognizing coworkers for role modeling virtues and safety mindset		Q1	[A] [10]
M	✓	Communications	Develop EH&S strategic communications plan		Q4	All

Attachment

X-8 and X-9 GOV-6102P-06_rev1

Enterprise Cause Evaluation Process Procedure

SUMMARY

This utility procedure describes, at a base level, the enterprise-wide Cause Evaluation (CE) process across Line of Business (LOBs) at PG&E.

This procedure ensures a systematic approach when analyzing work-related Serious Safety Incidents (SSIs) or other issues important to safety, quality, and work performance. This procedure also establishes the requirements of the CE process and identifies the steps required to perform various types of CEs.

A CE is an essential function within PG&E's Enterprise-wide Corrective Action Program (CAP) and compliance with this procedure ensures proper regulatory reporting.

1. Root Cause Evaluation (RCE) should be completed with sponsor approval in 45 business days with CARB final concurrence to occur within 60 business days from the date of the incident.
 - RCE Sponsor may determine that additional time is necessary to conduct a thorough and effective RCE.
2. Corrective Action Review Board (CARB) review and Sponsor approval to occur within 60 business days from the date of the incident.
3. Apparent Cause Evaluation (ACE) and Common Cause Evaluation (CCE) should be complete and approved within 30 business days from the planned start date assignment of the Complete ACE or CCE Report action.
 - Department Owner may determine that additional time is necessary to conduct a thorough and effective ACE/CCE.

The development and maintenance of the nuclear generation cause evaluation process is governed by program guidance documents that specifically address Nuclear Regulatory Commission and nuclear insurer requirements. See Inter-Departmental Administrative Procedures (IDAP) OM7.ID4, "Cause Evaluations", and "OM7.ID3, "Root Cause Evaluation" for specific guidance.

Level of Use: Reference Use

TARGET AUDIENCE

This procedure applies to PG&E employees, who are responsible for integrating Utility Standard GOV-6102S, "Enterprise Cause Evaluation Standard," into their business functions and work processes. This includes individuals who are designated as department owners, issue owners, and qualified cause analysts by the CAP process.

Enterprise Cause Evaluation Process Procedure

SAFETY

Following the requirements of this procedure demonstrates each LOB commitment to PG&E's goal of improving employee, contractor, and public safety.

BEFORE YOU START

1. COMPARE the publication date and revision number on the working copy of the procedure against the published version in the Guidance Document Library (GDL) to verify it is current.
2. ASSIGN CE roles PER Utility Standard GOV-6102S, "Enterprise Cause Evaluation" Section 4, "Roles and Responsibilities."
3. REFER to the "Cause Evaluator Qualification List" on the enterprise CAP website and PERFORM the following:
 - (1) VERIFY the assigned cause evaluator for all RCE, Serious Injury or Fatality (SIF) Actual and SIF Potential events has completed core cause evaluation training PER Utility Standard GOV-6102S, "Enterprise Cause Evaluation."
 - (2) RECORD the assigned cause evaluator LAN ID for all RCE, Serious Injury or Fatality (SIF) Actual and SIF Potential in the CAP description and document training verification. Attach objective documentation.
4. CONSULT with Law Department personnel to determine appropriate level of legal involvement for assigned cause evaluation.
5. OBTAIN a copy of the following items:
 - "Cause Evaluation Manual", GOV-6102M from the Guidance Document Library.
 - IF CE is for SIF Actual or Potential:
THEN the Initial Incident Report from Corporate Safety & Health.

TABLE OF CONTENTS

SUBSECTION	TITLE	PAGE
1	Perform a Cause Evaluation (CE)	3

Enterprise Cause Evaluation Process Procedure

2	Common Cause Evaluation (CCE).....	8
3	CE Downgrades	10
4	Completion of Corrective Actions	10
5	Effectiveness Review Evaluation.....	12
6	Process Verification.....	13
7	Records.....	13
	Appendix A, Cause Evaluation Requirements.....	18

PROCEDURE STEPS

1 Perform a Cause Evaluation (CE)

The following sub steps are required for performing a CE. The “Cause Evaluation Manual”, GOV-6102M provides additional details for completing each type of CE.

1.1 Initiation

1. REVIEW Appendix A, “Cause Evaluation Requirements” to determine the requirements for the type of CE being performed.
2. IF CE Charter is required:

THEN CE lead must work with the partnered Cause Evaluator to complete the CE Charter.
3. DEVELOP and DOCUMENT the problem statement
 - Contains the requirement (expectation), defect (deviation), consequences, and significance
4. EVALUATE the problem for extent of condition.
 - a. FOCUS on the identified problem.
 - b. DETERMINE the degree to which the condition may exist in other processes, equipment, or human performance, including other lines of business for related events.
5. IF an extent of condition is identified:

THEN DEVELOP mitigating actions and INITIATE a new CAP Issue to implement.
6. IF an extent of condition is NOT identified:

Enterprise Cause Evaluation Process Procedure

THEN DOCUMENT the justification to explain why this is an isolated issue/incident.

7. DOCUMENT the determination of the extent of condition in the CE report; including the information reviewed to make the determination.
8. DEFINE the scope of the investigation, the organizational boundaries, and the chronological and spatial boundaries of the investigation.
9. DETERMINE CE analysis tool methodology or methodologies to be used for the investigation.
 - a. REFER to "Cause Evaluation Manual", GOV-6102M for guidance on selecting the proper analysis tool methodology or methodologies.
10. ESTABLISH CE analysis and schedule milestones
11. If required, OBTAIN approval of the CE Charter by CE Sponsor.
12. IF conducting a Kick-Off Meeting:
13. THEN REVIEW the approved CE CHARTER with the CE Team.
 - a. IF CE is for SIF Actual or Potential:
THEN review the Initial Incident Report
14. ENSURE CE Team receives within three business days of joining the team the CORP-6010, "Introduction to Cause Evaluations" web-based training (WBT) on the fundamentals of CEs.

1.2 Investigation

1. COLLECT all available data pertinent to the evaluation organizing the facts to improve understanding of the issue/incident.
 - a. REFER to "Cause Evaluation Manual", GOV-6102M for suggested data gathering sources and methods for organizing the facts.
2. REVIEW and EVALUATE relevant internal and external Operating Experience (OE) and corrective actions for at least the preceding three years to:
 - a. Gain helpful insights for identification of the cause(s) and corrective actions for the current issues.
 - b. Determine whether the previous CEs failed to identify the current issue as part of the extent of condition or extent of cause.
3. DOCUMENT a conclusion of the OE review results including any missed opportunity that could have precluded or mitigated this issue/incident in the CE report.

Enterprise Cause Evaluation Process Procedure

1.3 Analysis

1. PERFORM the analysis of the information gathered.
 - a. REFER to "Cause Evaluation Manual", GOV-6102M for guidance on using the methodologies approved in the RCE Charter.
2. IF training is a possible contributor:

THEN COMPLETE and SUBMIT a "Training Needs Analysis" to the PG&E Academy PER HR-7111P-04, "Training Needs Analysis Procedure"
3. DOCUMENT the analysis methods used and results from the analysis in the CE report.

1.4 Causes

1. DETERMINE the cause and any contributing causes.
 - a. IF unable to determine a root cause:

THEN determine the most likely cause of the issue/incident.
2. ASSIGN North American Electric Reliability Corporation (NERC) Cause Codes based on the cause evaluation results.
3. If required, EVALUATE the extent of cause.
 - a. DETERMINE the degree to which the cause of the issue/incident may potentially affect other processes, equipment, or human performance.
4. DOCUMENT the causes and assigned NERC Cause Codes in the CE report.
5. IF CE is for SIF Actual or Potential:
6. DOCUMENT the identified SIF Exposure Factors and Prevention Measure(s) in the CE report.

1.5 Corrective Actions (CAs)

1. DEVELOP corrective action to preclude reoccurrence (CAPR) for RCEs and/or corrective action (CAs) for all CEs that meet the following characteristics:
 - a. Clearly address the cause(s) and/or contributing cause(s) and evaluated for the effect on assets or processes.
 - b. IF CE is for SIF Actual or Potential:

THEN clearly address the Prevention Measure(s) that was missing or incorrectly applied.

Enterprise Cause Evaluation Process Procedure

- c. Apply the SMART (Specific, Measurable, Achievable, Reasonable, Timely) criteria.
 - d. Use the “Hierarchy of Control” to determine the appropriate level of controls to minimize or eliminate the exposure.
 2. DETERMINE key stakeholders to own the CAPRs, CAs or interim actions responsible for implementing the change.
 3. OBTAIN assigned CAPRs, CAs or interim actions owners documented concurrence on the actions to be taken and due date(s).
 4. DOCUMENT in the CE report the following:
 - a. Explanation (justification) of how the timeline for the corrective actions represents the SMART approach.
 5. IF disagreements for assignment of the actions:
 6. THEN ELEVATE to CE Sponsor or Department Owner for resolution.
 7. ENSURE CAs requiring changes to guidance document(s) include a determination as to whether the new or changed information should be revised quickly or there is sufficient time to revise.
 8. IF the guidance document(s) new or changed information must be revised quickly and there is insufficient time to revise:

THEN consider issuing a bulletin in the interim until the new or changed information is incorporated into the guidance document(s).

1.6 Effectiveness Review

1. DEVELOP an Effectiveness Review Plan (ERP) during the CE process to verify that the intended or expected results are achieved after implementing the corrective actions. The plan should:
 - a. ESTABLISH methods that will be used to verify that the actions taken met the desired outcome.
 - b. DEFINE attributes that will be monitored and evaluated.
 - c. SPECIFY success criteria.
 - d. DETERMINE the timeframe to perform the review (usually no more than 6 months after completing the last corrective action).
 - e. ALLOW adequate time to pass before commencing the effectiveness evaluation to ensure that sufficient challenges to the CAPR/CA barriers have occurred.

Enterprise Cause Evaluation Process Procedure

- f. DEFINE person who will be responsible for performing the effectiveness review to ensure the validity of the outcome.

2. DOCUMENT the Effectiveness Review Plan in the CE report

1.7 CE Report

1. WRITE the report so that it contains the required elements per Appendix 1, "Cause Determination Requirements"
 - a. USE the approved CE Report template from ECAP's CAP website.
2. If required, OBTAIN Sponsor approval for the CE report.
3. If required, CONTACT the LOB CAP group to schedule the CARB review.

1.8 Post CE Approval Actions

1. RECORD the determined North American Electric Reliability Corporation (NERC) Cause Codes, causes and corrective actions in the CAP issue.
2. If an ERP was developed and approved in the CE report:
3. THEN INITIATE a new CAP Issue to track the ERP from the approved CE report.
 - a. CUT and PASTE the ERP from the approved CE report into the new CAP issue.
 - (1) ENTER the original event CAP issue number in the ERP CAP issue "Ref. Issue" field

ENTER the ERP CAP issue number in the original event CAP issue "Ref. Issue" field.
 - b. IF "Ref. Issue" field is not available:

THEN cross reference in the CAP Issue Description
4. RECORD the ERP CAP issue number in the CE report
5. ATTACH the approved CE report to the CAP issue in Adobe (*.pdf) format.
6. IF the CE report was reviewed by CARB:

THEN DOCUMENT the CARB Review results in the CAP issue.

Enterprise Cause Evaluation Process Procedure

2 Common Cause Evaluation (CCE)

NOTE

The following substeps are required for performing a CCE. The Cause Evaluation Manual provides additional details for completing the CCE.

The CCE is typically conducted by an individual or part-time team who utilizes data or evaluation results completed by others.

CCEs are intended to correct the most prevalent common cause and not intended to fix all problems (typically corrects the top one or two problems).

An unnecessary CCE evaluation can result in CAs that do not address true causes, waste resources and create new problems.

2.1 Initiation

1. REVIEW Appendix A, "Cause Evaluation Requirements" to determine the requirements for the type of CE being performed.
2. DEVELOP a problem statement scope using the following requirements:
 - a. Contains the requirement (expectation), defect (deviation), consequences, and significance

2.2 Analysis

1. DOCUMENT a brief description the rationale for selecting the issue(s) or incident(s).
2. VERIFY that each of the identified issues or incidents has previously been evaluated.
3. PERFORM thorough research of the symptoms or indicators.
4. VALIDATE the actual issues, incidents, or causes are same or similar.
5. ANALYZE the actual issues, incidents, or causes by examining and identifying any factors they have in common.
6. ORGANIZE the results and SELECT one to three of the most significant common factors, causes or issues from the target population.
7. ARRANGE the final grouping of common factors, causes or issues to facilitate any subsequent analysis.
8. IF training is a possible contributor:

Enterprise Cause Evaluation Process Procedure

THEN COMPLETE and SUBMIT a “Training Needs Analysis” to the PG&E Academy PER HR-7111P-04, “Training Needs Analysis Procedure”

2.3 Common Cause

1. IDENTIFY the predominant common cause for a group of issue(s) or incident(s) as opposed to all causes / causal factors for the data set.
 - a. The goal is NOT to solve each and every common cause problem, but to apply corrective actions that address the most predominant or significant issues.
2. IF a common cause is identified:

THEN DESCRIBE the Common Cause, the technique(s) used to link it to the issue(s) or incident(s), and any additional factors, issues or sources of information that were considered in making the final decision(s) in the CCE Report.
3. ASSIGN North American Electric Reliability Corporation (NERC) Cause Codes based on the common cause evaluation results.
4. IF a common cause is NOT identified,

THEN RECORD the results in the CCE report.

2.4 CAs

1. DEVELOP corrective actions
2. ESTABLISH corrective actions that meet the following characteristics:
 - a. Clearly address the common cause(s) and/or contributing cause(s) and evaluated for the effect on assets or processes.
 - b. Applied the SMART (Specific, Measurable, Achievable, Realistic, Timely) criteria.
 - c. Use the “Hierarchy of Control” to determine the appropriate level of controls to minimize or eliminate the exposure.
3. DETERMINE key stakeholders to own the CAs responsible for implementing the change to company configuration
4. OBTAIN assigned CAs actions owners documented concurrence on the actions to be taken and due date(s).
5. DOCUMENT in the CCE report the following:
 - a. Explanation (justification) of how the timeline for the corrective actions represents the fastest reasonable approach to deploying mitigation actions.

Enterprise Cause Evaluation Process Procedure

6. IF disagreements assignment of the actions
7. THEN ELEVATE to the Department Owner for resolution.

2.5 CCE Report

1. WRITE the report so that it contains the required elements per Appendix 1, "Cause Manual Requirements"
 - a. USE the approved CCE Report template from ECAP's CAP website.
2. OBTAIN approval for the CCE report

2.6 Post CCE Approval Actions

1. DOCUMENT the corrective actions in the CAP issue.
2. ATTACH the approved CCE report to the CAP issue in Adobe (*.pdf) format.
3. ENTER the determined NERC Cause Codes in the CAP issue.

3 CE Downgrades

3.1 CE Lead

1. ENSURE the downgrade meets one of the following reasons:
 - a. CE already exists for the same problem.
 - b. Management requests a CE and investigation determines that the CE provides no value.
 - c. CE is superseded by a new CE.
2. CE LOB Owner may downgrade a CE without concurrence by contacting the LOB CAP group to reclassify the CAP issue evaluation type.
3. IF CE is for a SIF Actual or Potential:

THEN the downgrade, in all cases, requires the Safety & Health Vice President approval.

4 Completion of Corrective Actions

4.1 Issue Owner

1. TRACK CAPRs and CAs to ensure completion on the agreed upon due date.

4.2 Action Owner

Enterprise Cause Evaluation Process Procedure

1. COMPLETE the actions assigned by the issue owner.
2. IF the agreed action due date needs to be extended:

THEN CONTACT the issue owner to AUTHORIZE the extension.
3. IF the agreed action due date needs to be extended is associated with a SIF Actual or SIF Potential issue:

THEN NOTIFY the Issue Owner of the need for the extension
 - (1) Documentation is prepared to provide a basis for the extension
 - (2) Develop a recovery plan for the extension to include:
 - Updates to the Corrective Action description and/or
 - Need for interim action or mitigation
 - A proposed new completion date
 - (3) Present the recovery plan to Line of Business Leadership for concurrence
 - (4) Submit the proposed recovery plan to the Vice President of Safety and Health / Chief Safety Officer for approval
 - (5) Document the SIF Issue Action approval
 - (6) Update the CAP Issue with the newly approved information
 - (7) Complete the SIF Action in accordance with the revised criteria
4. DOCUMENT the actions taken in the CAP system.
 - a. ENSURE that the documentation is detailed enough to provide justification of completion. INCLUDE:
 - A detailed closure statement of the actions taken to address the issue.
 - The date the action was completed.
 - b. PROVIDE a reference to any documents that detail the actions taken, when applicable. For example, when the action is for a new or revised procedure, INCLUDE the following information:
 - Procedure number.

Enterprise Cause Evaluation Process Procedure

- Revision number.
 - Publication date.
 - A brief description of the change.
 - A description of how the change addresses the issue
5. REVIEW action taken with the issue owner for agreement.
 6. COMPLETE the action.

4.3 Issue Owner – Verify Completion of Corrective Actions

1. VERIFY CAPRs and CAs as complete before the issue can be closed.
2. ENSURE CAPRs and CAs closure statement explains what action was taken, and how that action meets the intent and requirement of the corrective action.
3. IF closure of CAPRs and CAs is supported by documentation that provides objective evidence;

THEN ENSURE the objective evidence documentation is attached in.pdf format to the specific action they satisfy in the CAP issue.
4. ENSURE that any temporary modification or containment installed as an interim action is removed.
5. CLOSE the CAP issue.

5 Effectiveness Review Evaluation

5.1 Effectiveness Review Owner

1. CONFIRM the Effectiveness review plan measures were met.
2. SEARCH and CONFIRM databases to confirm implementing corrective actions did not result in any new performance problems.
3. DOCUMENT in the associated CAP Issue:
 - a. Database search criteria and results
 - b. Actions taken to assess the corrective actions using the effectiveness review plan measures
 - c. Determination as to whether the corrective actions have been effective to preclude recurrence of the problem and to what confidence.

Enterprise Cause Evaluation Process Procedure

4. NOTIFY LOB CAP Process Owner that the Effectiveness Review is ready for CARB review
5. IF the Effectiveness Review was reviewed by CARB:
THEN DOCUMENT the CARB Review results in the CAP issue.
6. IF the corrective actions are determined to be ineffective:
THEN INITIATE a new CAP Issue to document the ineffective corrective actions to aid in developing a plan to resolve the problem.

6 Process Verification

6.1 Enterprise Cause Evaluation Process Owner

- 6.2 To support the cause evaluation process, the cause evaluation process owner must, at minimum quarterly, perform a verification for cause evaluation process requirements PER Utility Standard GOV-6102S, "Enterprise Cause Evaluation."

1. CAPTURE the list of the reviewed cause evaluations for a qualified cause evaluator, effectiveness review, and appropriate root cause evaluation approvals in a CAP issue assigned to the ECAP organization.

- 6.3 IF in the verification any of the following are identified:

- CE training was not completed by cause evaluator
- Appropriate approval of an RCE was not obtained
- ERP CAP issue number was not documented in the original event CAP issue "Ref. issue" field or CAP issue description
- Original event CAP issue number was not documented in the ERP CAP issue.

THEN INITIATE a CAP issue to be assigned to the Cause Evaluation Lead.

7 Records

- 7.1 CAP issues and associated records entered in CAP must be retained for 10 years from date of issue closure to ensure compliance with associated retention periods defined in Enterprise Records Retention Schedule (ERRS).

1. Associated records include the following when used:
 - Root Cause Evaluation Report
 - Apparent Cause Evaluation Report

Enterprise Cause Evaluation Process Procedure

- Common Cause Evaluation Report
- Effectiveness Review for Cause Evaluations
- Initial Incident Report
- RCE Communications Protocol Interim Report
- RCE Communications Protocol Presentation of Findings and Corrective Actions

END of Instructions

DEFINITIONS

Refer to the “Definitions” section of Utility Standard GOV-6102S, “Enterprise Cause Evaluation Standard.”

IMPLEMENTATION RESPONSIBILITIES

- ECAP CE Process Owner ENSURES this procedure complies with Utility Standard GOV-6102S, “Enterprise Cause Evaluation Standard,”
- LOB CAP Process Owners ENSURE that their employees are aware of, and comply with, the requirements of this procedure.
- Employee(s) identified and held accountable by the organization for fulfilling specific responsibilities described in this procedure may DELEGATE their responsibilities to others; however, they are accountable for the final results.

GOVERNING DOCUMENT

[Utility Standard GOV-6102S, “Enterprise Cause Evaluation Standard”](#)

COMPLIANCE REQUIREMENT / REGULATORY COMMITMENT

Kern OII Decision Approving Settlement Agreement, Decision 15-07-014 July 23, 2015

REFERENCE DOCUMENTS

Developmental References:

- Utility Standard GOV-6101S, “Enterprise Corrective Action Program Standard”
- Utility Standard GOV-6102S, Section 4, “Roles and Responsibilities.”

Enterprise Cause Evaluation Process Procedure

- Utility Standard SAFE-1004S, "Serious Incident Investigation Standard"
- Utility Standard SAFE-1100S, "Serious Injury and Fatality (SIF) Program Standard"
- Utility Procedure SAFE-1100P-01, "Serious Injury or Fatality (SIF) Procedure"
- Corporation Policy GOV-01, "Records Management Policy,"
- Corporation Standard GOV-7101S, "Records Management Standard"
- Utility Procedure GOV-6102P-01, "Customer Care Cause Evaluation Procedure," 06/20/2017, Rev.1
- Utility Procedure GOV-6102P-02, "IT/Supply Chain Cause Evaluation Process," 10/02/2017, Rev.2
- Utility Procedure GOV-6102P-03, "Electric Operations Causal Evaluation Process," 03/10/2017, Rev.1
- Utility Procedure GOV-6102P-04, "Safety and Corporate Services Cause Evaluation Process," 10/02/2017 Rev.4
- Utility Procedure GOV-6102P-05, "Power Generation Cause Evaluation Procedure," 06/22/2016, Rev.0
- Utility Procedure TD-4020P-02, "Gas Operations Cause Evaluation Process," 08/16/2017, Rev.3

Supplemental References:

PG&E Cause Manual

APPENDICES

NA

ATTACHMENTS

NA

DOCUMENT REVISION

This utility procedure cancels and supersedes the following LOB CE procedures:

- Utility Procedure GOV-6102P-01, "Customer Care Cause Evaluation Procedure," 06/20/2017, Rev.1

Enterprise Cause Evaluation Process Procedure

- Utility Procedure GOV-6102P-02, "IT/Supply Chain Cause Evaluation Process," 10/02/2017, Rev.2
- Utility Procedure GOV-6102P-03, "Electric Operations Causal Evaluation Process," 03/10/2017, Rev.1
- Utility Procedure GOV-6102P-04, "Safety and Corporate Services Cause Evaluation Process," 10/02/2017 Rev.4
- Utility Procedure GOV-6102P-05, "Power Generation Cause Evaluation Procedure," 06/22/2016, Rev.0
- Utility Procedure TD-4020P-02, "Gas Operations Cause Evaluation Process," 08/16/2017, Rev.3

DOCUMENT APPROVER

Director, ECAP (Executive CAP Sponsor)

DOCUMENT OWNER

Manager, ECAP (CAP CE Process Owner)

DOCUMENT CONTACT

Manager, ECAP (CAP CE Process Owner)

REVISION NOTES

Where?	What Changed?
	Revision of procedure to address Internal Audit Report 19-036 Audit of Employee Safety - Cause Evaluation Program findings and minor changes in technical content modifying steps to improve understanding and efficiency
Summary	Step 2: Changed "ACE and Common Cause Evaluation (CCE) should be performed in 30 business days from the date of the incident" to "CE and Common Cause Evaluation (CCE) should ensure the cause evaluation is complete and approved within 30 business days from the planned start date of assignment of the Complete ACE or CCE Report action"; Added DCPD disclaimer; Updated level of use from Informational Use to Reference Use.
Before You Start	Step 3: Added. "REFER to the "Cause Evaluator Qualification List" on the enterprise CAP website and PREFORM the following <ul style="list-style-type: none"> • VERIFY the assigned cause evaluator for all RCE, Serious Injury or Fatality (SIF) Actual and SIF Potential events has completed

Enterprise Cause Evaluation Process Procedure

	<p>core cause evaluation training PER Utility Standard GOV-6102S, "Enterprise Cause Evaluation."</p> <ul style="list-style-type: none"> RECORD the assigned cause evaluator LAN ID for all RCE, Serious Injury or Fatality (SIF) Actual and SIF Potential in the CAP description and document training verification. Attach objective documentation. <p>Step 4: Added Cause Evaluation Manual number "GOV-6102M"</p>
<p>Perform a Cause Evaluation</p>	<ul style="list-style-type: none"> Added Cause Evaluation Manual number "GOV-6102M" as needed in all subsections <p>Post CE Approval Actions</p> <p>Step 1.8.1: Revised wording describing to, "RECORD the determined North American Electric Reliability Corporation (NERC) Cause Codes, causes and corrective actions in the CAP issue."</p> <p>Step 1.8.2: Added steps describing how to enter the new CAP issue to track the Effectiveness Review Plan</p> <p>Completion of Corrective Actions</p> <p>Added information (steps) contained within bulletin, "Serious Injury and Fatality (SIF) Corrective Action Management", GOV-6102P-06-B001 that is required to be included in this revision of GOV-6102P-06, Enterprise Cause Evaluation Process Procedure" in accordance with the Guidance Document Management (GDM) Program.</p>
<p>Process Verification Subsection</p>	<p>Added new Process Verification Subsection adding the following:</p> <ul style="list-style-type: none"> Step 6.1: Enterprise Cause Evaluation Process Owner Step 6.2: To support the cause evaluation process, the cause evaluation process owner must quarterly perform a verification for cause evaluation process requirements PER Utility Standard GOV-6102S, "Enterprise Cause Evaluation." Step 6.2.1: CAPTURE the list of the reviewed cause evaluations for a qualified cause evaluator, effectiveness review, and appropriate root cause evaluation approvals in a CAP issue assigned to the ECAP organization. Step 6.3: IF in the verification the CE training was not completed by qualified cause evaluator or appropriate approval of a root cause evaluation was not obtained or Effectiveness Review Plan CAP number was not documented in the original CAP description PER Utility Standard GOV-6102S, "Enterprise Cause Evaluation": THEN INITIATE a CAP issue to be assigned to the Cause Evaluation Lead.

Enterprise Cause Evaluation Process Procedure

Appendix A, Cause Evaluation Requirements

Page 1 of 1

Requirements	RCE	ACE	CCE
Owner	Organization	Department	Department
Cause Evaluator	CORP- 6010WBT CORP-6011	SIF Potential: Required CORP-6010WBT and CORP-6011 Other ACEs: Recommended CORP-6010WBT and CORP-6011	Individual Recommended CORP-6010WBT and CORP-6011
Charter	Required	Optional	
Analysis Tool Type	Enterprise	Enterprise	Enterprise
Report Template Type	RCE	ACE	CCE
CARB Review	Required	SIF Potential: Required Other ACEs: As determined, by the CARB Chairperson	Optional
Approver	RCE Sponsor Officer for SSI, otherwise Director or higher	Department Owner	Department Owner
Report Sections			
Problem Statement	Required	Required	Required
Extent of Condition	Required	Required	
Event Description	Required	Required	Required
Analysis	Required	Required	Required
Causes	Required	Required	Required
Corrective Action Preclude Recurrence	Required		
Corrective Action	Required	Required	Required
Extent of Cause	Required		
Operating Experience	Required	Required	
Effectiveness Review Plan	Required	SIF Potential: Required	
References	Optional	Optional	Optional
Attachments	Optional	Optional	Optional

Attachment

X-8 and X-9_GOV-6102P-06_rev2_Redacted

Cause Evaluation Procedure

SUMMARY

This procedure describes the enterprise-wide Cause Evaluation (CE) process used to conduct investigations across the various Lines of Business (LOBs) at Pacific Gas & Electric (PG&E).

This procedure outlines the consistent, systematic approach to the analysis and resolution of work-related issues impacting safety, quality, infrastructure assets, and work performance.

This procedure details the actions required to perform the types of evaluations conducted at PG&E. These include: Root Cause Evaluations (RCE), Apparent Cause Evaluations (ACE), Common Cause Evaluations (CCE), and Work Group Evaluations (WGE).

Cause Evaluation is an essential investigative function within PG&E's enterprise-wide Corrective Action Program (CAP). Compliance with this procedure ensures cause evaluation reports meet expected regulatory commitments.

Additional cause evaluation requirements for events specific to the Diablo Canyon Power Plant may be applied per the Inter-Departmental Administrative Procedures (IDAP) OM7.ID4, "Cause Evaluations" and OM7.ID3, "Root Cause Evaluation" for specific guidance. The development and maintenance of the nuclear generation cause evaluation process is governed by program guidance documents that specifically address Nuclear Regulatory Commission and nuclear insurer requirements.

Level of Use: Informational Use

TARGET AUDIENCE

This procedure applies to PG&E employees conducting and/or supporting issue evaluations assigned as RCE, ACE, CCE, and WGE CAP issues.

NOTE

It is a best practice for Cause Evaluators to only be assigned to one cause evaluation at a time

SAFETY

Timely problem identification, resolution, and prevention are necessary to ensure operations are run at the highest level of safety, thereby minimizing risk to employees, contractors, and members of the public.

Adherence to this standard demonstrates PG&E's commitment to improve employee, contractor, and public safety.

Cause Evaluation Procedure

BEFORE YOU START

1. USE the [Guidance Document Library \(GDL\)](#) to access the most updated version of guidance documents AND:
 - a. REVIEW GOV-6102S, "[ECAP Cause Evaluation Standard.](#)"
 - b. REVIEW GOV-6101S, "[Enterprise Corrective Action Program Standard.](#)"
 - c. REVIEW GOV-6101P-08, "[Corrective Action Program Procedure.](#)"

TABLE OF CONTENTS

SUBSECTION	TITLE	PAGE
1	Perform a Work Group Evaluation (WGE)	2
2	Perform a Common Cause Evaluation (CCE)	8
3	Perform an Apparent Cause Evaluation (ACE)	15
4	Perform a Root Cause Evaluation (RCE)	30
5	Effectiveness Review Plans (ERPs) and Effectiveness Reviews (EFFRs)	44

PROCEDURE STEPS

1 Perform a Work Group Evaluation (WGE)

1.1 Work Group Evaluation (WGE)

1. A WGE is the lowest level of evaluation that can be used to evaluate issues, ideas, and potential opportunities for improvement.
2. A WGE can have, but does not require, a Sponsor or Team Lead.
3. A WGE may or may not result in corrective actions being taken.
4. SEE Table 1. WGE Process for the different WGE phases and minimum requirements.

Table 1. WGE Process

WGE Phases	Minimum Requirements
1: CAP Assignment	See GOV-6101P-08 "Corrective Action Program Procedure" See GOV-6101P-08 " Corrective Action Program Procedure "

Cause Evaluation Procedure

2: Initiate Cause Evaluation	Problem Statement
3: Data Gathering and Analysis	Issue Description Analysis Appendices Attachments in the CAP issue
4: Determine Causes and Corrective Actions	Cause (if identified) Contributing Cause (if identified) Corrective Actions
5: Complete Cause Evaluation	CE Report Approval: CAP Issue Owner

1.2 WGE Completion Timeline

1. SEE GOV-6102S, "Enterprise Cause Evaluation Standard" for WGE completion timeline information. SEE GOV-6102S, "[Enterprise Cause Evaluation Standard](#)" for WGE completion timeline information.

1.3 WGE Phase 1: WGE CAP Assignment

NOTE

1. SEE GOV-6101P-08, "[Corrective Action Program Procedure](#)" for information on how CAP issues are risk ranked, assigned an evaluation type, and assigned to a specific Department and Issue owner
2. SEE GOV-6102S, "[Enterprise Cause Evaluation Standard](#)" for definitions, roles and responsibilities of the different roles related to CAP.

1. An Issue Owner is REQUIRED for WGEs.
2. The Issue Owner may IDENTIFY additional individuals to support the evaluation:
 - a. IDENTIFY an Issue Sponsor,
 - b. IDENTIFY a Team Lead,
 - c. IDENTIFY a Cause Evaluator,
 - d. IDENTIFY additional LOB SMEs.
3. IF the Issue Owner chooses not to identify additional individuals to support the evaluation,

THEN the Issue Owner will fulfill all CE Team roles and responsibilities.

Cause Evaluation Procedure

1.4 WGE Phase 2: Initiate Work Group Evaluation

NOTE

Use of the WGE Template is highly recommended but not required.

1. USE the [Work Group Evaluation Template](#) found on the [ECAP Cause Evaluation Website](#) OR USE another CE Template which contains all the minimum requirements listed in Table 2. CCE Process.
2. The Issue Owner may SCHEDULE AND LEAD a CE Kick-off meeting:
 - a. IF a CE Kick-off meeting is scheduled,

THEN all core members of the CE team, including contractor representatives if applicable, must ATTEND the CE kick-off meeting.
3. The CE Team must DEVELOP the Problem Statement for inclusion in the CE report.
 - a. The Issue Owner must APPROVE the Problem Statement

1.5 WGE Phase 3: Data Gathering and Analysis

1. The Issue Owner, Team Lead or Cause Evaluator must:
 - a. DETERMINE analysis methods and tools.
 - (1) REFER to GOV-6102M, "[Cause Evaluation Manual](#)" for a list of analysis methods and tools, and guidance on how to use guidance on use of analysis tools.
 - (2) Additional analysis methods and tools which are not found in the [Cause Evaluation Manual](#) can also be used to perform the Work Group Evaluation.
2. The CE Team must:
 - a. DETERMINE AND COLLECT all data to be reviewed.
 - b. ORGANIZE the facts to provide a clear understanding of the issue.
 - c. LIST all data sources and analysis methods used during the evaluation in the CE report.
 - d. ANALYZE the information gathered AND SUMMARIZE the results in the CE report.
 - e. INCLUDE supporting documentation in the CE report Appendices section,

Cause Evaluation Procedure

OR

- f. LIST them in the Attachments section of the CE report AND ATTACH them to the CAP issue.

1.6 WGE Phase 4: Determine Causes and Corrective Actions

1. The CE Team must:

- a. REVIEW all data to DETERMINE the Cause and any Contributing Cause(s).

(1) IF unable to determine a Cause,

THEN DOCUMENT the determination in the CE report.

- b. For each Cause and/or Contributing Cause, DEVELOP Interim and Corrective Action(s), as appropriate.

- c. DEVELOP any additional actions required to support issue evaluation or resolution that do not directly correct the identified cause(s).

- d. DOCUMENT Interim and Corrective Actions in the CE report.

2. For all actions created:

- a. APPLY the “SMART” (Specific, Measurable, Achievable, Reasonable, Timely) criteria when defining actions.

- b. IDENTIFY the individual(s) who will own the implementation of each action.

- c. For Contractor related actions, IDENTIFY the PG&E individual(s) who will verify the implementation of actions performed by contractors.

3. For Interim and Corrective Actions, the CE Team must:

- a. ENSURE actions address the Cause(s) and/or contributing cause(s) of the issue. ENSURE actions address the cause(s) and/or contributing cause(s) of the issue.

- b. SEE GOV-6102M, “[Cause Evaluation Manual](#)” AND USE the “Hierarchy of Controls” to determine the highest level of controls to eliminate or minimize the exposure.

4. The Issue Owner or Team Lead must:

- a. Prior to assignment of actions, OBTAIN each Actions Owner’s concurrence on the action(s) to be taken, deliverables, due date(s), and due date justifications.

- b. IF there are disagreements regarding assignment of actions,

Cause Evaluation Procedure

THEN the Team Lead or Issue Owner must ESCALATE to the Department Owner for resolution.

- c. IF there are any Additional Findings as a result of the WGE,
THEN DOCUMENT any Additional Findings in the CE report.
- d. DESCRIBE the finding in the CE report.
- e. IDENTIFY AND DOCUMENT the LOB Issue Owner who can address the finding in the CE report.
- f. INITIATE a new CAP issue for each Additional Finding identified.
- g. DOCUMENT the new CAP issue number(s) created in the CE report.

1.7 WGE Phase 5: Complete Cause Evaluation

1. WHEN the CE report is determined to be acceptable,
THEN the Issue Owner must APPROVE the CE report.
 - a. Physical signatures, digital signatures, or emails may be used to document approvals for CE reports that use the WGE template.
 - b. Completion of the CAP issue constitutes CE report approval if the CE report content is included in the CAP Description field.
2. The Issue Owner must ATTACH the CE Report to the CAP issue, OR DOCUMENT the contents of the CE Report in the CAP issue description field.
 - a. IF attaching the CE report,
THEN USE the following file naming convention for the attachment:
 - Title: INCLUDE "CAP # Rev #, Report Type- FINAL"
 - EXAMPLE: "123456789 Rev.1, WGE Report-FINAL"
3. Issue Owner must:
 - a. ADJUST the CAP issue due date based on actions entries.
 - b. TRACK all actions to ensure completion by the agreed upon due date.
4. IF an agreed action due date needs to be extended,

THEN OBTAIN Issue Owner or Sponsor (if assigned) approval AND INCLUDE the following documentation in the CAP issue:

Cause Evaluation Procedure

- a. Reason(s) the due date needs to be extended.
- b. Actions that will be taken to prevent the need for further extensions.
5. IF it is determined that an approved action can no longer be implemented as written,
THEN:
 - a. OBTAIN approval from the Department Owner to amend the action with justification.
 - b. NOTE the decision in the Action Description field.
 - c. UPDATE the action in the CAP issue.
6. WHEN actions are completed,

THEN the Action Owner must DOCUMENT the actions taken in the Action Description fieldCAP issue.
7. ENSURE that the documentation is detailed enough to provide evidence of completion.
 - a. INCLUDE in the Action Description field:
 - (1) A detailed closure statement of the actions taken to address the issue.
 - (2) Date the action was completed
 - b. PROVIDE a reference to AND ATTACH any documents that detail the actions taken to the CAP issue, if applicable.
8. Issue Owner must VERIFY all actions are completed per GOV-6101P-08, "[Corrective Action Program Procedure](#)".
9. IF issues or discrepancies are identified with the actions taken,
THEN:
 - a. CONTACT the Action Owner(s) to discuss the issues identified and how to correct them.
 - b. CREATE a new action to address the issues AND REFERENCE the original action number listed in the CE report.
 - c. WHEN the issues with the action(s) are resolved,

THEN RETURN to step 1.76 above.
10. When all actions are complete,

Cause Evaluation Procedure

THEN the Issue Owner must CLOSE the CAP issue

2 Perform a Common Cause Evaluation (CCE)

2.1 Common Cause Evaluation (CCE)

1. CCEs are an evaluation used to identify common underlying elements between different, unique, but similar issues.
 - a. The underlying elements may be anything from a common failure mode to a common cause that may or may not require further evaluation.
2. SEE Table 2. CCE Process for the different CCE phases and minimum requirements.

Table 2. CCE Process

CCE Phases	Minimum Requirements
1: Safety Incident Immediate Response Management (SIF-Actual and SIF-Potential) / CAP Assignment	<ul style="list-style-type: none"> • GOV-6101P-08 "Corrective Action Program Procedure"
2: Initiate Cause Evaluation	<ul style="list-style-type: none"> • Problem Statement
3: Data Gathering and Analysis	<ul style="list-style-type: none"> • Issue Description • Methodology • Analysis • Appendices • Attachments in CCE CAP
4: Determine Causes and Corrective Actions	<ul style="list-style-type: none"> • Common Cause(s) • Contributing Cause(s) • NERC Cause Code Assignment • Corrective Actions • Additional Findings (if identified)
5: Complete Cause Evaluation	<ul style="list-style-type: none"> • CE Report • Executive Summary • Approval: Issue Owner, Cause Evaluator

2.2 CCE Completion Timeline

1. SEE GOV-6102S, "[Enterprise Cause Evaluation Standard](#)" for CCE completion timeline information

Cause Evaluation Procedure

2.3 CCE Phase 1: Safety Incident Immediate Response Management / CAP Assignment

NOTE

1. SEE GOV-6101P-08, "[Enterprise Corrective Action Program Procedure](#)" for information on how CAP Issues are risk ranked, assigned an evaluation type, and assigned to a specific department and issue owner. SEE GOV-6101P-08, "Corrective Action Program Procedure" for information on how CAP issues are risk ranked, assigned an evaluation type, and assigned to a specific department and issue owner
2. SEE GOV-6102S, "[Enterprise Cause Evaluation Standard](#)" for definitions, roles and responsibilities of the different roles related to CAP.

1. For CCEs, Sponsor or Issue Owner and Cause Evaluator are required.
2. The Issue Owner must IDENTIFY additional individuals to support the evaluation:
 - a. IDENTIFY an Issue Sponsor, OR ELECT to fulfil the Sponsor role.
 - b. IDENTIFY a Cause Evaluator, OR ELECT to fulfil the Cause Evaluator role
 - (1) The best practice is to ENSURE that the selected Cause Evaluator is only supporting a single CE at a time.

NOTE

REFER to the [Cause Evaluator Qualification List](#) located in the PG&E [ECAP website](#) AND VERIFY the assigned cause evaluator has completed the appropriate training course.

- (2) ENSURE that the Cause Evaluator meets the training qualifications found in GOV-6102S, "[Enterprise Cause Evaluation Standard](#)."
 - (3) ATTACH documented evidence to the CAP issue
 - (4) PROVIDE a statement in the CAP Description field to confirm verification of cause evaluator qualification.
3. Team Lead or Issue Owner must:
 - a. DOCUMENT the Sponsor, Team Lead, and Cause Evaluator names and LAN IDs in the "Partner" field of the CAP issue.
 - b. OPEN the CAP issue AND CONFIRM the "Complete Report" APPV action meets the start date and end date expectation for CCEs per GOV-6102S, "[Enterprise Cause Evaluation Standard](#)."
 - (1) ADJUST the start and end date expectations as necessary.

Cause Evaluation Procedure

- c. IDENTIFY additional CE Team members

2.4 CCE Phase 2: Initiate Common Cause Evaluation

NOTE

USE of the [Common Cause Evaluation Template](#) found on the [ECAP Cause Evaluation Website](#) is highly encouraged as it contains templates for all required report elements listed in Table 2. CCE Process.

1. USE the “[Common Cause Evaluation Template](#)” found on the [ECAP Cause Evaluation Website](#) OR USE another CE Template which contains all the minimum requirements listed in Table 2. CCE Process.
2. (Optional) Sponsor, Team Lead, and Cause Evaluator may DEVELOP a Team Charter to document the scope of the evaluation, the timeline and team members involved.
3. (Optional) CONDUCT a CE Kick-off meeting:
 - a. The Issue Owner, Cause Evaluator or delegate must SCHEDULE AND LEAD the kick-off meeting.
 - b. All core members of the CE team must ATTEND the CE kick-off meeting.
 - c. Issue Owner, Cause Evaluator, and Sponsor (if assigned) must REVIEW the Charter and draft schedule with the CE team members to gain agreement on deliverables, dates, and task ownership.
 - d. Issue Owner, Cause Evaluator, or delegate must DEVELOP the Problem Statement for inclusion in the CE report.

2.5 CCE Phase 3: Data Gathering and Analysis

1. The Issue Owner, Team Lead or Cause Evaluator must:
 - a. DETERMINE analysis methods and tools
 - (1) REFER to GOV-6102M, “[Cause Evaluation Manual](#)” for a list of analysis methods and tools, and guidance on how to use guidance on use of analysis tools.
 - (2) Additional analysis methods and tools which are not found in the [Cause Evaluation Manual](#) can also be used to perform the CCE.
2. CE Team must:
 - a. DETERMINE AND COLLECT all data to be reviewed.

Cause Evaluation Procedure

- b. ORGANIZE the facts to provide a clear understanding of the issue.
- c. LIST all data sources and analysis methods used during the evaluation in the CE report.
- d. ANALYZE the information gathered AND SUMMARIZE the results in the CE report.
- e. INCLUDE supporting documentation in the CE report Appendices section

OR
- f. LIST them in the Attachments section of the CE report AND ATTACH them to the CAP issue.

2.6 CCE Phase 4: Determine Causes and Corrective Actions

1. Team must REVIEW all data AND DETERMINE the Common Cause(s) and any Contributing Cause(s).
 - a. IF unable to determine the Common Cause,

THEN document the determination in the CE report.
2. For each Common Cause and Contributing Cause, ASSIGN a North American Electric Reliability Corporation (NERC) Cause Code.
 - a. DOCUMENT the causes and assigned NERC Cause Codes in the CE report.
3. For each cause, DEVELOP Corrective Action(s).
 - a. DOCUMENT Corrective Actions in the CE report.
 - b. At the discretion of the Issue Owner, Interim Actions may be implemented to prevent additional issues while longer term Actions are being implemented
4. DEVELOP any additional actions required to support issue evaluation or resolution that do not directly correct the identified cause(s).
5. For all actions created:
 - a. APPLY the “SMART” (Specific, Measurable, Achievable, Reasonable, Timely) criteria when defining actions.
 - b. IDENTIFY the individual(s) who will own the implementation of any action(s).
 - c. For Contractor related CCEs, IDENTIFY the PG&E individual(s) who will verify the implementation of actions by contractors.

Cause Evaluation Procedure

6. For Corrective and Interim Actions:
 - a. ENSURE actions address the Cause(s) and/or Contributing Cause(s) of the issue.
 - b. SEE GOV-6102M, "[Cause Evaluation Manual](#)" AND USE the "Hierarchy of Controls" to determine the highest level of controls to eliminate or minimize the exposure.
7. The Issue Owner or Team Lead must:
 - a. Prior to assignment of actions, OBTAIN each Actions Owner's concurrence on the action(s) to be taken, deliverables, due date(s), and due date justifications.
 - b. IF there are disagreements regarding assignment of actions,

THEN the Team Lead or Issue Owner must ESCALATE to the Department Owner for resolution.
 - c. IF there are any Additional Findings because of the CCE

THEN DOCUMENT any Additional Findings in the CE report.
 - (1) DESCRIBE the finding in the CE report
 - (2) IDENTIFY AND DOCUMENT the LOB Issue Owner who can address the finding in the CE report.
 - (3) INITIATE a CAP issue for each Additional Finding identified.
 - (4) DOCUMENT the Issue Number of the CAP issues created in the CE report.
8. IF the CE Team CHOOSES to perform an Effectiveness Review (EFFR) after CE completion,

THEN, DEVELOP an [Effectiveness Review Plan](#) (ERP),
 - a. SEE subsection 5, Effectiveness Review Plans (ERPs) and Effectiveness Reviews (EFFRs).

2.7 CCE Phase 5: Complete Cause Evaluation

1. It is recommended the Team Lead HOLD stakeholder meeting(s) to preview the CCE report with department leadership.
 - a. Issue Owner or delegate must COORDINATE review and integration of agreed to stakeholder recommendations into the draft CE report.

Cause Evaluation Procedure

2. IF the CE report is determined to be acceptable,

THEN the Issue Owner, Cause Evaluator, and Sponsor (if assigned) must APPROVE the CE report, AND ATTACH the approved report to the CAP issue.
 - a. Title: INCLUDE "CAP # Rev #, Report Type- FINAL"
 - (1) EXAMPLE: "123456789 Rev.1, CCE Report- FINAL"
3. Issue Owner (or delegate) must MARK the "Complete CCE Report" APPV action complete in CAP.
4. IF review by the LOB CARB committee is requested by leadership,

THEN:
 - a. The Issue Owner (or delegate) must CONTACT the LOB CAP team to schedule a CARB review date.
 - b. The Issue Owner and Sponsor (if assigned) are required to PRESENT the CE report at the CARB meeting.
 - (1) It is recommended the Cause Evaluator and relevant Subject Matter Experts attend to provide input if needed.
 - c. IF the CARB committee approves the CE report (Concur),

THEN the Team Lead/Issue Owner (or delegate) must COMPLETE the "Complete CARB Review" Action in CAP.
 - d. IF minor changes to the CE report are requested during CARB review (Concur with Comment),

THEN the Team Lead must COORDINATE implementation of changes AND OBTAIN concurrence that the changes are acceptable from the LOB CARB chairperson or designee.
 - (1) Upon completion of any requested changes, the Team Lead/Issue Owner (or delegate) must COMPLETE the "Complete CARB Review" Action in CAP.
 - e. IF during CARB review the decision was made that CARB Does not Concur with the CE report,

THEN the Team Lead must coordinate implementation of required changes and return to step 2.74 above.
5. CE Report Final Approval (after CARB review)

Cause Evaluation Procedure

- a. IF any changes are made to the CE report as a result of the CARB review,

THEN the Sponsor (if assigned), Issue Owner, and Cause Evaluator must RE-APPROVE the CE final report.
- b. ATTACH the approved final CE report to the CAP issue.
 - (1) Title: INCLUDE "CAP # Rev #, Report Type- FINAL"
 - EXAMPLE: "123456789 Rev.2, CCE Report- FINAL"
 - (2) Physical signatures, digital signatures or emails may be used to document approvals.
6. Cause Evaluator must:
 - a. ADJUST the CAP due date based on the actions entries.
 - b. ENTER the Causes, NERC Cause Codes, and Corrective Actions in the CAP issue.
7. Issue Owner must MONITOR all actions to ensure completion by the agreed upon due date.
 - a. IF the agreed Corrective Action due date needs to be extended,

THEN OBTAIN the Issue Owner or Sponsor (if assigned) approval AND INCLUDE the following documentation in the CAP.
 - (1) Reason(s) the due date needs to be extended.
 - (2) Actions that will be taken to prevent the need for further extensions.
 - b. IF an action not approved by CARB can no longer be implemented as written,

THEN OBTAIN approval from the Department Owner or Sponsor (if assigned) with justification to amend or cancel the action.
 - c. IF an action approved by CARB can no longer be implemented,

THEN RETURN to CARB with justification to amend or cancel the action.
 - (1) In the Action Description field, DOCUMENT the justification and CARB approval.
 - (2) AMEND OR CANCEL the action in the CAP issue as appropriate.
 - d. WHEN actions are completed,

Cause Evaluation Procedure

THEN the Action Owner(s) must DOCUMENT the actions taken in the Action Description field.

- e. ENSURE that the documentation is detailed enough to provide evidence of completion.
 - (1) INCLUDE in the Action Description field:
 - A detailed closure statement of the actions taken to address the issue.
 - Date the action was completed.
 - f. PROVIDE a reference to AND ATTACH any documents that detail the actions taken to the CAP issue, when applicable.
- 8. Issue Owner must VERIFY each action has been completed per GOV-6101P-08, [“Corrective Action Program Procedure”](#).
 - a. IF issues or discrepancies are identified with the actions taken,
THEN:
 - (1) CONTACT the Action Owner(s) to discuss the issues identified and how to correct them.
 - (2) CREATE a new action to address the discrepancies
 - (3) REFERENCE the original action number listed in the CE report, if applicable.
 - (4) RETURN to step 2.78 above once the issues have been resolved with the action(s).

- 9. WHEN all actions have been completed,
THEN the Issue Owner must CLOSE the CAP issue.

3 Perform an Apparent Cause Evaluation (ACE)

3.1 Apparent Cause Evaluations (ACE)

- 1. An ACE is an evaluation which provides reasonable assurance that the cause of a problem is determined and will be corrected.
- 2. There are two categories of ACEs:

Cause Evaluation Procedure

- a. SIF ACE: An ACE related to an issue which has been determined by the Safety Review Team (SRT) to meet SIF Potential (SIF-P) or SIF Actual (SIF-A) criteria.
 - b. Non-SIF ACE: All other ACEs which do not evaluate a SIF issue.
3. SEE Table 3. ACE Process for the different ACE phases and minimum requirements.

NOTE

Table 3. ACE Process shows minimum requirements for SIF-ACEs and Non-SIF ACEs. Leadership, CARB Members, or the CE Team may request and/or choose to perform additional tasks beyond the minimum requirements listed.

Table 3. ACE Process

ACE Phases	Minimum Requirements
1: Safety Incident Immediate Response Management (SIF ACEs only) / CAP Assignment	<ul style="list-style-type: none"> • SAFE-1100S “Safety SIF Standard” • SAFE-1004S “Safety Incident Notification and Response Management Standard” • GOV-6101P-08 “Corrective Action Procedure”
2: Initiate Cause Evaluation	<ul style="list-style-type: none"> • Charter: SIF ACE only • Problem Statement • Communication: <ul style="list-style-type: none"> ○ SIF ACEs: Initial SIF Alert Communication required per SAFE-1004S ○ Non-SIF Aces: Not Applicable • Extent of Condition
3: Data Gathering and Analysis	<ul style="list-style-type: none"> • Issue Description • Methodology • Analysis • HFACS • Barrier Analysis • Operating Experience: Internal required • Appendices • Attachments in CAP issue
4: Determine Causes and Corrective Actions	<ul style="list-style-type: none"> • Apparent Cause(s) • Contributing Cause(s) • NERC Cause Code Assignment • SIF Exposure Factor (SIF ACEs Only) • Corrective Actions • Additional Findings (if identified) • Effectiveness Review Plan (ERP) (if applicable)

Cause Evaluation Procedure

ACE Phases	Minimum Requirements
5: Complete Cause Evaluation	<ul style="list-style-type: none"> • CE Report • Executive Summary • Approval: <ul style="list-style-type: none"> ○ SIF ACEs: Sponsor Officer ○ Non-SIF ACEs: Director or higher; ○ ALL ACEs: Team Lead; Cause Evaluator; CARB • Communication: <ul style="list-style-type: none"> ○ SIF ACE: Final SIF Alert Communication required per SAFE-1004S ○ Non-SIF ACE: Not Applicable
6: Perform Effectiveness Review (if applicable)	<ul style="list-style-type: none"> • Effectiveness Review (EFFF) Report: <ul style="list-style-type: none"> ○ SIF ACEs only.

3.2 ACE Completion Timeline

1. SEE GOV-6102S, "[Enterprise Cause Evaluation Standard](#)" for ACE completion timeline information

3.3 ACE Phase 1: Safety Incident Immediate Response Management / CAP Assignment

1. FOR SIF ACEs:
 - a. The CE team must INCLUDE a Sponsor, Team Lead, LOB Subject Matter Expert(s), and a trained Cause Evaluator.
 - (1) The Sponsor must be a Director-level individual or higher
 - b. The Issue Owner or Sponsor must:
 - (1) IDENTIFY a Team Lead
 - (2) IDENTIFY LOB Subject Matter Expert(s)
 - (3) IDENTIFY a trained Cause Evaluator
2. For Non-SIF ACEs,
 - a. The CE Team must INCLUDE a Sponsor or Issue Owner, and Cause Evaluator.
 - b. The Issue Owner must:
 - (1) IDENTIFY a Sponsor, OR ELECT to fulfill the Sponsor role.

Cause Evaluation Procedure

- (2) IDENTIFY a Team Lead, OR ELECT to fulfill the Team Lead role.
- (3) IDENTIFY a trained Cause Evaluator

NOTE

REFER to the [Cause Evaluator Qualification List](#) located in the PG&E [ECAP website](#) AND VERIFY the assigned cause evaluator has completed the appropriate training course.

3. WHEN identifying a trained Cause Evaluator

THEN ENSURE that the Cause Evaluator meets the training qualifications found in GOV-6102S, "[Cause Evaluation Standard](#)."

- a. The best practice is to ENSURE that the selected Cause Evaluator is only supporting a single CE at a time.
- b. ATTACH documented evidence to the CAP issue
- c. PROVIDE a statement in the CAP Description field to confirm verification of cause evaluator qualification.

4. Team Lead or Issue Owner must:

- a. DOCUMENT the Sponsor, Team Lead, and Cause Evaluator names and LAN IDs in the "Partner" field of the CAP issue.
- b. OPEN the CAP issue AND CONFIRM the "Complete Report" APPV action meets the start date and end date expectation for ACEs per GOV-6102S, "[Enterprise Cause Evaluation Standard](#)."

- (1) ADJUST the start and end date expectations as necessary.

- 3.4 ACE Phase 2: Initiate Apparent Cause Evaluation

NOTE

USE of the ACE templates found on the [ECAP Cause Evaluation Website](#) is highly encouraged as it contains templates for all required report elements listed in Table 3. ACE Process.

1. USE the appropriate [SIF ACE](#) or [Non-SIF ACE](#) template found on the [ECAP Cause Evaluation Website](#) OR USE another CE Template which contains all the minimum requirements listed in Table 3. ACE Process.

Cause Evaluation Procedure

2. For SIF ACEs, the CE Team must REVIEW SAFE-1100S, "[Serious Injury and Fatality \(SIF\) Standard](#)" AND SAFE-1004S, "[Safety Incident Notification and Response Management Standard](#)" to ensure the ACE complies with SIF specific document storage requirements.
3. For SIF ACEs, the Sponsor, Team Lead, and Cause Evaluator must DEVELOP a Team Charter to document the scope of the evaluation, the timeline and team members involved.
 - a. USE the "[ACE Charter Template](#)" found on the [ECAP Cause Evaluation Website](#).
4. CONDUCT a CE Kick-off meeting:
 - a. The Team Lead, Cause Evaluator or delegate must SCHEDULE AND LEAD the kick-off meeting.
 - b. All core members of the CE team, including contractor representatives if applicable, must ATTEND the CE kick-off meeting.
 - c. Team Lead (or delegate) must REVIEW the Charter and draft schedule with the Sponsor and CE team members to gain agreement on deliverables, dates, and task ownership.
 - d. CE Team must DEVELOP the Problem Statement for inclusion in the Charter and the CE report draft.
 - e. Sponsor (if assigned), CE Team Lead, and Cause Evaluator must APPROVE and ATTACH the Charter to the CAP issue acknowledging commitment from the CE team members to complete the evaluation as described. Sponsor (if assigned), CE Team Lead, and Cause Evaluator must APPROVE AND ATTACH the Charter to the CAP issue acknowledging commitment from the CE team members to complete the evaluation as described.
 - (1) Email approvals may be used to document approval.
 - (2) ATTACH email approvals to the Charter document.
5. For SIF ACEs, the Team Lead (or delegate) must USE the "[SIF Alert Initial Communication Template](#)" found on the [ECAP Cause Evaluation Website](#) to draft the Initial SIF Communication AND OBTAIN Sponsor and EH&S Safety Strategy & Prevention Lead approval.
6. For SIF ACEs, once the Initial SIF Communication is approved, the Sponsor must:
 - a. DISTRIBUTE it to affected LOB(s).

Cause Evaluation Procedure

- b. POST in the Daily Digest, and SEND to Contractors, as appropriate, through ISNET.
 - c. ATTACH the approved initial SIF communication, email to LOB, and Daily Digest email to the CAP issue.
7. CE Team must EVALUATE the issue for [Extent of Condition \(EOC\)](#) The CE Team must EVALUATE the issue for Extent of Condition (EOC)..
- a. USE GOV-6102M Attachment 1, "[Extent of Condition Worksheet](#)" to PERFORM AND DOCUMENT the results of the Extent of Condition analysis. USE the EOC worksheet in the ACE report template to PERFORM AND DOCUMENT results of the EOC analysis. USE the EOC worksheet in the [report template](#) to PERFORM AND DOCUMENT results of the Extent of Condition analysis.
 - (1) REFER to GOV-6102M, "Cause Evaluation Manual" for guidance associated with performing an Extent of Condition analysis. REFER to the [Cause Evaluation Manual](#) (GOV-6102M) for guidance associated with performing an Extent of Condition analysis.
 - (2) IF no additional exposure is identified in the LOB,

THEN DOCUMENT the justification in the CE Report explaining why this is an isolated issue and no further action is required.
 - (3) IF the Extent of Condition analysis identifies exposure in the issue LOB,
IF the Extent of Condition analysis identifies exposure in the LOB,

THEN DEVELOP AND IMPLEMENT actions to mitigate the risk or condition.
 - (4) IF after the Extent of Condition analysis, the CE team determines there are other LOBs at risk due to similar conditions,

THEN INITIATE an Extent of Condition Assessment review by completing the "[Extent of Cause/Condition Assessment Template](#)" found on the [ECAP Cause Evaluation Website](#).
 - (5) REQUEST an Extent of Condition meeting with AND SUBMIT the [Extent of Cause/Condition Assessment Template](#)" to the Extent of Condition Assessment team by emailing CauseEvaluationCenterOfExcellence@PGE.com. SUBMIT the completed [EOC Assessment Form](#) before the scheduled EOC meeting by emailing CauseEvaluationCenterOfExcellence@PGE.com.
 - (6) The Extent of Condition Assessment Team CONSULTS with their LOB leadership and subject matter experts to determine if the same or similar exposure exists within their LOB.

Cause Evaluation Procedure

- (7) IF a different LOB is determined to be at risk,
THEN the CE Team must INITIATE AND ASSIGN a separate CAP issue to each identified LOB(s).
- Title: INCLUDE “EOCon” as the first letters of the title (i.e. EOCon -111234567 <Issue Title>)
 - ADD the ACE CAP issue number in the “Reference Issue” field of new CAP(s)

3.5 ACE Phase 3: Data Gathering and Analysis

1. CE Team must DETERMINE AND COLLECT all data to be reviewed.
 - a. IDENTIFY any person(s) to be interviewed.
 - b. SCHEDULE AND CONDUCT interviews.
 - c. ORGANIZE the facts to provide a clear understanding of the issue.
2. The Issue Owner, Team Lead or Cause Evaluator must IDENTIFY the analysis methods and tools to be used for the evaluation.
 - a. For SIF ACEs, the analysis MUST include the use of Barrier Analysis and Human Factors (HFACS) analysis tools.
 - (1) USE GOV-6102M Attachment 10, “[Barrier Analysis Worksheet](#)” AND GOV-6102M Attachment 12, “[HFACS Worksheet](#)” when performing the analyses.
 - b. Additional analysis methods and tools described in GOV-6102M, “[Cause Evaluation Manual](#),” can also be used.
 - c. REFER to GOV-6102M, “[Cause Evaluation Manual](#),” for guidance on use of analysis tools.
3. The CE Team must:
 - a. LIST all data sources and analysis methods used during the evaluation in the CE report.
 - b. REVIEW AND EVALUATE relevant Internal Operating Experience (OE) and associated corrective actions for at least the preceding three years.

Cause Evaluation Procedure

- (1) REFER to the GOV-6102M, “REFER to GOV-6102M, “Cause Evaluation Manual” for detailed examples associated with performing an OE review. REFER to the [Cause Evaluation Manual](#)” for detailed examples associated with performing an Operating Experience review.
 - (2) DOCUMENT the OE review results, including any missed opportunities that could have precluded or mitigated this issue, in the CE Report.
- c. ANALYZE the information gathered AND SUMMARIZE the results in the CE report.
 - d. INCLUDE supporting documentation in the CE report Appendices section

OR
 - e. LIST them in the Attachments section of the CE report AND ATTACH them to the CAP issue.

3.6 ACE Phase 4: Determine Causes and Corrective Actions.

1. The CE Team must review all data to DETERMINE the Apparent Cause(s) and any Contributing Cause(s).
 - a. IF unable to determine an Apparent Cause,

THEN document the determination in the CE report.
2. For each Apparent Cause and Contributing Cause, ASSIGN a North American Electric Reliability Corporation (NERC) Cause Code.
3. DOCUMENT the causes and the assigned NERC Cause Codes in the CE report.
4. The team may EVALUATE the Extent of Cause
 - a. USE GOV-6102M Attachment 6, “REFER to GOV-6102M, “Enterprise Cause Evaluation Manual” for details associated with performing an Extent of Cause analysis. REFER to GOV-6102M, Enterprise [Extent of Cause worksheet](#)” to DOCUMENT results of the Extent of Cause analysis.
 - (1) IF no Extent of Cause exposure is identified,

THEN DOCUMENT in the CE Report why no further action is required.
 - (2) IF the Extent of Cause analysis identifies exposure in the LOB,

THEN DEVELOP AND IMPLEMENT Corrective Actions.

Cause Evaluation Procedure

- (3) INITIATE an Extent of Cause Assessment review by completing the [“Extent of Cause/Condition Assessment Template”](#) found on the [ECAP Cause Evaluation Website](#).
 - (4) REQUEST an Extent of Cause meeting with the Extent of Cause Assessment Team by emailing CauseEvaluationCenterOfExcellence@PGE.com.
 - (5) SUBMIT the completed [Extent of Cause/Condition Assessment Template](#) to the Extent of Cause Assessment Team by emailing CauseEvaluationCenterOfExcellence@PGE.com at least 3 days before the scheduled Extent of Cause meeting.
 - (6) COMPLETE the [Extent of Cause Assessment Form](#) available on the ECAP website describing the Extent of Cause.
 - (7) SUBMIT the completed Extent of Cause Assessment Form [EOC Assessment Form](#) at least 3 business days before the scheduled EOC meeting by emailing CauseEvaluationCenterOfExcellence@pge.com.
 - (8) The Extent of Cause Assessment Team CONSULTS with their LOB leadership and subject matter experts to determine if the same or similar exposure exists. The Extent of Cause Assessment Team must CONSULT with their LOB leadership and subject matter experts to determine if the same or similar exposure exists.
 - (9) IF Extent of Cause exposure is identified in other LOBs,

THEN INITIATE AND ASSIGN a separate CAP(s) issue to the LOB(s) to conduct independent Extent of Cause analysis and mitigate exposure. THEN the CE Team must INITIATE AND ASSIGN a separate CAP issue for each identified LOB(s) to conduct independent Extent of Cause analysis and mitigate exposure.
 - Title: INCLUDE “EOCause” as the first letters of the title (i.e. EOCause -111234567 <Issue Title>)
 - (10) ADD the ACE CAP issue number in the “Reference Issue” field of the new CAP issue(s).
 - b. SUMMARIZE the Extent of Cause analysis in the CE report.
5. IF the ACE is SIF related,
- THEN
- a. USE GOV-6102M Attachment 14, [“SIF Exposure Factors \(SEF\) and Prevention Measures”](#) to determine the SEF(s) and Prevention measure(s).

Cause Evaluation Procedure

- b. DOCUMENT the SEF(s) and Prevention Measure(s) in the CE Report and the CAP Issue.
6. For each cause, DEVELOP Corrective Action(s) that clearly address the Cause(s) or Contributing Cause(s)
 - a. At the discretion of the Issue Owner, Interim Actions may be implemented to prevent additional issues while longer term Corrective Actions are being implemented

DEVELOP any additional actions required to support issue evaluation or resolution that do not directly correct the identified cause(s)
7. For Corrective and Interim Actions:
 - a. SEE GOV-6102M, "[Cause Evaluation Manual](#)" AND USE the "Hierarchy of Controls" to determine the highest level of controls to eliminate or minimize the exposure.
8. For all actions:
 - a. USE the "SMART" (Specific, Measurable, Achievable, Reasonable, Timely) criteria when defining corrective actions.
 - b. IDENTIFY the individual(s) who will own the implementation of each action.
 - (1) For Contractor related ACEs, IDENTIFY the PG&E individual(s) who will verify the implementation of actions by contractors.
 - c. Prior to assignment of actions, the Team Lead must OBTAIN each Actions Owner's concurrence on the action(s) to be taken, deliverables, due date(s), and due date justifications.
 - d. IF there are disagreements regarding assignment of actions,

THEN the Team Lead must ESCALATE to the Sponsor or Department Owner for resolution.
9. USE GOV-6102M Attachment 11, "[Cause to Corrective Action Matrix](#)" to document the Corrective Actions in the CE Report.
10. DOCUMENT, at the discretion of the Sponsor and/or CARB, Interim Actions, intended to address causes on a temporary basis while Corrective Actions are being implemented.
11. DOCUMENT any Additional Findings in the CE report.
 - b. DESCRIBE the finding

Cause Evaluation Procedure

- c IDENTIFY AND DOCUMENT the LOB Issue Owner who can address the finding.
 - d INITIATE a CAP issue for each Additional Finding identified.
 - e DOCUMENT the new CAP issue number(s) into the CE final report.
12. For SIF ACEs, the CE team must DEVELOP an [Effectiveness Review Plan](#) (ERP).
- a. SEE subsection 5, Effectiveness Review Plans (ERPs) and Effectiveness Reviews (EFFRs).
 - f. SEE subsection 4.710 below **Error! Reference source not found., "Error! Reference source not found.."**

3.7 ACE Phase 5: Complete Cause Evaluation

1. It is recommended that the Team Lead/Issue Owner HOLD stakeholder meeting(s) to preview the report with department leadership.
 - a. Issue Owner or delegate must COORDINATE review and integration of agreed to stakeholder recommendations into the draft CE report.
2. For Non-SIF ACEs that do not require CARB review,
 - a. IF the CE report is determined to be acceptable,

THEN the Sponsor (if assigned), Team Lead, and Cause Evaluator must APPROVE the CE report AND ATTACH the approved report to the CAP issue.

(1) Title: INCLUDE "CAP # Rev #, Report Type- FINAL"
 - EXAMPLE: "123456789 Rev.1, ACE Report- FINAL"
 - b. AFTER the Sponsor or Issue Owner approves the CE Report,

THEN the Team Lead (or delegate) must mark the "Complete Report" APPV action as complete.
3. For SIF ACEs requiring ECAP Director review, CARB review, and Chief Safety Officer Leadership review:
 - a. The Sponsor must USE GOV-6102S Attachment 3, "[ACE Review Sheet](#)" to EVALUATE the CE report AND CONFIRM it meets the expectations of CARB.
 - b. IF the CE report is determined to be acceptable,

THEN the Sponsor, Team Lead, and Cause Evaluator must APPROVE the CE report.

Cause Evaluation Procedure

- (1) ATTACH the approved report and the completed ACE review sheet to the CAP issue.
- (2) Title: INCLUDE “CAP # Rev #, Report Type- FINAL”
 - EXAMPLE: “123456789 Rev.1, ACE Report- FINAL”
- c. Team Lead (or delegate) must MARK the “Complete CE Report” APPV action complete in CAP.
- d. Team Lead must CONTACT the ECAP Director or a delegate identified by ECAP Director to request a Quality Closure Review to be completed within 5 business days.
 - (1) The ECAP Director must USE GOV-6102S Attachment 3, “[ACE Review Sheet](#)” to evaluate the CE report for content and quality.
 - (2) IF the report is determined to be acceptable,

THEN the ECAP Director (or delegate) must MARK the “Quality Closure Review” action complete in CAP AND ATTACH the ACE review sheet.
 - (3) IF the report is determined NOT to be acceptable,

THEN the CE team must REVIEW the feedback AND INCORPORATE necessary changes to obtain ECAP Director’s approval.
4. Leadership Review Meeting
 - a. The Sponsor and Team Lead must ATTEND the Leadership Review Meeting organized by the Chief Safety Officer to PRESENT the findings of the cause evaluation:
 - Prepare presentation with key findings and corrective actions.
5. Corrective Action Review Board (CARB) Review
 - a. The CARB review process is described in GOV-6102S Attachment 1, “[Corrective Action Review Board Charter](#)”.
 - b. When CARB review is required,

THEN the Team Lead (or delegate) must CONTACT the LOB CAP team to schedule a CARB review .
 - c. The Sponsor and Team Lead are required to present the CE report at the CARB meeting.

Cause Evaluation Procedure

- (1) It is recommended that the Cause Evaluator and relevant Subject Matter Experts attend to provide input if needed.
 - d. IF the CARB committee approves the CE report (Concur),

THEN the Team Lead/Issue Owner (or delegate) must COMPLETE the “Complete CARB Review” action inain the CAP issue.
 - e. IF minor changes to the CE report are requested during CARB review (Concur with Comment),

THEN the Team Lead must COORDINATE implementation of changes AND OBTAIN concurrence that the changes are acceptable from the LOB CARB chairperson or designee.
 - (1) Upon completion of any requested changes, the Team Lead/Issue Owner (or delegate) must COMPLETE the “Complete CARB Review” action in the CAP issue.
 - f. IF during CARB review the decision was made that CARB Does not Concur with the CE report,

THEN the Team Lead must COORDINATE implementation of required changes AND RETURN to step 3.73.a above.
6. CE Report Final Approval (after CARB review)
 - a. IF any changes are made to the CE report as a result of CARB review,

THEN the Sponsor, Team Lead, and Cause Evaluator must RE-APPROVE the CE final report.
 - b. ATTACH the approved final CE report to the CAP issue.
 - (1) Title: INCLUDE “CAP # Rev #, Report Type- FINAL”
 - EXAMPLE: “123456789 Rev.2, ACE Report- FINAL”
 - (2) Physical signatures, digital signatures or emails may be used to document approvals.
7. LOB CAP team or Cause Evaluator must:
 - a. ADJUST the CAP issue due date based on actions entries.
 - b. ENTER the Causes, NERC Cause Codes, and all actions in the CAP issue.

Cause Evaluation Procedure

- c. CONFIRM the CAP issue “Attributes” section contains all SIF Exposure Factors (SEF) and Prevention Measures listed in the CE report.
8. FOR SIF ACEs, the Team Lead (or delegate) must USE the “[SIF Alert Final Communication Template](#)” found on the [ECAP Cause Evaluation Website](#) to draft the Final SIF Communication.
 - a. PROVIDE the draft communication to the Sponsor and EH&S Safety Strategy & Prevention Lead for approval.
 - b. WHEN For SIF- ACE, once the Final SIF Communication is approved: For SIF- ACEs, once the Final SIF Communication is approved, the Sponsor must:
 - (1) DISTRIBUTE it to affected LOB(s).
 - (2) POST it in the Daily Digest, AND DISTRIBUTE it to Contractors, as appropriate, through ISNET.
 - (3) UPLOAD the approved final SIF communication, evidence of email to LOB, and Daily Digest email to the CAP issue.
9. Issue Owner must TRACK all actions to ensure completion by the agreed upon due date.
 - a. For SIF ACEs, or Non-SIF ACEs requiring CARB Approval, IF a CARB approved action can no longer be implemented as written,
THEN RETURN to CARB with justification to amend or cancel the action.
 - (1) In the Action Description field, DOCUMENT the justification and CARB approval.
 - (2) AMEND OR CANCEL the action in the CAP issue as appropriate.

**WARNING**

Corrective Action due dates for SIF ACEs cannot be extended beyond the due date indicated in the approved final CE report without additional approval.

- b. For SIF ACEs, IF the agreed Corrective Action due date needs to be extended, Corrective action due dates for SIF ACEs cannot be arbitrarily extended beyond the due date indicated in the approved final report.
 - c. IF the agreed Corrective Action due date needs to be extended,
THEN OBTAIN the relevant LOB’s Vice President approval AND INCLUDE the following documentation in the CAP issue.

Cause Evaluation Procedure

- (1) Reason(s) the due date needs to be extended.
 - (2) Actions that will be taken to prevent the need for further extensions.
- d. For Non-SIF ACEs:
- (1) IF a Corrective Action requires a due date extension,

THEN OBTAIN approval for a due date extension from the Department Owner AND DOCUMENT the approval and the reason(s) for the due date extension in the Action Description field.
 - (3) IF a Corrective Action can no longer be implemented as written,

THEN OBTAIN approval from the Issue Owner or Sponsor to cancel or amend the action.
 - In the Action Description field, DOCUMENT the justification and CARB approval.
 - AMEND OR CANCEL the action in the CAP issue as appropriate.
- e. IF an action for a Non-SIF ACE which did not require CARB approval can no longer be implemented as written, the Issue Owner or Sponsor must approve, and approval and justification must be added to the CAP.
10. WHEN actions are completed,

THEN:
- a. The Action Owner(s) must DOCUMENT the actions taken in the Action Description field AND ENSURE that the documentation is detailed enough to provide evidence of completion.
 - (1) INCLUDE in the Action Description field:
 - A detailed closure statement of the actions taken to address the issue.
 - Date the action was completed.
 - (2) PROVIDE a reference to AND ATTACH any documents that detail the actions taken to the CAP issue, if applicable.
 - b. The Issue Owner must VERIFY each action has been completed per GOV-6101P-08, "[Corrective Action Program Procedure](#)".

Cause Evaluation Procedure

11. IF issues or discrepancies are identified with the actions taken,
THEN the Issue Owner must:
 - a. CONTACT the Action Owner(s) to discuss the issues identified and how to correct them.
 - b. CREATE a new action to address the discrepancies, AND REFERENCE the original action number listed in the CE report.
 - c. RETURN to step 3.79 above once the issues have been resolved with the action(s).

12. WHEN all actions have been completed,
THEN the Issue Owner can CLOSE the CAP issue.

4 Perform a Root Cause Evaluation (RCE)

4.1 Root Cause Evaluations

1. The RCE process identifies Corrective Actions to Preclude Recurrence (CAPR) to prevent the problem from recurring because of a same or similar root cause/failure mechanism by implementing changes and/or controls.
2. There are two categories of RCEs:
 - a. SIF RCE: An RCE related to an issue which has been determined by the Safety Review Team (SRT) to meet SIF Potential (SIF-P) or SIF Actual (SIF-A) criteria.
 - b. Non-SIF RCE: All other RCEs which do not evaluate a SIF issue.
3. The RCE process includes the following 6 phases and accompanying requirements:

Table 4. RCE Process

RCE Phases	Minimum Requirements
1: Safety Incident Immediate Response Management (SIF-Actual and SIF-Potential) (SIF RCEs only) / CAP Assignment	<ul style="list-style-type: none"> • SAFE-1100S "Serious Injury and Fatality (SIF) Standard" • SAFE-1004S "Safety Incident Notification and Response Management Standard" • GOV-6101P-08 "Corrective Action Program Procedure"
2: Initiate Cause Evaluation	<ul style="list-style-type: none"> • Charter • Problem Statement • Communication: <ul style="list-style-type: none"> ○ SIF RCEs: Initial SIF Alert

Cause Evaluation Procedure

RCE Phases	Minimum Requirements
	<ul style="list-style-type: none"> Communication required per SAFE-1004S; ○ Non-SIFs: Not Required ● Extent of Condition
3: Data Gathering and Analysis	<ul style="list-style-type: none"> ● Issue Description ● Methodology ● Analysis ● HFACS ● Barrier Analysis ● Operating Experience: Internal & External required ● Appendices ● Attachments in the CAP issue
4: Determine Causes and Corrective Actions	<ul style="list-style-type: none"> ● Root Cause ● Contributing Cause (if identified) ● NERC Cause Code Assignment ● Extent of Cause ● SIF Exposure Factor ● Corrective Actions ● Additional Findings (if identified) ● Effectiveness Review Plan (EFP)
5: Complete Cause Evaluation	<ul style="list-style-type: none"> ● CE Report ● Executive Summary ● Approval: <ul style="list-style-type: none"> ○ SIF RCEs: Sponsor Officer ○ Non-SIF RCEs: Director or higher ○ All RCEs: Team Lead; CE; CARB ● Communication: <ul style="list-style-type: none"> ○ SIF RCEs: Final SIF Alert Communication required per SAFE-1004S; ○ Non-SIFs: Not Required
6: Perform Effectiveness Review (if applicable)	<ul style="list-style-type: none"> ● Effectiveness Review (EFFF) Report

4.2 RCE Completion Timeline

1. SEE GOV-6102S, "[Enterprise Cause Evaluation Standard](#)" for RCE completion timelines.

Cause Evaluation Procedure

4.3 RCE Phase 1: Safety Incident Immediate Response Management / CAP Assignment

NOTE

1. SEE GOV-6101P-08, "[Corrective Action Program Procedure](#)" for information on how CAP Issues are risk ranked, assigned an evaluation type, and assigned to a specific department and issue owner
2. SEE GOV-6102S, "[Enterprise Cause Evaluation Standard](#)" for definitions, roles and responsibilities of the different roles related to CAP.
3. FOR SIF-RCEs, SEE SAFE-1100S, "[Serious Injury and Fatality \(SIF\) Standard](#)" AND SAFE-1004S, "[Safety Incident Notification and Response Management Standard](#)" for information on how a SIF designation is determined and assigned.

1. The CE team must INCLUDE a Sponsor, Team Lead, LOB Subject Matter Expert(s), and a trained Cause Evaluator.
 - a. The Sponsor for SIF RCEs must be a Vice President
 - b. The Sponsor for Non-SIF RCEs must be a director or higher.
2. The Issue Owner or Sponsor must:
 - a. IDENTIFY a Team Lead
 - b. IDENTIFY LOB Subject Matter Expert(s)
 - (1) Include legal, safety, and risk and compliance representation as appropriate.
 - c. IDENTIFY a trained Cause Evaluator
 - (1) The best practice is to ENSURE that the selected Cause Evaluator is only supporting a single CE at a time.

NOTE

REFER to the [Cause Evaluator Qualification List](#) located on the PG&E [ECAP website](#) AND VERIFY the assigned cause evaluator has completed the appropriate training course(s).

3. WHEN identifying a trained Cause Evaluator

THEN ENSURE that the Cause Evaluator meets the training qualifications found in GOV-6102S, "Enterprise Cause Evaluation Standard."
 - a. ATTACH documented evidence to the CAP issue

Cause Evaluation Procedure

- b. PROVIDE a statement in the CAP Issue Description field to confirm verification of cause evaluator qualification.
4. Team Lead or Issue Owner must:
 - a. DOCUMENT the Sponsor, Team Lead, and Cause Evaluator names and LAN IDs in the “Partner” field of the CAP issue.
 - b. OPEN the CAP issue AND CONFIRM the “Complete Report” APPV action meets the start date and end date expectation for CCEs per GOV-6102S, [“Enterprise Cause Evaluation Standard”](#).
 - (1) ADJUST the start and end date expectations as necessary.
 5. Team Lead or Issue Owner must:
 - a. DOCUMENT the Sponsor, Team Lead, and Cause Evaluator names and LAN IDs in the “Partner” field of the CAP issue.
 - b. OPEN the CAP issue AND CONFIRM the “Complete Report” APPV action meets the start date and end date expectation for RCEs per GOV-6102S, [“Enterprise Cause Evaluation Standard”](#).
 - (1) ADJUST the start and end date expectations as necessary.

4.4 RCE Phase 2: Initiate Root Cause Evaluation

NOTE

USE of the RCE templates found on the [ECAP Cause Evaluation Website](#) is highly encouraged as it contains templates for all required report elements listed in Table 4. RCE Process.

1. USE the appropriate [SIF RCE](#) or [Non-SIF RCE](#) template found on the [ECAP Cause Evaluation Website](#) OR USE another CE Template which contains all the minimum requirements listed in Table 4. RCE Process.
2. For SIF RCEs, the CE Team must REVIEW SAFE-1100S, [“Serious Injury and Fatality \(SIF\) Standard”](#) AND SAFE-1004S, [“Safety Incident Notification and Response Management Standard”](#) to ENSURE the RCE complies with SIF specific document storage requirements.
3. Sponsor, Team Lead, and Cause Evaluator must DEVELOP an RCE Team Charter to document the scope of the RCE, the timeline and team members involved.
 - a. USE the [“RCE Team Charter Template”](#) found on the PG&E [ECAP Cause Evaluation website](#).

Cause Evaluation Procedure

4. CONDUCT a CE Kick-off meeting:
 - a. The Team Lead, Cause Evaluator or delegate must SCHEDULE AND LEAD the kick-off meeting.
 - b. All core members of the CE team, including contractor representatives if applicable, must ATTEND the CE kick-off meeting.
 - c. Team Lead (or delegate) must REVIEW the charter and draft schedule with the Sponsor and CE team members to gain agreement on deliverables, dates, and task ownership.
 - d. The CE Team must DEVELOP the Problem Statement for inclusion in the charter and the CE report draft.
 - e. The Sponsor, Team Lead, and Cause Evaluator must APPROVE AND ATTACH the charter to the CAP issue AND acknowledge commitment from the CE team members to complete the evaluation as described.
 - (1) Email approvals may be used to document approval.
 - (2) ATTACH email approvals to the Charter document.
5. For SIF RCEs, the Team Lead (or delegate) must USE the [“SIF Alert Initial Communication Template”](#) found on the [ECAP Cause Evaluation Website](#) to draft the Initial SIF Communication AND OBTAIN Sponsor and EH&S Safety Strategy & Prevention Lead approval.
 - a. WHEN the Initial SIF Communication is approved:
THEN the Sponsor (or delegate) must:
 - (1) DISTRIBUTE it to affected LOB(s).
 - (2) POST the Initial Communication in the Daily Digest.
 - (3) DISTRIBUTE it to Contractors, as appropriate, through ISNET.
 - (4) UPLOAD the approved initial SIF communication, email to LOB, and Daily Digest email to the CAP Issue.
6. The CE Team must EVALUATE the issue for Extent of Condition.
 - a. USE GOV-6102M Attachment 1, [“Extent of Condition Worksheet”](#) to PERFORM AND DOCUMENT the results of the Extent of Condition analysis.
 - (1) IF no additional exposure is identified in the LOB,

Cause Evaluation Procedure

THEN DOCUMENT the justification in the CE Report explaining why this is an isolated issue and no further action is required.

- (2) IF the Extent of Condition analysis identifies exposure in the LOB,

THEN DEVELOP AND IMPLEMENT actions to mitigate the risk or condition.

- (3) IF after the Extent of Condition analysis, the CE team determines there are other LOBs at risk due to similar conditions,

THEN INITIATE an Extent of Condition Assessment review by completing the [“Extent of Cause/Condition Assessment Template”](#) found on the [ECAP Cause Evaluation Website](#)

- (4) SCHEDULE a meeting with Extent of Condition Assessment Team AND SUBMIT the completed [“Extent of Cause/Condition Assessment Template”](#) before the scheduled meeting by emailing CauseEvaluationCenterOfExcellence@PGE.com.

- (5) The Extent of Condition Assessment Team must CONSULT with their LOB leadership and subject matter experts to determine if the same or similar exposure exists within their LOB.

- (6) IF a different LOB is determined to be at risk,

THEN the CE Team must INITIATE AND ASSIGN a separate CAP issue for each identified LOB(s).

- Title: INCLUDE “EOCon” as the first letters of the title (i.e. EOCon -111234567 <Issue Title>)

- (7) ADD the RCE CAP issue number in the “Reference Issue” field of new CAP(s)

4.5 RCE Phase 3: Data Gathering and Analysis

1. The CE Team must DETERMINE AND COLLECT all data to be reviewed.
 - a. IDENTIFY any person(s) to be interviewed.
 - b. SCHEDULE AND CONDUCT interviews.
 - c. ORGANIZE the facts to provide a clear understanding of the issue.
2. The Issue Owner, Team Lead or Cause Evaluator must IDENTIFY the analysis methods and tools to be used for the evaluation.

Cause Evaluation Procedure

- a. Analysis MUST include the use of Barrier Analysis and Human Factors (HFACS) analysis tools.
 - (1) USE GOV-6102M Attachment 10, "[Barrier Analysis Worksheet](#)" AND GOV-6102M Attachment 12, "[HFACS Worksheet](#)" when performing the analyses.
 - b. Additional analysis methods and tools described in GOV-6102M, "[Cause Evaluation Manual](#)" can also be used.
 - c. REFER to GOV-6102M, "[Cause Evaluation Manual](#)" for guidance on use of analysis tools.
3. The CE Team must:
- a. LIST all data sources and analysis methods used during the evaluation in the CE report.
 - b. REVIEW AND EVALUATE relevant Internal and External Operating Experience (OE) and associated Corrective Actions for at least the preceding three years.
 - (1) REFER to GOV-6102M, "[Cause Evaluation Manual](#)" for detailed examples associated with performing an Operating Experience review.
 - (2) DOCUMENT the OE review results in the CE report.
 - (3) INCLUDE any missed opportunities that could have precluded or mitigated the issue.
 - c. ANALYZE the information gathered AND SUMMARIZE the results in the CE report.
 - d. INCLUDE supporting documentation in the CE report Appendices section
OR
 - e. LIST them in the Attachments section of the CE report AND ATTACH them to the CAP Issue.

4.6 RCE Phase 4: Determine Causes and Corrective Actions

1. The CE Team must REVIEW all data to DETERMINE the Root Cause and any Contributing Cause(s).
 - a. IF unable to determine the Root Cause,
THEN determine the most likely cause of the issue.

Cause Evaluation Procedure

2. For each Root Cause and Contributing Cause, ASSIGN a North American Electric Reliability Corporation (NERC) Cause Code.
3. DOCUMENT the causes and assigned NERC Cause Codes in the CE report.
4. The CE team must EVALUATE the Extent of Cause.
 - a. USE GOV-6102M Attachment 6, "[Extent of Cause worksheet](#)" to DOCUMENT results of the Extent of Cause analysis.
 - b. IF no extent of Cause exposure is identified,

THEN DOCUMENT the justification in the CE Report explaining why no further action is required.
 - c. IF extent of cause identifies exposure in the LOB,

THEN DEVELOP and IMPLEMENT Corrective Actions.
 - (1) COMPLETE the "[Extent of Cause Assessment Form](#)" available on the [ECAP Cause Evaluation website](#) describing the Extent of Cause.
available on the ECAP website describing the Extent of Cause.
 - (2) SCHEDULE an Extent of Cause meeting with the Extent of Cause Assessment Team by emailing CauseEvaluationCenterOfExcellence@pge.com.
 - (3) SUBMIT the completed [Extent of Cause Assessment Form](#) at least 3 business days before the scheduled meeting by emailing CauseEvaluationCenterOfExcellence@pge.com. Submit the completed Extent of Cause Assessment Form [EOC Assessment Form](#) at least 3 business days before the scheduled Extent of Cause meeting by emailing CauseEvaluationCenterOfExcellence@pge.com.
 - d. The Extent of Cause Assessment Team must CONSULT their LOB leadership and subject matter experts to determine if the same or similar exposure exists in their LOB.
 - (1) IF Extent of Cause exposure is identified in other LOBs,

THEN INITIATE a new CAP issue for each identified LOB to conduct an independent Extent of Cause evaluation and mitigate exposure.
 - (2) Title: INCLUDE "EOCause" as the first letters of the title (i.e. EOCause -111234567 <Issue Title>)
 - e. ADD the RCE CAP issue number in the "Reference Issue" field of the new CAP issue(s).

Cause Evaluation Procedure

- f. SUMMARIZE the Extent of Cause analysis in the CE report.
5. For SIF RCEs, USE GOV-6102M Attachment 14, "[SIF Exposure Factors \(SEF\) and Prevention Measures](#)" to determine the SEF(s) and Prevention measure(s).
 - a. DOCUMENT the SEF(s) and Prevention Measure(s) in the CE Report and the CAP Issue.
6. For SIF RCEs, DETERMINE AND DOCUMENT the Enterprise [SIF Exposure Factors \(SEF\) and Prevention Measures](#) The Extent of Cause Assessment Team must CONSULT their LOB leadership and subject matter experts to determine if the same or similar exposure exists. in the CE report and in the CAP issue.
7. For Root Causes, DEVELOP Corrective Actions to Preclude Recurrence (CAPRs) that clearly addresses the Root Cause
8. For Contributing Causes, DEVELOP Corrective Actions to address the contributing cause(s).
9. At the discretion of the Issue Owner, Interim Actions may be implemented to prevent additional issues while longer term Corrective Actions are being implemented to address Root and/or Contributing Cause(s). At the discretion of the Issue Owner, Interim Actions may be implemented to prevent additional issues while longer term CAPRs or Corrective Actions are being implemented to address Root and/or Contributing Cause(s).
10. For all actions, the CE Team must:
 - a. APPLY the "SMART" (Specific, Measurable, Achievable, Reasonable, Timely) criteria when defining corrective actions.
 - b. IDENTIFY the individual(s) who will own the implementation of each action.
 - c. For contractor actions, IDENTIFY the PG&E individual(s) who will verify the implementation of actions by contractors.
 - d. Prior to assignment of CAPRs and CAs, Team Lead must OBTAIN each Actions Owner's concurrence on the action(s) to be taken, deliverables, due date(s), and due date justifications.
 - e. IF there are disagreements regarding assignment of actions,

THEN the Team Lead must ESCALATE to the Sponsor or Department Owner for resolution.
11. For CAPRs, Corrective and Interim Actions, SEE GOV-6102M, "[Cause Evaluation Manual](#)" AND Actions, CAs, USE the "Hierarchy of Controls" to determine the highest level of controls to eliminate or minimize the exposure.

Cause Evaluation Procedure

12. USE GOV-6102M Attachment 11, "[Cause to Corrective Action Matrix](#)" to document Corrective Actions in the CE Report.
13. DOCUMENT any Interim Actions.
 - a. For contractor actions, IDENTIFY the PG&E individual(s) who will verify the implementation of actions by contractors.
 - b. Prior to assignment of CAPRs and CAs, Team Lead must OBTAIN each Actions Owner's concurrence on the action(s) to be taken, deliverables, due date(s), and due date justifications.
 - c. At the discretion of the Issue Owner, Interim Actions may be implemented to prevent additional issues while longer term Corrective Actions are being implemented and must be DOCUMENTED in the CAP
14. DOCUMENT any Additional Findings in the CE report.
 - a. DESCRIBE the finding in the CE report.
 - b. DOCUMENT the LOB Issue Owner who can address the finding.
 - c. INITIATE a new CAP issue for each Additional Finding identified.
 - d. DOCUMENT the new CAP issue number(s) in the CE report.
15. DEVELOP an Effectiveness Review Plan (ERP).
 - a. SEE subsection 5, Effectiveness Review Plans (ERPs) and Effectiveness Reviews (EFFRs)

4.7 RCE Phase 5: Complete Cause Evaluation

1. Before presenting the CE Report to CARB:
 - a. It is recommended the Team Lead hold stakeholder meeting(s) to preview the report with department leadership.
 - b. Team Lead or delegate must COORDINATE review and integration of agreed to stakeholder recommendations into the draft CE report.
 - c. The Sponsor must GOV-6102S Attachment 2, "[RCE Review Sheet](#)" to evaluate the draft CE report and confirm it meets the expectations of CARB.
 - d. IF the CE report is determined to be acceptable,

Cause Evaluation Procedure

THEN the Sponsor, Team Lead, and Cause Evaluator must APPROVE the draft CE report AND ATTACH the approved report with the completed RCE review sheet to the CAP issue. THEN the Sponsor, Team Lead, and Cause Evaluator must APPROVE the CE report AND ATTACH the approved report with the completed RCE review sheet to the CAP issue.

- (1) Title: INCLUDE "CAP # Rev #, Report Type- FINAL"

EXAMPLE: "123456789 Rev.1, RCE Report- FINAL"

- e. Team Lead (or delegate) must MARK the "Complete CE Report" APPV action complete in the CAP issue.
- f. Team Lead must CONTACT the ECAP Director (or delegate) identified by ECAP Director to REQUEST a Quality Closure Review to be completed within 5 business days.

- (1) The ECAP Director must USE GOV-6102S Attachment 2, "[RCE Review Sheet](#)" to evaluate the CE report for content and quality.

- (2) IF the report is determined to be acceptable,

THEN the ECAP Director (or delegate) must MARK the "Quality Closure Review" action complete AND ATTACH the RCE review sheet to the CAP issue.

- (3) IF the report is determined NOT to be acceptable,

THEN the CE team must REVIEW the feedback AND INCORPORATE necessary changes to obtain ECAP Director's approval.

2. Leadership Review Meeting (SIF RCEs only)

- a. Sponsor and Team Lead must ATTEND the Leadership Review Meeting organized by the Chief Safety Officer to PRESENT the findings of the cause evaluation:

- Prepare presentation with key findings and corrective actions.

3. Corrective Action Review Board (CARB) Review

- a. CARB Review process is described in GOV-6102S Attachment 1, "[Corrective Action Review Board Charter](#)".

- b. When CARB review is required,

THEN the Team Lead (or delegate) must CONTACT the LOB CAP team to schedule a CARB review date.

Cause Evaluation Procedure

- c. The Sponsor and Team Lead are required to present the CE report at the CARB meeting.
 - (1) It is recommended the Cause Evaluator and relevant Subject Matter Experts attend to provide input if needed.
 - d. IF the CARB committee approves the CE report (Concur),
THEN the Team Lead/Issue Owner (or delegate) must COMPLETE the “Complete CARB Review” action in the CAP issue.
 - e. IF minor changes to the CE report are requested during CARB review (Concur with Comment),
THEN the Team Lead must coordinate implementation of changes AND OBTAIN concurrence that the changes are acceptable from the LOB CARB chairperson or designee.
 - (1) WHEN the requested changes are implemented,
THEN the Team Lead/Issue Owner (or delegate) must COMPLETE the “Complete CARB Review” action in the CAP issue.
 - f. IF during CARB review the decision was made that CARB Does not Concur with the CE report,
THEN the Team Lead must coordinate implementation of required changes and return to step 4.73 above.
4. CE Report Final Approval
- a. IF any changes are made to the CE report as a result of CARB review,
THEN the Sponsor, Team Lead, and Cause Evaluator must RE-APPROVE the CE report.
 - b. ATTACH the approved final CE report to the CAP issue.
 - (1) Title: INCLUDE “CAP# Rev.#, Report Type- FINAL”
 - EXAMPLE: “123456789 Rev.2, SIF RCE Report- FINAL”
 - (2) Physical signatures, digital signatures or emails may be used to document approvals.
5. LOB CAP team or Cause Evaluator must:
- a. ADJUST the CAP issue due date based on action entries.

Cause Evaluation Procedure

- b. ENTER the Causes, NERC Cause Codes, and actions in the CAP issue.
 - c. CONFIRM the CAP issue “Attributes” section contains all SIF Exposure Factors (SEF) and Prevention Measures listed in the CE report.
6. For SIF RCEs, the Team Lead (or delegate) must USE the “[SIF Alert Final Communication Template](#)” found on the [ECAP Cause Evaluation Website](#) to draft the Final SIF Communication.
 - a. PROVIDE the draft communication to the Sponsor and EH&S Safety Strategy & Prevention Lead for approval

THEN the Team Lead (or delegate) must DRAFT the Final SIF Communication AND PROVIDE it to the Sponsor and EH&S Safety Strategy & Prevention Lead for approval.

 - b. WHEN the Final SIF Communication is approved,
THEN the Sponsor must:
 - (1) DISTRIBUTE it to affected LOB(s).
 - (2) POST it in the Daily Digest.
 - (3) DISTRIBUTE it to Contractors, as appropriate, through ISNET.
 - (4) ATTACH the approved final SIF communication, evidence of email to LOB, and Daily Digest email to the CAP Issue.
7. Issue Owner must TRACK all actions to ensure completion by the agreed upon due date.
 - a. CAPR and CA due dates cannot be arbitrarily extended beyond the due date indicated in the approved final report.



Corrective Action due dates for SIF RCEs cannot be extended beyond the due date indicated in the approved final CE report without additional approval.

- b. For SIF RCEs, IF an agreed CAPR or CA due date needs to be extended,
THEN OBTAIN LOB relevant Vice President approval AND INCLUDE the following documentation in the Action Description field.
 - (1) Reason(s) the due date needs to be extended.
 - (2) Actions that will be taken to prevent the need for further extensions.

Cause Evaluation Procedure

- c. For Non-SIF RCEs, IF an agreed CAPR or CA due date needs to be extended,

THEN obtain Issue Owner and Sponsor approval AND INCLUDE the following documentation in the Action Description field.
 - (1) Reason(s) the due date needs to be extended.
 - (2) Actions that will be taken to prevent the need for further extensions.
 - d. IF a CARB approved action can no longer be implemented,

THEN RETURN to CARB with justification to amend the action AND OBTAIN CARB approval.
8. WHEN an action is completed,

THEN the Action Owner must:
 - a. DOCUMENT the action(s) taken in the Action Description field.
 - b. ENSURE that the documentation is detailed enough to provide evidence of completion AND INCLUDE:
 - A detailed closure statement of the actions taken to address the issue.
 - Date the action was completed (if available).
 - c. PROVIDE a reference to AND ATTACH any documents that detail the actions taken to the CAP issue, when applicable.
9. The Issue Owner must VERIFY each action has been completed per GOV-6101P-08, [“Corrective Action Program Procedure”](#).
 - a. IF issues or discrepancies are identified with the actions taken,

THEN the Issue Owner must:
 - (1) CONTACT the Action Owner(s) to discuss the issue(s) identified and how to correct them.
 - (2) CREATE a new action to address the issues, AND REFERENCE the original action number listed in the CE report.
 - (3) REPEAT Step 4.79 above once the issues have been resolved with the action(s).
10. WHEN all actions have been completed,

Cause Evaluation Procedure

THEN the Issue Owner can CLOSE the CAP issue.

5 Effectiveness Review Plans (ERPs) and Effectiveness Reviews (EFFRs)

5.1 An ERP is a plan developed during the CE process to verify that the intended or expected results were achieved after implementation of corrective actions.

1. The ERP is implemented during the EFFR, AND:
 - a. DETERMINES if the intended or expected results were achieved.
 - b. CONFIRMS that new problems or unintended consequences were not introduced by the implementation of actions.
2. ERPs are required for
 - a. SIF ACEs
 - b. ALL RCEs
3. Leadership, CARB, or the CE Team may require an ERP be developed for other CEs.

5.2 IF an ERP is required,

THEN DOCUMENT the ERP in the CE Report. THEN the CE Team must

1. USE GOV-6102M Attachment 4, "[Effectiveness Review Plan Worksheet](#)" to develop the ERP AND DOCUMENT the ERP in the CE Report.
2. ENSURE that the ERP:
 - a. SPECIFIES success criteria.
 - b. ESTABLISHES methods that will be used to verify success criteria.
 - c. DETERMINES when to start the Effectiveness Review (EFFR).
 - Typically, 6-months after implementation of the last corrective action
 - d. PROVIDES justification for the date to start Effectiveness Review (EFFR).
 - e. IDENTIFIES AND OBTAINS concurrence on the person who will be responsible for performing the effectiveness review and own the EFFR CAP issue.
 - f. DOCUMENTS who is responsible for performing the effectiveness review and owns the EFFR CAP issue in the CE Report.
 - g. DETERMINES when the EFFR CAP issue will be due.

Cause Evaluation Procedure

- ALLOWS enough time for EFFR execution to gather and analyze data, complete the EFFR report, present the report to CARB, and complete the CAP issue.
3. The CE Team must INITIATE a new CAP issue to track execution of the ERP.
 - a. Title: INCLUDE “CAP #, EFFR, CE Title”
 - Example: 123456789, EFFR, Oakland Ladder Fall (40 characters max)
 - b. RECORD the EFFR CAP issue number in the CE report Effectiveness Review table.
 - c. ENTER the ERP content from the CE report into the new EFFR CAP issue description field.
 - d. DOCUMENT the original CE CAP issue number in the EFFR CAP issue “Ref. Issue” field OR the CAP issue description field.
 - e. DOCUMENT the EFFR CAP issue number in the original CE CAP issue “Ref. Issue” field OR CAP issue description field.

5.3 Performing the EFFR

NOTE

USE of the “[Effectiveness Review Report template](#)” found on the [ECAP Cause Evaluation Website](#) is highly encouraged.

1. The EFFR CAP Issue Owner must:
 - a. USE the “[Effectiveness Review Report template](#)” found on the [ECAP Cause Evaluation Website](#) OR USE another EFFR report template which contains the following elements:
 - (1) Summary of Cause Evaluation
 - (2) Effectiveness Review Reflection
 - (3) Effectiveness Review Actions
 - (4) Effectiveness Review Conclusion
 - b. REVIEW the Method, Attributes, Success Criteria, and Timeliness in the ERP for all actions that address the Root Cause or Cause(s), as applicable.
2. The assigned Action Owners must PERFORM the actions prescribed in the ERP.

Cause Evaluation Procedure

5.4 WHEN the actions in the ERP are completed,

THEN the Issue Owner must DETERMINE if the Success Criteria documented in the ERP was met.

1. IF Success Criteria Results cannot be determined,

THEN the Issue Owner must:

- a. DOCUMENT the results in the EFR report as “Indeterminate”.
- b. ENSURE there are controls in place to continue work safely OR DEVELOP mitigating actions.
- c. DEVELOP a planned course of action, whether to collect additional data or update the criteria for effectiveness, that addresses the reasons the results were indeterminate AND UPDATE the ERP.
- d. CONTACT the LOB CAP team to schedule a CARB review of the EFR outcome and revised ERP.
- e. WHEN CARB approves the revised ERP,
THEN DOCUMENT the revised ERP in the original EFR CAP issue.
- f. ADDRESS AND CLOSE any associated actions.
- g. ATTACH the EFR report with the indeterminate results to the original EFR CAP issue.
- h. After the established timelines in the updated ERP, RETURN to step 5.3 above.

2. IF Success Criteria is NOT met,

THEN the Issue Owner must:

- a. DOCUMENT the results in the EFR report as “Success Criteria was Not Met.”
- b. ENSURE there are controls in place to continue work safely OR develop mitigating actions.
- c. ATTACH the EFR Report with the “Not Met” results to the original EFR CAP issue.
- d. DEVELOP a revised ERP.
- e. CONTACT the LOB CAP team to schedule a CARB review date.

Cause Evaluation Procedure

- f. RETURN to CARB for review of the failed EFFR and obtain approval for the revised ERP.
 - g. Upon CARB approval of revised ERP:
 - (1) CREATE a new EFFR CAP to address the failed EFFR.
 - (2) Title: INCLUDE "CAP #, EFFR-# (2, 3, etc.), CE Title."
 - Example: 123456789, EFFR-2, Oakland Ladder Fall (40 characters max)
 - (3) DOCUMENT the revised ERP in the new EFFR CAP issue.
 - (4) REFERENCE the original EFFR CAP issue number in the new CAP issue.
 - (5) REFERENCE the new EFFR CAP issue number in the original EFFR CAP issue description field.
 - (6) ASSIGN due date of the new EFFR CAP for approximately 6-months after completion of the last Corrective Action(s) that address the failed EFFR. ASSIGN due date of the new EFFR CAP issue for approximately 6-months after completion of the last Corrective Action(s) that address the failed EFFR.
 - (7) CLOSE the original EFFR CAP issue.
 - h. After the established timeline in the ERP is reached, RETURN to step 5.3 above.
3. IF Success Criteria is met,
THEN the Issue Owner must:
- a. DOCUMENT the results in the EFFR report as "Success Criteria was Met."
 - b. APPROVE the EFFR report.
 - c. CONTACT the LOB CAP team to schedule a CARB review date.
 - d. At the CARB meeting, PRESENT the EFFR Report.
 - (1) Department Owner may attend if needed.
 - (2) Individuals who gathered and analyzed data may attend if needed.

Cause Evaluation Procedure

- (3) It is recommended relevant Subject Matter Experts attend to provide input if needed.
4. IF CARB does not approve the EFFR Report,
THEN RESOLVE their concerns by performing activities or implementing changes requested AND RETURN to step 5.43 above.
5. IF CARB approves the EFFR report,
THEN:
 - a. The LOB CAP team must COMPLETE the “Complete CARB Review” action in the CAP issue.
 - b. The Issue Owner must UPLOAD a copy of the approved EFFR report to the EFFR CAP issue AND CLOSE the EFFR CAP issue.

END of Instructions

DEFINITIONS

NA

IMPLEMENTATION RESPONSIBILITIES

The Director, Enterprise Corrective Action Program, is responsible for ensuring this procedure is available for all LOB CAP Team Members, and CAP users.

EACH LOB CAP LEAD IS RESPONSIBLE FOR REINFORCING COMPLIANCE WITH THIS PROCEDURE.GOVERNING DOCUMENT

GOV-03, [“Corrective Action Program Policy”](#)

GOV-6102S, [“Enterprise Cause Evaluation Standard”](#)

GOV-6101S, [“Enterprise Corrective Action Program Standard”](#)

COMPLIANCE REQUIREMENT / REGULATORY COMMITMENT

Records and Information Management:

Information or records generated by this procedure must be managed in accordance with the Enterprise Records and Information (ERIM) program Policy, Standards and Enterprise Records Retention Schedule (ERRS). REFER to [GOV-7101S, “Enterprise Records and Information Management Standard”](#) and related standards. Management of records includes, but is not limited to:

Cause Evaluation Procedure

- Integrity
- Storage
- Retention and Disposition
- Classification and Protection

REFERENCE DOCUMENTS

Developmental References:

GOV-6102S, "[Enterprise Cause Evaluation Standard](#)"

GOV-6101S, "[Enterprise Corrective Action Program Standard](#)"

GOV-6101P-08, "[Corrective Action Program Procedure](#)"

GOV-6102M, "[Cause Evaluation Manual](#)"

Supplemental References:

SAFE-1100S, "[Serious Injury and Fatality \(SIF\) Standard](#)" SAFE-1100S, "[Safety SIF Standard](#)"

SAFE-1004S, "[Safety Incident Notification and Response Management Standard](#)"

APPENDICES

NA

ATTACHMENTS

NA

DOCUMENT REVISION

NA

DOCUMENT APPROVER

██████████, Director, Enterprise Corrective Action Program

DOCUMENT OWNER

██████████ Cause Evaluation Manager

DOCUMENT CONTACT

██████████, Cause Evaluation Manager

Cause Evaluation Procedure

REVISION NOTES

Where?	What Changed?
Target Audience	Note recommending Cause Evaluators are assigned one Cause Evaluation at a time
Section 1	WGE documented as a separate process with process steps
NA	Perform a CE Section has been integrated into each CE process
NA	CE Downgrades as a section has been removed and integrated into each CE process
Sections 3, 416, 29	ACE and RCE Processes documented in greater detail
NA	Sections covering Process Verification and Records have been included in the various sections of the process aligned to each CE Type
NA	Appendix A has been removed with the contents spread out over the process steps of each CE type

Attachment

X-8 and X-9_GOV-6102S_rev2_Redacted

Enterprise Cause Evaluation Standard

SUMMARY

This standard describes Pacific Gas and Electric Company’s (PG&E’s) Cause Evaluation process and establishes an enterprise wide framework with common terminology to identify, perform, document, track and communicate cause evaluations for work related Serious Safety Incidents (SSIs) or other issues to safety, quality, and performance.

Timely problem identification, resolution, and prevention are necessary to ensure operations are run at the highest level of safety thereby minimizing risk to employees, contractors and members of the public.

The development and maintenance of the nuclear generation cause evaluation process is governed by program guidance documents that specifically address Nuclear Regulatory Commission and nuclear insurer requirements. See Inter-Departmental Administrative Procedures (IDAP) OM7.ID4, “Cause Evaluations”, and “OM7.ID3, “Root Cause Evaluation” for specific guidance.

TARGET AUDIENCE

PG&E Officers, directors, and their designees, cause evaluators, and issue owners, all of whom are responsible for integrating the Cause Evaluation standard into their business functions and work processes.

TABLE OF CONTENTS

SUBSECTION	TITLE	PAGE
1	Objective	2
2	Applicability	2
3	Program Overview	3
4	Roles and Responsibilities	5
	Appendix A, RCE Process Timeline.....	17
	Appendix B, RCE Communications Protocol.....	18

Enterprise Cause Evaluation Standard

REQUIREMENTS

1 Objective

1.1 The objective of this standard is to establish a framework governing the timing, delivery, and documentation of Cause Evaluations (CEs) relating to SSIs or other cause evaluations for work related safety, quality, and performance issues.

1. A Cause Evaluation (CE) is a structured process used to determine, document and communicate the cause or reason how and/or why an incident, issue or error occurred.

NOTE

CEs are necessary to identify the cause of the incident, issue or error, to prevent or minimize the probability of recurrence and to apply continuous improvement.

2. CEs use various analysis methods and tools (i.e., Human Factors Analysis and Classification System, Barrier Analysis, Factor Tree Analysis) to identify the underlying causes that led to an incident.
3. Each of the analysis methods and tools may be used at management's discretion or at the California Public Utilities Commission (CPUC) or CPUC's Safety and Enforcement Division's (SED) direction.
4. PG&E "Cause Evaluation Manual", GOV-6102M must be referred to for guidance completing each type of cause evaluations.

1.2 Management must determine what type of CE is appropriate based on the significance and frequency of incident.

1. Types of CEs include; Root Cause Evaluation (RCE), Apparent Cause Evaluation (ACE), and Common Cause Evaluation (CCE).

NOTE

Nothing in this Enterprise Cause Evaluation Standard precludes the CPUC or its SED from directing PG&E to undertake a RCE or other cause evaluation for any incidents.

2 Applicability

2.1 This standard is applicable to SSIs determined to be life threatening, life-altering, or fatal to the public, employees or contractors resulting from work on or caused by a failure or malfunction of PG&E facilities.

1. RCE is required for all Serious Injury or Fatality (SIF) Actuals
2. ACE is required for all SIF Potentials

Enterprise Cause Evaluation Standard

- 2.2 For other issues to safety, quality, and performance:
1. Management must use a systematic approach to evaluate whether to perform an RCE or other CE method, considering the potential for the incident to have been more serious and the likelihood of recurrence.

3 Program Overview

- 3.1 The team performing the RCE should complete the evaluation in 45 business days from the date of the incident.
1. The CE Sponsor may determine that additional time is necessary. The CE process will follow the standard Process Flow Timeline as outlined in [Appendix A, "RCE Process Timeline."](#)
- 3.2 Corrective Action Review Board (CARB) review and Sponsor approval to occur within 60 business days from the date of the incident.

NOTE

In some cases, it may be necessary to adjust timelines to incorporate findings from an agency with authority to investigate the incident (e.g., Occupational Safety and Health Administration, National Transportation Safety Board, California Highway Patrol) into the RCE.

- 3.3 The RCE process identifies corrective actions to preclude recurrence (CAPR) that resolve the problem from occurring because of a same or similar root cause/failure mechanism.
- 3.4 The CE Lead should ensure the cause evaluation is completed and approved within 30 business days from the planned start date assignment of the Complete ACE or CCE Report action.
1. The Department Owner, in the organization where the incident took place, may determine that additional time is necessary to complete the ACE or CCE report.
- 3.5 Effectiveness Reviews verify that the intended or expected results were achieved after implementation of corrective actions and confirm that new problems or unintended consequences were not introduced by implementation of the actions.
1. Effectiveness reviews are performed after actions have been in place for a specified period of time.
 2. Each RCE and all SIF Actual and Potential CEs must include an Effectiveness Review Plan.

Enterprise Cause Evaluation Standard

- 3.6 PG&E's Cause Evaluation training program will ensure employees responsible for conducting RCEs and SIF Actual and Potential CEs must complete core cause evaluation training CORP-6010WBT, "Introduction to Cause Evaluations" and CORP-6011, "ECAP Cause Evaluation Training."
1. Each LOB may implement additional focused training specific to the LOB's technical procedures.
 2. Diablo Canyon Power Plant (DCPP) employee training and qualification for performing cause evaluations in Nuclear Generation is equivalent and acceptable training for employees to perform RCEs and cause evaluations for actual or potential serious injury or fatality (SIF actual and SIF potential).

NOTE

Completion of ECAP-01, ECAP-02 and ECAP-03 legacy training are acceptable core cause evaluation training for employees performing RCEs and all SIF Actual and Potential CEs.

- 3.7 Enterprise Cause Evaluation Process Owner will maintain a Qualified Cause Evaluators list and post on the Enterprise Corrective Action Program (ECAP) website.
- 3.8 RCEs required by this standard must follow the Corporate Safety and Health communication protocol approved by the LOB Lead.
1. The protocol establishes the types of communication, the purpose and timing, the accountable author(s), and the intended audience for the communications as generally outlined in [Appendix B, "RCE Communications Protocol."](#)
- 3.9 The Corrective Action Review Board (CARB) review all RCEs, SIF Potential CEs, Effectiveness Reviews for all RCEs and SIF Potential CEs and any CE the LOB selects to include for accuracy, completeness and alignment of the problem, causes and corrective actions. This oversight review includes corrective action quality assessment including CAPRs.
1. CARB has final decisions for the reports reviewed.
 - a. CARB must approve any content changes on products reviewed to improve understanding of the issue, and to facilitate gaining consensus about the quality of the product reviewed.
 - b. CARB must approve any reports reviewed due dates changes and implementation of CAPRs.
 2. For more guidance on CARB, REFER to Attachment 1, "Corrective Action Review Board (CARB) Charter.

Enterprise Cause Evaluation Standard

4 Roles and Responsibilities

4.1 Enterprise CE Process Owner

- Reports program health to executive sponsor.
- Ensures periodic assessments of LOB CEs.
- Promotes CE continuous improvement through benchmarking, assessments, and implementation of industry best practices.
- Ensures the CE program, including support systems and infrastructure, is developed and maintained.
- Provides final approval for recommended CGC change requests to enterprise CE guidance documents and technology change requests.
- Working with the CGC and LOB CAP process owners, develops training and communications to ensure employees understand CE fundamentals.
- Chairs the Cross Functional CE Review Committee.

4.2 Line of Business (LOB) Owner

1. Owner in the organization where the incident took place responsible for conducting a cause evaluation and providing overall leadership to resolve the problem.

4.3 RCE Sponsor

1. RCE Sponsor (Officer for SSI), otherwise Director or higher
2. Assign an RCE Team Lead
 - a. LOB Issue Owner (Supervisor or higher) in the organization where the incident took place responsible for conducting a cause evaluation and providing overall leadership to resolve the problem.
3. Ensures the RCE Team is staffed appropriately
4. Approves all RCE documents within 60 business days from the date of the incident.

NOTE

Safety and Health Officer or another LOB Officer may approve RCE documents if LOB Officer sponsoring an RCE for SSI is not available.

Enterprise Cause Evaluation Standard

4.4 RCE Team Lead

1. Assigned by the RCE Sponsor.
 - a. LOB Issue Owner (Supervisor or higher) in the organization where the incident took place.
2. Manage day-to-day activities associated with the RCE issue.
3. Establishes the scope of the evaluation.
4. Assembles the RCE Team.
5. Consults with LOB CAP Process Owner to partner with a qualified RCE Cause Evaluator to perform the RCE
 - a. IF RCE is for a SIF Actual incident:

THEN CONTACT Corporate Safety & Health to provide subject matter expertise and lead the cause evaluation analysis PER SAFE-1100S, "SIF Program Standard."
6. Verifies assigned cause evaluator on RCE team have completed core cause evaluation training PER Step 3.6
7. Ensures the RCE evaluation is completed in 45 business days from the date of incident and communication protocol is adhered to.
8. Obtains with appropriate organization or individuals' concurrence on corrective or preventive action(s) to be taken and due date(s).
9. Verifies the corrective actions are assigned and completed.
10. Verifies new CAP for the Effectiveness Review Plan has been submitted and cross referenced in RCE CAP issue.
11. Ensures RCE report is signed by RCE Sponsor after LOB CARB presentation.
12. Oversees the RCE Effectiveness Review Plan confirming effectiveness review measures were met, and the effectiveness review is presented at LOB CARB.
13. Provides expertise and initiates actions to address issue.

4.5 RCE Team

1. Gathers incident information, analyzes the facts and evidence, conducts the cause evaluation, constructing corrective actions.

Enterprise Cause Evaluation Standard

2. Completes the "Training Needs Analysis" and submits to the PG&E Academy to address a potential training cause or solution to a CAP Issue PER HR-7111P-04, "Training Needs Analysis Procedure."
3. Ensures the incident is evaluated for potential cross-cutting company issues that should be referred to the Cross Functional CE Review Committee for further review.

NOTE

The team includes: RCE Lead, LOB SMEs, a qualified cause evaluator, legal, safety, risk and compliance representation, as appropriate.

4.6 CE Lead

1. LOB Issue Owner (Supervisor or higher) in the organization where the incident took place.
2. Manage day-to-day activities associated with the CE issue
3. Consults with LOB CAP Process Owner to partner with a Cause Evaluator to perform the CE to determine causes and corrective or preventive actions.
4. To perform a SIF Potential ACE the Cause Evaluator must complete core cause evaluation training PER Step 3.6 (required)
5. To perform other CEs the Cause Evaluator should complete core cause evaluation training PER Step 3.6 (recommended)
6. Obtains with appropriate organization or individuals' concurrence on corrective or preventive action(s) to be taken and due date(s).
7. Ensures the standard process timeline and communication protocol is adhered to
8. Provides expertise and initiates actions to address issue
9. IF CE is for a SIF Potential incident:

THEN CONTACT Corporate Safety & Health to provide subject matter expertise for CE guidance on CE PER SAFE-1100S, "SIF Program Standard."
10. Completes the "Training Needs Analysis" and submits to the PG&E Academy to address a potential training cause or solution to a CAP Issue PER HR-7111P-04, "Training Needs Analysis Procedure."
11. IF performing CE for a SIF Potential incident:

THEN ensures new CAP issue for the Effectiveness Review Plan is submitted and cross reference in CE CAP issue prior to CE presented to LOB CARB.

Enterprise Cause Evaluation Standard

12. Oversees SIF Potential CE Effectiveness Review Plans confirming effectiveness review measures were met, and the effectiveness review is presented at LOB CARB. |

13. Approves all CE documents |

4.7 Cause Evaluator |

1. Performs CEs |

2. To perform an RCE and SIF Actual and Potential CEs must complete core cause evaluation training PER step 3.6 (required) |

3. To perform all other CEs should complete core cause evaluation training PER Step 3.6. (recommended) |

4. Gather incident information, analyzing the facts and evidence, conducting the cause evaluation, and provide guidance constructing corrective actions

5. Ensures adherence to the CE process

6. Acts as the CE process subject matter expert

7. Ensures all post CE approval requirements are recorded in the CAP issue

- Approved CE report in Adobe (*.pdf) format.
- Complete the "APPV" action
- Corrective action(s)
- North American Electric Reliability Corporation (NERC) Cause Codes
- New CAP Issue to track the Effectiveness Review Plan, if applicable
- Effectiveness Review Plan CAP issue number in the CE CAP issue reference field, if applicable

Note: If cause evaluation has to go to CARB, upload revised report, NERC cause codes, causes and Corrective Actions after CARB Review.

4.8 Cross Functional CE Review Committee

1. Validates compliance with this standard and identifying opportunities for continued improvement

2. Committee must include at minimum; Director or above representation from each LOB, Enterprise Corrective Action Program (ECAP), Safety, Risk, and Compliance representatives.

Enterprise Cause Evaluation Standard

3. Meets quarterly or as needed to perform their functions
4. Oversees implementation of and compliance with GOV-6102S, "Enterprise Cause Evaluation Standard."

5 Records

- 5.1 CAP issues and associated records entered in CAP must be retained for 10 years from date of issue closure to ensure compliance with associated retention periods defined in Enterprise Records Retention Schedule (ERRS).
 1. CE CAP issues associated records include the following when used:
 - Root Cause Evaluation Report
 - Apparent Cause Evaluation Report
 - Common Cause Evaluation Report
 - Effectiveness Review for Cause Evaluations
 - Initial Incident Report
 - RCE Communications Protocol Presentation of Findings and Corrective Actions

END of Requirements

DEFINITIONS

Cause: Most likely cause of a condition based on available evidence and facts that explains why an event or condition occurred.

Cause Evaluation (CE): A structured process used to determine, document and communicate the cause or reason how and/or why an incident, issue or error occurred.

Apparent Cause Evaluation (ACE): An evaluation based on data and information pertinent to the evaluation that provides reasonable assurance that the cause of a problem is determined and will be corrected; used when management determines a formal but less rigorous cause determination is necessary

Corrective Action Review Board (CARB): A senior level management board that provides oversight and steering for the implementation of the Corrective Action Program.

Common Cause Evaluation (CCE): An analysis methodology that can be used to identify common underlying elements between different, unique, but similar events or issues. The underlying elements may be anything from a common failure mode to a common cause that may or may not require further investigations.

Enterprise Cause Evaluation Standard

Contributing Cause: The event or condition not directly responsible for the problem, but whose existence complicated the problem or made the consequences more severe than if only the root cause existed.

Corrective Action: (1) A solution meant to reduce or eliminate an identified problem, including any action taken to resolve a finding or issue by implementing changes or controls to preclude recurrence. (2) Restores an unacceptable or adverse condition to an acceptable condition or capability.

Corrective Action to Preclude Recurrence (CAPR): An action taken to preclude an issue from occurring again (or minimize its likelihood) as a result of the same failure mechanism.

Effectiveness Review: A review criteria to determine that the intended or expected results were achieved after implementation of corrective actions and confirm that new problems or unintended consequences were not introduced by implementation of the actions.

Effectiveness Review Plan: A plan created developed during the CE process to verify that the intended or expected results were achieved after implementation of corrective actions. The plan includes the following: methods used to verify the actions met the desired outcome, attributes to be monitored and evaluated, success criteria, and expected timeline to perform the effectiveness review.

Extent of Cause: The extent to which the cause of an identified problem has impacted, or has the potential to impact, other plant equipment, processes, or human performance. The extent of cause review is completed after all causes have been determined.

Extent of Condition: The extent to which the actual condition exists, or has the potential to exist, with other equipment, processes or human performance. The extent of condition evaluation is completed at the "front end" of the process, preferably after the problem is identified.

Human Factors Analysis and Classification System (HFACS): A human error framework designed to systematically examine underlying human causal factors and to improve accident investigations focused on four levels of failure: 1) Unsafe Acts, 2) Preconditions for Unsafe Acts, 3) Unsafe Supervision, and 4) Organizational Influences.

Issue: An unwanted or undesired condition adverse to safety, quality, or performance.

Incident: An unplanned sequence of events with the potential for undesirable consequences.

Life-Threatening Injury: An acute injury that required immediate life-preserving rescue action, and if not applied immediately would likely have resulted in the death of that person.

Life-Altering Injury: An acute injury that resulted in a permanent and significant loss of a major body part or organ function that permanently changes or disables that person's normal life activity.

Enterprise Cause Evaluation Standard

Root Cause: (1) A factor that caused a nonconformance and should be permanently eliminated through process improvement (2) The underlying event, condition, or phenomena that, if corrected would eliminate the probability of the event recurring.

Root Cause Evaluation (RCE): (sometimes referred to a Root Cause Analysis [RCA]). A formal and rigorous investigation that uses industry-accepted analysis methods to determine the root cause(s) of a problem. The RCE identifies required corrective actions that prevent or reduce the likelihood of a recurrence of the problem for the same or similar root cause(s).

Serious Safety Incidents (SSI): An incident resulting in a Life-Threatening, Life-Altering or fatality injury to the public, employees or contractors resulting from PG&E related work or caused by a failure or malfunction of PG&E facilities. This is consistent with the definition of SIF.

IMPLEMENTATION RESPONSIBILITIES

Each officer and director are responsible for implementing the Enterprise Cause Evaluation Standard within their organization. Directors, managers, and supervisors are responsible for communicating the standard to all employees and ensuring that their employees understand and properly implement the requirements of this standard.

Enterprise CAP conducts, at a minimum, quarterly verifications for the following cause evaluation process requirements in accordance with this standard

- Employees responsible for conducting RCEs, SIF Actual and SIF Potential CEs completed core cause evaluation training.
- All completed RCE reports were approved
- Effectiveness Review Plan CAP is initiated for all RCEs, SIF Actuals and SIF potentials and the Effectiveness Review Plan CAP number is recorded in the original CAP description.

Internal Audit (IA) conducts periodic reviews of the investigation process in accordance with the approved annual IA schedule.

GOVERNING DOCUMENT

[GOV-03, "Corrective Action Program Policy"](#)

COMPLIANCE REQUIREMENT / REGULATORY COMMITMENT

Kern OII Decision Approving Settlement Agreement, Decision 15-07-014 July 23, 2015

REFERENCE DOCUMENTS

Developmental References:

NA

Enterprise Cause Evaluation Standard

Supplemental References:

- GOV-6101S, "Enterprise Corrective Action Program Standard"
- GOV-6102M, "Cause Evaluation Manual"
- SAFE-1004S, "Safety Incident Response Management Standard"
- SAFE-1100S, "Serious Injury and Fatality (SIF) Program Standard"
- SAFE-1100M, "SIF Response and Cause Evaluation Manual"
- HR-7111P-04, "Training Needs Analysis Procedure"
- GOV-7101S, "Records Management Standard"

APPENDICES

- [Appendix A. RCE Process Timeline](#)
- [Appendix B. "RCE Communications Protocol"](#)

ATTACHMENTS

- Attachment 1, "CARB Charter"
- Attachment 2, "RCE Review Sheet"
- Attachment 3, "CE Review Sheet"

DOCUMENT APPROVER

██████████, Dir, Enterprise Corrective Action Pgm

DOCUMENT OWNER

██████████, ECAP Specialist, Expert - Cause Evaluation

DOCUMENT CONTACT

██████████, ECAP Specialist, Expert - Cause Evaluation

REVISION NOTES

Where?	What Changed?
	Revision of standard to address Internal Audit Report 19-036 Audit of Employee Safety - Cause Evaluation Program findings resulting in minor changes in technical content modifying steps to improve understanding and efficiency of roles and responsibilities for managing the cause evaluation process requirements, e.g., responsibilities of organizations, job functions, and any related hand-offs.

Enterprise Cause Evaluation Standard

Summary	Added DCPD disclaimer
Objective Subsection	<p>Step 1.1.2: Changed “Failure” to “Barrier” and “Process Hazard” to “Factor Tree” as examples for enterprise analysis tool methodologies</p> <p>Step 1.1.4 Added GOV-6102M</p>
Program Overview Subsection	<p>Step 3.4: Changed “in 30 business days from the date of the incident” to “within 30 business days from the planned start date of assignment of the Complete ACE or CCE Report action”</p> <p>Step 3.6:</p> <ul style="list-style-type: none"> • Added SIF Actual and Potential CEs • Added CORP-6010WBT, Introduction to Cause Evaluations” and CORP-6011, “ECAP Cause Evaluation Training” • Added NOTE, “Completion of ECAP-01, ECAP-02 and ECAP-03 legacy training are acceptable core cause evaluation training for employees performing RCEs and all SIF Actual and Potential CEs.” <p>Step 3.7: Added “Enterprise Cause Evaluation Process Owner will create and maintain a Qualified Cause Evaluators list and post on the enterprise Corrective Action Program (CAP) website”</p> <p>Step 3.9.1 Added CARB has final decisions for the products reviewed</p> <ul style="list-style-type: none"> • 3.9.1.a CARB must approve any content changes on products reviewed to improve understanding of the issue, and to facilitate gaining consensus about the quality of the product reviewed. • 3.9.1.b: CARB must approve any product reviewed due dates changes and implementation of CAPRs.
Roles and Responsibilities Subsection	<p>Enterprise CE Process Owner</p> <p>Step 4.1: Added Enterprise CE Process Owner role and associated responsibilities</p> <p>Line of Business (LOB) Owner</p> <p>Step 4.2.1: Changed “Owner of the organization where the safety incident took place” to “Owner in the organization where the incident</p>

Enterprise Cause Evaluation Standard

	<p>took place responsible for conducting a cause evaluation and providing overall leadership to resolve the problem.”</p> <p>RCE Sponsor</p> <p>Step 4.3.2.a: Added “LOB Issue Owner (Supervisor or higher) in the organization where the incident took place responsible for conducting a cause evaluation and providing overall leadership to resolve the problem.”</p> <p>Step 4.3.4:</p> <ul style="list-style-type: none"> • Added “within 45 business days of date of the incident” • Added NOTE, Safety and Health Officer or another LOB Officer may approve RCE documents if LOB Officer sponsoring an RCE for SSI is not available.” <p>RCE Team Lead</p> <p>Step 4.4.1.a: Added, “LOB Issue Owner (Supervisor or higher) in the organization where the incident took place.”</p> <p>Step 4.4.6 Added, “Verifies assigned cause evaluator on RCE team have completed core cause evaluation training PER Step 3.6.”</p> <p>Step 4.4.9: Added, “Verifies new CAP for the Effectiveness Review Plan has been submitted and cross referenced in RCE CAP issue.”</p> <p>Step 4.4.10: Added, “Ensures RCE report is signed by RCE Sponsor after LOB CARB presentation.”</p> <p>Step 4.4.11 Changed, “Oversees the Effectiveness Review” to “Oversees the RCE Effectiveness Review Plan confirming effectiveness review measures were met, and the effectiveness review is presented at LOB CARB.”</p> <p>CE Lead</p> <p>Step 4.6.1: Added, “in the organization where the incident took place”</p> <p>Step 4.6.3: Added, “Consults with LOB CAP Process Owner to partner with a Cause Evaluator to perform the CE to determine causes and corrective or preventive actions.”</p>
--	---

Enterprise Cause Evaluation Standard

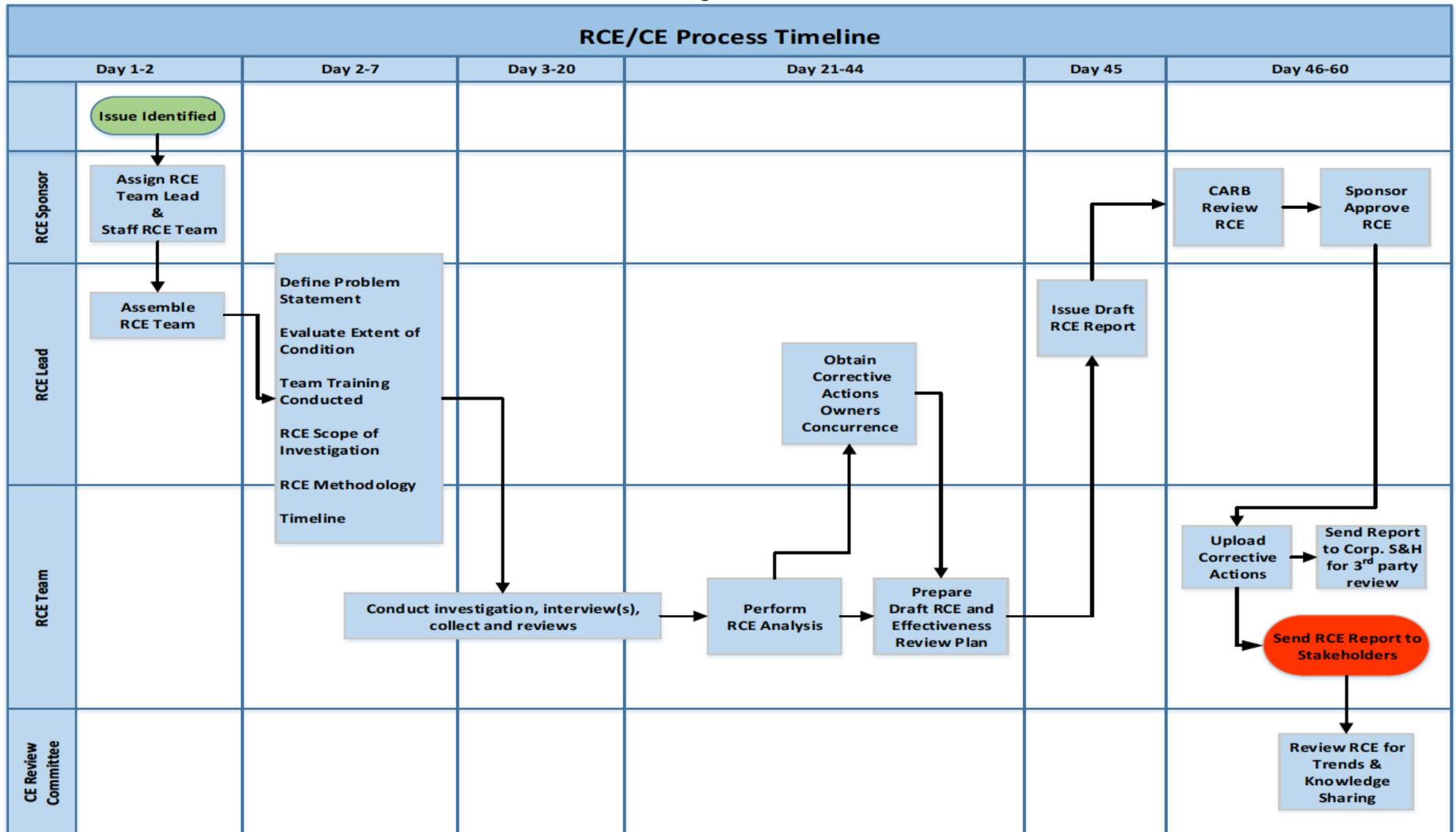
	<p>Step 4.6.4: Added, "To conduct a SIF Potential CE must complete core cause evaluation training must complete core cause evaluation training PER Step 3.6 (required)</p> <p>Step 4.6.5: Complete CORP-6010WBT, Introduction to Cause Evaluations (recommendation)" to "perform other CEs should complete core cause evaluation training PER Step 3.6 (recommended)."</p> <p>Step 4.6.6: Changed, "Facilitate corrective or preventive actions with appropriate organizations or individuals" to "Obtains with appropriate organization or individuals' concurrence on corrective or preventive action(s) to be taken and due date(s)."</p> <p>Step 4.6.9: Added "IF performing CE is for SIF Potential Incident: THEN ensures new CAP issue for the Effectiveness Review Plan is submitted and cross reference in CE CAP issue"</p> <p>Step 4.6.12: Added "Oversees SIF Potential CE Effectiveness Review Plans confirming effectiveness review measures were met, and the effectiveness review is presented at LOB CARB."</p> <p>Cause Evaluator</p> <p>Step 4.7.1: Changed "Conducts" to "Performs"</p> <p>Step 4.7.2: Changed "To conduct a RCE must complete core cause evaluation training ECAP-01, ECAP-02 and ECAP-03" to "Conduct an RCE and SIF Actual and Potential CEs must complete core cause evaluation training PER step 3.6"</p> <p>Step 4.7.3: Changed "To conduct a CE or CCE should complete core cause evaluation training ECAP-01, ECAP-02 and ECAP-03 to "Conduct all other CEs should complete core cause evaluation training PER step 3.6."</p> <p>Step 4.7.7: Added step to ensures all post CE approval requirements are recorded in the CAP issue Corrective action(s) , North American Electric Reliability Corporation (NERC) Cause Codes, New CAP Issue to track the Effectiveness Review Plan, if applicable, Effectiveness Review Plan CAP issue number in the CE CAP issue reference field, if applicable, Approved CE report in Adobe (*.pdf) format.</p>
<p>Implementation Responsibilities</p>	<p>Added Enterprise CAP conducts, at a minimum, quarterly verifications for the following cause evaluation process requirements in accordance with this standard</p> <ul style="list-style-type: none"> • Cause Evaluators for all RCEs, SIF Actuals and SIF Potential conducted completed core cause evaluation training CORP-

Enterprise Cause Evaluation Standard

	<p>6010WBT, "Introduction to Cause Evaluations" and CORP-6011, "ECAP Cause Evaluation Training."</p> <ul style="list-style-type: none"> • All completed RCE reports were signed and approved • Effectiveness Review Plan CAP is initiated for all RCEs, SIF Actuals and SIF potentials and the Effectiveness Review Plan CAP number is documented in the original CAP description.
Definitions	<ul style="list-style-type: none"> • Added Apparent Cause Evaluation

Enterprise Cause Evaluation Standard

Appendix A, RCE Process Timeline
Page 1 of 1



Enterprise Cause Evaluation Standard

Appendix B, RCE Communications Protocol

Page 1 of 1

RCE Communications Protocol

Communication	Type	Purpose	Accountable Author(s)	Timeframe	Target Audience
Preliminary Internal All-Employee Communication PER SAFE-1004S, "Safety Incident Response Management"	Email	Communicate the initial facts of the incident to PG&E employees. At minimum, the summary contains the following information: <ul style="list-style-type: none"> Brief Description of Incident Development of Serious Incident Investigation Team Actions Taken by PG&E 	<ul style="list-style-type: none"> Safety and Health Senior Management Reviewers: Communications Senior Management, General Counsel Senior Management, Affected LOB Senior Management	Within 24 Hours of Incident	<ul style="list-style-type: none"> All PG&E Employees
Preliminary Board of Directors Communication PER SAFE-1004S, "Safety Incident Response Management"	Email	Communicate the initial facts of the incident to PG&E Board of Directors. At minimum, the summary contains the following information: <ul style="list-style-type: none"> Brief Description of Incident Development of Serious Incident Investigation Team Actions Taken by PG&E 	<ul style="list-style-type: none"> President and Chief Operating Officer (COO) Reviewers: Communications Senior Management, General Counsel Senior Management, Safety and Health Senior Management, Affected LOB Senior Management, Corporate Secretary	Within 24 Hours of Incident	<ul style="list-style-type: none"> PG&E Board of Directors
Presentation of Findings & Corrective Actions	Presentation	Summary of the Final Internal CE Report that is presented by the LOB Sponsor, CE Team Lead and Cause Evaluator to the LOB CARB and LOB Senior Leadership for review of the CE team findings, corrective actions and lessons learned. At minimum, the summary contains the following information: <ul style="list-style-type: none"> Brief Description of the Incident Identified Causes Corrective Actions, listing Action Owners and Due Dates Lessons Learned Effectiveness Review Plan 	<ul style="list-style-type: none"> CE Lead CE 	Within 46-60 Business Days of Incident	<ul style="list-style-type: none"> LOB CARB LOB Senior Leadership

Attachment

X-8_X-9_GOV-6102S_rev3_Redacted

Enterprise Cause Evaluation Standard

SUMMARY

This standard describes Pacific Gas and Electric Company's (PG&E's) Cause Evaluation process requirements, roles and responsibilities, and establishes an enterprise wide framework with common terminology to identify, perform, document, track and communicate cause evaluations for work related safety, compliance, quality, and performance issues.

The development and maintenance of the nuclear generation cause evaluation process is governed by program guidance documents that specifically address Nuclear Regulatory Commission and nuclear insurer requirements and may differ from this governance document. Refer to the Inter-Departmental Administrative Procedures (IDAP) OM7.ID4, "Cause Evaluations", and "OM7.ID3, "Root Cause Evaluation" for specific guidance.

The Kern Oil settlement of July 2015 requires PG&E implement a Corrective Action program and perform Root Cause Evaluations (RCE).

TARGET AUDIENCE

All PG&E personnel are responsible for integrating the Cause Evaluation standard into their business functions and work processes.

SAFETY

Timely problem identification, resolution, and prevention are necessary to ensure operations are run at the highest level of safety thereby minimizing risk to employees, contractors and members of the public.

Adherence to this standard demonstrates PG&E's commitment to improve employee, contractor, and public safety.

TABLE OF CONTENTS

SUBSECTION	TITLE	PAGE
1	Objective.....	2
2	Applicability.....	2
3	Process Overview	2
4	Roles and Responsibilities	10
5	Records	13

Enterprise Cause Evaluation Standard

REQUIREMENTS

1 Objective

- 1.1 The objective of this standard is to establish a framework governing the timing, delivery, and documentation of Cause Evaluations (CEs) relating to work related safety, compliance, quality, and performance issues, to prevent or minimize the probability of recurrence, and to apply continuous improvement measures.
- 1.2 Each line of business (LoB) shall determine the appropriate type of CE based on issue review, categorization, and risk assessment aided by the CAP Risk Matrix tool PER GOV-6101S Enterprise Corrective Action Standard.
 1. Types of CEs include; Root Cause Evaluation (RCE), Apparent Cause Evaluation (ACE), and Common Cause Evaluation (CCE), and Work Group Evaluation (WGE).

Note

The CPUC (California Public Utilities Commission) or its SED (Safety and Enforcement Division) may direct PG&E to undertake any level of CE for any incident.

2 Applicability

- 2.1 This standard is applicable to all requested cause evaluations including Root Cause Evaluations (RCE), Apparent Cause Evaluations (ACE), Common Cause Evaluations (CCE), Work Group Evaluations (WGE), and Effectiveness Reviews (EFFR).

3 Process Overview

The CE process enables the evaluation and resolution of issues entered in the CAP by ensuring a structured process is used to determine, document and communicate the cause(s) and corrective action(s) for an incident, issue, or error.

Refer to [GOV-6102P-06, Enterprise Cause Evaluation Procedure](#) and [GOV-6102M, Cause Evaluation Manual](#) for guidance completing each type of cause evaluation.

- CEs use various analysis methods and tools (i.e., Human Factors Analysis and Classification System, Barrier Analysis, Comparative Timeline, Factor Tree Analysis) to identify the underlying causes that led to an incident.
- Each of the analysis methods and tools may be used at management's discretion or at the California Public Utilities Commission (CPUC) or CPUC's Safety and Enforcement Division's (SED) direction.

Enterprise Cause Evaluation Standard

3.1 Root Cause Evaluation (RCE)

1. Required for all Serious Injury or Fatality (SIF) Actual incidents as determined by the Line of Business (LoB) SIF Review Team (SRT) or the Enterprise Safety SIF team.
2. Can be applied to serious operational incidents or other serious events, as determined by the LoB.
3. The RCE process identifies Corrective Actions to Preclude Recurrence (CAPR) to prevent the problem from recurring because of a same or similar root cause/failure mechanism by implementing changes and/or controls.
4. Evaluation Timeframe
 - a. Duration:
 - (1) SIF Actual RCEs are expected to be completed within 30 calendar days.
 - (2) Non-SIF RCEs are expected to be completed within 60 calendar days.
 - b. Start Date:
 - (1) SIF Actual RCE, the date the CAP was determined SIF-Actual and SIF Flag issued.
 - (2) Non-SIF RCE, the date the APPV action is created.
 - c. End Date:
 - (1) For SIF Actual RCE, the date the "Quality Closure Review" APPV action is marked complete by the ECAP Director of Operations (or delegate).
 - (2) Non-SIF RCE, the date the "Complete Report" APPV action is marked complete following the Sponsor or Issue Owner approval of the CE report.
5. The RCE Sponsor may determine that additional time is necessary to complete the RCE.
 - a. In some cases, it may be necessary to adjust timelines to collect and review additional data and incorporate findings from vendors and agencies authorized to investigate the incident (e.g., Occupational Safety and Health Administration, National Transportation Safety Board, California Highway Patrol, Applied Technical Services, etc.) into the CE report.

Enterprise Cause Evaluation Standard

- b. For SIF RCE, any extension requires written approval by the ECAP director and Chief Safety Officer.
 - c. Approval from the Sponsor and a justification for extending the due date to complete the RCE must be documented in CAP
6. The LoB Corrective Action Review Board (CARB) must review and approve RCE reports.

3.2 Apparent Cause Evaluation (ACE)

1. Required for all SIF-Potential incidents as determined by LoB SIF Review Team or the Enterprise Safety SIF team.
2. Can be applied to operational incidents or other events (i.e. compliance), as determined by the LoB.
3. The ACE process identifies corrective actions (CA) to reduce the likelihood of an identified problem and resolve a finding or issue by implementing changes and/or controls.
4. Evaluation Timeframe
 - a. Duration:
 - (1) SIF-Potential ACEs are expected to be completed within 30 calendar days.
 - (2) Non-SIF ACEs are expected to be completed within 45 calendar days.
 - b. Start Date:
 - (1) SIF-Potential ACE, the date the CAP was determined SIF-Potential and SIF Flag issued in CAP.
 - (2) Non-SIF ACE, the date the APPV action is created with sponsor approval.
 - c. End Date:
 - (1) SIF-Potential ACE, the date the "Quality Closure Review" APPV action is marked complete by the ECAP Director of Operations (or delegate).
 - (2) Non-SIF ACE, the "Complete Report" APPV action is marked complete following the Sponsor or Issue Owner approval of the CE report.

Enterprise Cause Evaluation Standard

5. The ACE Sponsor (SIF-P/Non-SIF) or Issue Owner (Non-SIF) may determine that additional time is necessary to complete the ACE.
 - a. In some cases, it may be necessary to adjust timelines to collect and review additional data and incorporate findings from vendors and agencies authorized to investigate the incident (e.g., Occupational Safety and Health Administration, National Transportation Safety Board, California Highway Patrol, Applied Technical Services, etc.) into the CE report.
 - b. For SIF-Potential ACE, Sponsor approval extension requires written approval by the ECAP director and Chief Safety Officer.
 - c. Approval from the Sponsor (SIF-P/Non-SIF) or Issue Owner (Non-SIF) and a justification for extending the due date to complete the ACE must be documented in CAP.
6. The LoB Corrective Action Review Board (CARB) must review and approve SIF-Potential ACE reports.
7. CARB review is not required for Non-SIF ACEs. The LoB CARB may request review for specific Non-SIF ACE reports.

3.3 Common Cause Evaluation (CCE)

1. CCEs may be assigned to address same or similar incidents or conditions as determined by the LoB.
2. The CCE process identifies corrective actions (CA) to address underlying elements for common failures by implementing changes and/or controls.
3. Evaluation Timeframe
 - a. Duration: CCEs are expected to be completed within 45 calendar days.
 - b. Start Date: The date when the APPV action is created.
 - c. End Date: Date the Issue Owner and Cause Evaluator approve the CE report and mark "Complete Report" APPV action complete.
4. The CCE Issue Owner may determine that additional time is necessary to complete the evaluation.
 - a. Approval from the Issue Owner and a justification for extending the due date to complete the CCE shall be documented in CAP.

Enterprise Cause Evaluation Standard

5. The LoB Corrective Action Review Board (CARB) may request review for specific CCE final reports.

3.4 Work Group Evaluation (WGE)

1. The cause evaluation process can be used for WGEs assigned to address incidents and issues related to safety, quality, compliance and performance issues as determined by the LoB.
2. Evaluation completion timeframe is at the discretion of the Issue Owner in accordance with GOV-6101P-08, Corrective Action Program Procedure.

3.5 Effectiveness Review Evaluation (EFFR)

1. EFFR evaluations document execution of effectiveness review plans for all RCEs and SIF Potential ACEs to determine if the Effectiveness Review Plan success criteria were met.
2. EFFRs verify the intended or expected results of corrective actions were achieved after implementation.
3. EFFRs are performed typically 6 months¹ after corrective actions have been implemented.
4. EFFRs are intended to be completed within the timeframe specified in the Effectiveness Review Plan.
5. The EFFR Issue Owner may determine that additional time is necessary to complete the evaluation.
 - a. Approval from the Issue Owner and a justification for extending the due date to complete the EFFR must be documented in CAP.
6. The LoB Corrective Action Review Board (CARB) must review and approve SIF and SIF-Potential Effectiveness Review final reports.

3.6 Training Requirements

1. Cause Evaluators performing RCE, SIF-Potential ACE evaluations must be trained in CORP-6010WBT and CORP-6011 Cause Evaluation Training **OR** ECAP-01, ECAP-02, and ECAP-03 legacy training.

¹ Can extend beyond 6 months depending on seasonality and other factors.

Enterprise Cause Evaluation Standard

- a. The Enterprise Cause Evaluation Process Owner must maintain a list of personnel who have completed CORP-6010WBT, CORP-6011, ECAP-01, ECAP-02, and ECAP-03 Cause Evaluation training and post it on the Enterprise Corrective Action Program (ECAP) website to reference.
 - b. Diablo Canyon Power Plant (DCPP) employee training and qualification for performing cause evaluations in Nuclear Generation is equivalent to CORP-6010WBT and CORP-6011 for employees performing RCEs and SIF Potential ACEs.
2. Cause Evaluators performing non-SIF ACEs and CCEs must be trained in CORP-6010WBT.

Enterprise Cause Evaluation Standard

Table 1: Cause evaluation team training requirements matrix

Training Course	RCE / ACE / CCE Sponsor	RCE / SIF-P ACE Team Lead / Issue Owner	Non-SIF ACE / CCE / WGE Issue Owner	Cause Evaluator RCE / SIF-Potential ACE	Cause Evaluator Non-SIF ACE / CCE	Subject Matter Expert (SME) Team Member Employees	Core Contractor Team Members on RCEs, SIF-Actual RCEs, and SIF-Potential ACEs
CORP-6010WBT, Introduction to Cause Evaluation	Recommended	Recommended	Recommended	Required	Required	Recommended	Not Required
CORP-6011VL/ILT, ECAP Cause Evaluation Training	Not Required	Recommended	Recommended	Required	Recommended	Recommended	Not Required
ECAP-01 Legacy Cause Evaluation Training	Not Required	Recommended	Recommended	Required	Recommended	Recommended	Not Required
ECAP-02 Legacy Cause Evaluation Training	Not Required	Recommended	Recommended	Required	Recommended	Recommended	Not Required
ECAP-03 Legacy Cause Evaluation Training	Not Required	Recommended	Recommended	Required	Recommended	Recommended	Not Required

Enterprise Cause Evaluation Standard

Training Course	RCE / ACE / CCE Sponsor	RCE / SIF-P ACE Team Lead / Issue Owner	Non-SIF ACE / CCE / WGE Issue Owner	Cause Evaluator RCE / SIF-Potential ACE	Cause Evaluator Non-SIF ACE / CCE	Subject Matter Expert (SME) Team Member Employees	Core Contractor Team Members on RCEs, SIF-Actual RCEs, and SIF-Potential ACEs
CORP-6013WBT, Cause Evaluation for Leaders	Recommended	Recommended	Recommended	Recommended	Recommended	Not Required	Not Required

Enterprise Cause Evaluation Standard

3.7 Communications

1. SIF Actual RCEs must follow the Enterprise Safety and Health communication protocol in accordance with SAFE-1004S (Safety Incident Notification and Response Management Standard) and SAFE-1100S (Serious Injury and Fatality (SIF) Program Standard).
 - a. The protocol establishes the types of communication, the purpose and timing, the accountable author(s), and the intended audience for the communications as generally outlined in SAFE-1004S, Safety Incident Notification & Response Management.
2. SIF-Potential ACEs require Initial Incident Report, Initial Communication SIF Alert, and Final Communication SIF Alert to be distributed.

4 Roles and Responsibilities

4.1 Enterprise CE Process Owner

1. ECAP Cause Evaluation Program Manager.
2. Chairs the Cross Functional CE Review Committee (CFCERC).
3. Oversees the development and execution of cause evaluation training for various line of business employees, except Nuclear Power Generation (DCPP).
4. Conducts quarterly CE process data verifications as described in GOV-6102P-06, Enterprise Cause Evaluation Procedure.

4.2 Sponsor

1. For Root Cause Evaluation (RCE):
 - a. For SIF-Actual RCE: Vice President
 - b. For non-SIF RCE: Director or higher

NOTE:

Safety and Health Officer or another LOB Officer may approve RCE documents if LOB Officer sponsoring an RCE is not available.

2. For ACE and CCE:
 - a. For SIF-P ACE: Director level or higher
 - b. For Non-SIF ACE and CCE: Sponsor can substitute for Issue Owner.

Enterprise Cause Evaluation Standard

3. Responsible for driving overall leadership over the evaluation team.
4. Approves the team charter.
5. Approves CE final report.

4.3 Team Lead / Issue Owner

1. LoB Issue Owner (typically Supervisor or higher) in the organization where the incident took place or Enterprise Health & Safety (EH&S) Lead representing Operations.
2. Responsible for managing day-to-day activities associated with performing the evaluation.
3. Approves the team charter (if applicable).
4. Ensures the SIF Response Investigation Communication Protocol is adhered to per SAFE-1004S.
5. For RCE and SIF-Potential Ace, Team Lead reviews CE final report.
6. For Non-SIF ACE and CCE, Issue Owner approves the CE final report.
7. For WGE, Issue owner documents evaluation in CAP.

4.4 CE Team

1. For RCE or SIF-Potential ACE, team must include a Sponsor, Team Lead, LOB Subject Matter Expert(s), and a trained Cause Evaluator.
 - a. For RCE, include legal, safety, and risk and compliance representation as appropriate.
2. For non-SIF ACEs and CCEs, Sponsor or Issue Owner and Cause Evaluator are required.
3. For WGEs, a formal team is not required. The assigned Issue Owner is responsible for performing the evaluation.

Note: The Issue Owner may also act as the Cause Evaluator if trained in Cause Evaluation per Section 3.6.

4. Team gathers incident information, analyzes the facts and evidence, conducts the cause evaluation, identifies corrective actions, develops and reviews the cause evaluation report.

4.5 Cause Evaluator

Enterprise Cause Evaluation Standard

1. Subject Matter Expert in the Cause Evaluation process.
2. Responsible for ensuring the CE process is followed per GOV-6102P-06, Enterprise Cause Evaluation Procedure.
3. Drafts and approve the team charter (if applicable).
4. Assists Drafts the CE final report.
5. Facilitates the cause evaluation process during meetings
6. Approves final RCE, ACE, and CCE final reports.

4.6 Corrective Action Review Board (CARB):

1. The purpose of CARB is to provides LoB senior management oversight, review, and approval of all RCEs, SIF Potential ACEs, SIF EFRs, and any CE the LoB selects, for accuracy and completeness including the identified problem, cause(s), and proposed corrective actions.
2. CARB members are determined based on the functional areas of each LoB and may include LoB representatives from areas including Safety, Operations, Regulatory, Quality Assurance, Compliance, Asset Strategy, Corrective Action Program, etc.
3. For RCE and SIF-Potential ACE, CARB conducts a review after Sponsor and ECAP Director CE report approval.
4. CARB members may utilize GOV-6102S Attachments 2 and 3 (RCE and ACE Review Sheets) as a tool when determining the adequacy of the CE report.
5. CARB may provide recommendations for content changes to improve the CE report before giving approval.
6. If changes are required, the revised CE final report must be re-presented to CARB for review and approval.
7. For more guidance on CARB, REFER to Attachment 1, "Corrective Action Review Board (CARB) Charter".

4.7 Cross Functional Cause Evaluation Review Committee (CFCERC)

- a. Committee must include at minimum; Director or above representation from each LOB, Enterprise Corrective Action Program (ECAP), Safety, Risk, and Compliance representatives.
- b. Validates compliance with this standard and identifying opportunities for continued improvement.

Enterprise Cause Evaluation Standard

- c. Meets quarterly or as needed to perform their functions.
- d. Oversees implementation of and compliance with this Standard.

5 Records

- 5.1 CAP issues and associated records entered in CAP MUST be retained for 30-years from date of issue closure to ensure compliance with associated retention periods defined in GOV-7101S, Enterprise Records and Information Management Standard, Enterprise Records Retention Schedule (ERRS).
1. CE CAP issue associated records must include the following:
 - Root Cause Evaluation Report
 - Apparent Cause Evaluation Report
 - Common Cause Evaluation Report
 - Effectiveness Review Plan for Cause Evaluations
 2. May include the following:
 - Initial Incident Report
 - Initial Communication including email distribution to LOB(s) and Daily Digest article
 - Final Communication including email distribution to LOB(s) and Daily Digest article
- 5.2 Legal hold can only be issued by the Law Department based on circumstances in anticipation of litigation. If investigation is under a “Legal Hold”, follow the protocols described by the Law Department.

END of Requirements

DEFINITIONS

Additional Findings: Conditions identified during an investigation, which are not causes, but that need to be addressed. They do not correct the problem, nor do they make it worse.

Cause: A condition such as an action, error, omission or trigger that produces an unwanted incident and explains why it occurred.

- **Direct Cause:** Action, event, flaw, or force that is the immediate, initiating, or primary agent which leads to, or allows to happen, an action, event, or state, or may be identified during evaluations in addition to causes specific to each evaluation type. It is not acceptable to end the CE at this point of the investigation.

Enterprise Cause Evaluation Standard

- **Root Cause:** The cause identified during a Root Cause Evaluation (RCE). If corrected, it would preclude the event from recurring.
- **Apparent Cause:** The cause identified during an Apparent Cause Evaluation (ACE). If corrected, it would reduce the likelihood of the event recurring.
- **Contributing Cause:** The event or condition not directly responsible for the problem, but whose existence complicated the problem or made the consequences more severe than if only the cause existed. Can be identified during all Cause Evaluation types.
- **Common Cause:** The cause identified during a Common Cause Evaluation.

Cause Evaluation (CE): A structured process used to determine, document and communicate the cause or reason how and/or why an incident, issue or error occurred.

- **Root Cause Evaluation (RCE):** A formal and rigorous investigation that uses industry-accepted analysis methods to determine the root cause(s) of a problem. The RCE identifies required corrective actions that prevent or reduce the likelihood of a recurrence of the problem for the same or similar root cause(s).
- **Apparent Cause Evaluation (ACE):** An evaluation based on data and information pertinent to the evaluation that provides reasonable assurance that the cause of a problem is determined and will be corrected.
- **Common Cause Evaluation (CCE):** An evaluation used to identify common underlying elements between different, unique, but similar events or issues. The underlying elements may be anything from a common failure mode to a common cause that may or may not require further investigation.
- **Work Group Evaluation (WGE):** A WGE uses the work group's judgment and experience to provide a logical account of the facts that identify the likely cause(s) that, when corrected, should minimize recurrence.

Corrective Action Review Board (CARB): A senior level management board in each LOB that provides oversight for review of SIF Actual and SIF Potential RCE and ACE cause evaluations. Includes LoB representatives from Regulatory Compliance & Quality Assurance, Safety, Asset Strategy, Operations, and CAP.

Corrective Action: (1) A solution meant to reduce or eliminate an identified problem, including any action taken to resolve a finding or issue by implementing changes or controls to preclude recurrence. (2) Restores an unacceptable or adverse condition to an acceptable condition or capability.

Corrective Action to Preclude Recurrence (CAPR): An action taken to preclude an issue from occurring again (or minimize its likelihood) as a result of the same failure mechanism.

Effectiveness Review Report: A documented review to determine that the intended or expected results were achieved after implementation of corrective actions and confirm that new problems or unintended consequences were not introduced by implementation of the actions.

Enterprise Cause Evaluation Standard

Effectiveness Review Plan: A plan created developed during the CE process to verify that the intended or expected results were achieved after implementation of corrective actions. The plan includes the following: methods used to verify the actions met the desired outcome, attributes to be monitored and evaluated, success criteria, and expected timeline to perform the effectiveness review.

Human Factors Analysis and Classification System (HFACS): A human error framework designed to systematically examine underlying human causal factors and to improve accident investigations focused on four levels of failure: 1) Unsafe Acts, 2) Preconditions for Unsafe Acts, 3) Unsafe Supervision, and 4) Organizational Influences.

Issue: An unwanted or undesired condition adverse to safety, quality, or performance. This can also be an improvement opportunity.

Incident: An unplanned sequence of events that results in or could result in undesirable consequences related to safety, reliability, and affordability.

Serious Injury or Fatality Actual (SIF Actual): An incident that results in any of the following to employees, contractors or directly supervised contractors resulting from work at/for PG&E. Refer to SAFE-1100S, SIF Standard.

- A fatality – work related fatal injury or illness;
- A life threatening injury or illness, that if not addressed could lead to a fatality or work-related injury or illness that required immediate life-preserving rescue action, and if not applied immediately would likely have resulted in the death of that person; or
- A life altering injury or illness, one that results in the loss or permanent impairment of a limb, organ or body function – work related injury or illness that resulted in a permanent and significant loss of a major body part or organ function.

Serious Injury or Fatality Potential (SIF Potential): A SIF Potential (SIF-P) incident is defined as an incident that had the credible potential to cause a fatality, life-altering injury/illness or life-threatening injury or illness.

Subject Matter Expert (SME): Individual with knowledge and experience in the line of work being investigated for the incident or issue.

IMPLEMENTATION RESPONSIBILITIES

Each officer and director are responsible for implementing the Enterprise Cause Evaluation Standard within their organization. Directors, managers, and supervisors are responsible for communicating the standard to all employees and ensuring that their employees understand and properly implement the requirements of this standard.

Internal Audit (IA) conducts periodic reviews of the investigation process in accordance with the approved annual IA schedule.

Enterprise Cause Evaluation Standard

GOVERNING DOCUMENT

[GOV-03, "Corrective Action Program Policy"](#)

COMPLIANCE REQUIREMENT / REGULATORY COMMITMENT

Records and Information Management:

PG&E records are company assets that must be managed with integrity to ensure authenticity and reliability. Each Line of Business (LOB) must manage Records and Information in accordance with the Enterprise Records and Information (ERIM) Policy, Standards and Enterprise Records Retention Schedule (ERRS). Each Line of Business (LOB) is also responsible for ensuring records are complete, accurate, verifiable and can be retrieved upon request. Refer to [GOV-7101S, "Enterprise Records and Information Management Standard"](#) for further records management guidance or contact ERIM at Enterprise_RIM@pge.com.

Kern Oil Decision Approving Settlement Agreement, Decision 15-07-014 July 23, 2015

REFERENCE DOCUMENTS

Developmental References:

NA

Supplemental References:

- GOV-6101S, ["Enterprise Corrective Action Program Standard"](#)
- GOV-6101P-08, ["Corrective Action Program Procedure"](#)
- GOV-6102P-06, ["Enterprise Cause Evaluation Process Procedure"](#)
- GOV-6102M, ["Cause Evaluation Manual"](#)
- SAFE-1004S, ["Safety Incident Notification and Response Management Standard"](#)
- SAFE-1100S, ["Serious Injury and Fatality \(SIF\) Standard"](#)
- SAFE-1100M, ["SIF Response and Cause Evaluation Manual"](#)
- GOV-7101S, ["Enterprise Records and Information Management Standard"](#)
- Inter-Departmental Administrative Procedure (IDAP) OM7.ID3, "Root Cause Evaluation"
- Inter-Departmental Administrative Procedure (IDAP) OM7.ID4, "Cause Evaluations"

APPENDICES

NA

ATTACHMENTS

- Attachment 1, ["Corrective Action Review Board \(CARB\) Charter"](#)

Enterprise Cause Evaluation Standard

- Attachment 2, "[RCE Review Sheet](#)"
- Attachment 3, "[ACE Review Sheet](#)"

DOCUMENT APPROVER

██████████, Director, Enterprise Corrective Action Program (Executive CAP Sponsor)

DOCUMENT OWNER

██████████, Manager, Enterprise Corrective Action Program, Cause Evaluations (CE Process Owner)

DOCUMENT CONTACT

██████████, Manager, Enterprise Corrective Action Program, Cause Evaluations (CE Process Owner)

REVISION NOTES

Where?	What Changed?
Summary	<ul style="list-style-type: none"> Removed reference to "Serious Safety Incidents (SSI) since this procedure covers the entire spectrum of incidents. Revised the Target Audience description. Moved "Timely problem identification..." statement into the Safety section.
Safety	<ul style="list-style-type: none"> Added "Timely problem identification..." statement into this section from the Summary.
Objective	<ul style="list-style-type: none"> Removed Note and added verbiage to the objective statement in step 1.1. Moved items 1.1.1 – 1.1.4 to the Program Overview section 3.0. Rephrased step 1.2 to indicate each LOB to determine the appropriate type of CE using the CAP Risk Matrix Tool. Added Work Group Evaluation (WGE) to types of CEs in step 1.2.1.
Applicability	<ul style="list-style-type: none"> Increased applicability scope by rephrasing the statement in step 2.1 to specify SIF-Actual RCEs, Non-SIF RCEs, SIF-Potential ACEs, Non-SIF ACEs, CCEs, WGEs, and Effectiveness Reviews, and removed original SSI statement. Removed steps 2.1.1, 2.1.2 since they are described in later sections. Removed step 2.2 and 2.2.1 describing how other issues are systematically approached by management since it is a responsibility of the CAP Review

Enterprise Cause Evaluation Standard

	<p>Team (CRT) and is described in the Enterprise Corrective Action Program standard GOV-6101S.</p>
<p>Process Overview</p>	<ul style="list-style-type: none"> • Changed step 3 from Program Overview to Process Overview. • Step 3: Rephrased the Program Overview statement. Added reference to the Cause Evaluation Manual, listed various analysis methods and tools guidance. • Removed step 3.1 describing the 45-business day completion time for RCEs, moved note indicating CE sponsor may determine additional time is necessary into sections for each type of CE, and removed reference to Appendix A. • Step 3.1.5.a, 3.2.5.a, and 3.4.4.a, rephrased the note to say: In some cases, it may be necessary to adjust timelines to collect and review additional data and incorporate findings from vendors and agencies authorized to investigate the incident (e.g., Occupational Safety and Health Administration, National Transportation Safety Board, California Highway Patrol, Applied Technical Services, etc.) into the CE report. • Re-ordered section 3 steps 3.1 thru 3.8 and added and added descriptive content and new categories for Root Cause Evaluation, Apparent Cause Evaluation, Common Cause Evaluation, Work Group Evaluation, Effectiveness Reviews, Training Requirements, Communications, and CARB. • Added step 3.1.4.a.1 changed SIF-Actual RCE evaluation completion time from 45 business days to 30 calendar days. • Added step 3.1.4.b.1, specified Non-SIF RCE completion time is 60 business days after the date the Charter is approved by the Sponsor. • Step 3.1.4.b.2, specified non-SIF RCE start date is the date the APPV action is created. • Added step 3.1.4.c, specified completion date for RCE is when the report is approved by the Sponsor and Director of ECAP Operations before CARB. • Added step 3.5.1, For SIF RCE, any extension requires written approval by the ECAP director and Chief Safety Officer. • 3.1.6, specified CARB must review and approve the draft RCE reports. • Added step 3.2.4.a, specified SIF-Potential ACEs are expected to be completed within 30 calendar days and non-SIF ACEs in 45 days. • Added step 3.2.4.b, specified SIF-Potential ACEs start on the date of the incident, and Non-SIF ACEs start date is the date the APPV action is created • Added step 3.2.4.c, specified SIF-Potential ACEs end on the date the Sponsor and Director of ECAP Operations approves the final report before CARB and Non-SIF ACEs end on the date the Sponsor or Issue Owner approves the final report.

Enterprise Cause Evaluation Standard

	<ul style="list-style-type: none"> • Added step 3.2.5, For SIF-Potential ACE, sponsor approval extension requires written approval by the ECAP director and chief safety officer. • Step 3.2.6, specified CARB must review and approve SIF-Potential ACE draft reports. • Added step 3.3.3 specifying CCE duration is 45 calendar days starting on the date when the CCE evaluation type is entered into CAP and end date when the Issue Owner approves the final report before CARB. • Step 3.3.3.b, specified CCE start date is the date the APPV action is created • Added step 3.4.2, stating the evaluation completion timeframe is at the discretion of the Issue Owner an in accordance with GOV-6101P-08, Enterprise Corrective Action Procedure. • Step 3.5, clarified the effectiveness review verbiage. • Added step 3.5.4 stating: EFRs are intended to be completed within the timeframe specified in the Effectiveness Review Plan. • Step 3.5.5, Included ability to extend evaluation due dates in CAP for all CE types with approval and justification in CAP issue. • Step 3.5.6, specified CARB must review and approve EFR reports. • Section 3.6, clarified the training requirements for Cause Evaluators. • Added Table 1 Training Matrix showing required and recommended training for CE team members and contractors. • Step 3.7.1.b, added reference to SAFE-1004S. • Step 3.8.2, specified CARB conducts a review after sponsor approval of the CE report.
<p>Roles and Responsibilities</p>	<ul style="list-style-type: none"> • Removed bullets in Step 4.1 and replaced with numbers 1-4. • Removed step stating, "Reports program health to executive sponsor". • Added step 4.1.3, Oversees the development and execution of cause evaluation training for various line of business employees, except Nuclear Power Generation (DCPP). • Section 4.1, Removed the following (1)Promotes CE continuous improvement through benchmarking, assessments, and implementation of industry best practices, (2) Ensures the CE program, including support systems and infrastructure, is developed and maintained, (3) Provides final approval for recommended CGC change requests to enterprise CE guidance documents and technology change requests, (4) Working with the CGC and LOB CAP process owners, develops training and communications to ensure employees understand CE fundamentals. • Removed original step 4.2, Line of Business Owner, since it is describing the Department Owner or Sponsor for cause evaluations. • Steps 4.1 thru 4.8: Clarified, and aligned the roles of the Enterprise Process Owner, Sponsor, Team Lead, CE Team, CCE Issue Owner, WGE Issue

Enterprise Cause Evaluation Standard

	<p>Owner, Cause Evaluator, and Cause Evaluation committees including CFCERC and CARB.</p> <ul style="list-style-type: none"> Removed several procedural steps that belong in the CE procedure GOV-6102P-06.
Records	<ul style="list-style-type: none"> Step 5.1, Specified CAP issues and associated records must be retained for 35-years from the date of issue closure. Added Legal Hold information. Step 5.1, added Initial and Final Communications to CE CAP issue associated records. Step 5.1: Removed reference to the Communications Protocol report.
Definitions	<ul style="list-style-type: none"> Added Additional Finding definition. Added Direct Cause definition. Clarified Cause definition. Revised Cause definition section by created bullets for each type of cause and moving them from other locations on the list. Revised Cause Evaluation definition section by creating bullets for each type of CE and moving them up from other areas of the list. Clarified CARB definition. Clarified Incident definition. Added definitions for SIF Actual and SIF Potential. Removed SSI definition and other references to SSI in the procedure. Added Subject Matter Expert definition. Removed Extent of Cause and Extent of Condition since they are not mentioned in the standard. SIF Potential new definition
Implementation Responsibilities	<ul style="list-style-type: none"> Remove section describing quarterly verifications for cause evaluation process requirements since this is stated in step 4.1.4 and the steps are described in the procedure GOV-6102P-06.
Reference Documents	<ul style="list-style-type: none"> Added SAFE-1004S and KERN OII Decision documents.
Appendices	<ul style="list-style-type: none"> Removed Appendix A, RCE process timeline since the steps shown are not relevant to this standard. The timeline shall be moved to the procedure GOV-6102P-06 if determined to be appropriate. Removed Appendix B RCE Communications Protocol since it is included in SAFE-1004S, Attachment 10.

**PG&E Gas and Electric
Advice Submittal List
General Order 96-B, Section IV**

AT&T
Albion Power Company

Alta Power Group, LLC
Anderson & Poole

Atlas ReFuel
BART

Barkovich & Yap, Inc.
Braun Blaising Smith Wynne, P.C.
California Community Choice Association
California Cotton Ginners & Growers Assn
California Energy Commission

California Hub for Energy Efficiency
Financing

California Alternative Energy and
Advanced Transportation Financing
Authority
California Public Utilities Commission
Calpine

Cameron-Daniel, P.C.
Casner, Steve
Center for Biological Diversity

Chevron Pipeline and Power
City of Palo Alto

City of San Jose
Clean Power Research
Coast Economic Consulting
Commercial Energy
Crossborder Energy
Crown Road Energy, LLC
Davis Wright Tremaine LLP
Day Carter Murphy

Dept of General Services
Don Pickett & Associates, Inc.
Douglass & Liddell
Downey Brand LLP
Dish Wireless L.L.C.

East Bay Community Energy Ellison
Schneider & Harris LLP
Engineers and Scientists of California

GenOn Energy, Inc.
Green Power Institute
Hanna & Morton
ICF

iCommLaw
International Power Technology
Intertie

Intestate Gas Services, Inc.

Johnston, Kevin
Kelly Group
Ken Bohn Consulting
Keyes & Fox LLP
Leviton Manufacturing Co., Inc.

Los Angeles County Integrated
Waste Management Task Force
MRW & Associates
Manatt Phelps Phillips
Marin Energy Authority
McClintock IP
McKenzie & Associates

Modesto Irrigation District
NRG Solar

OnGrid Solar
Pacific Gas and Electric Company
Peninsula Clean Energy

Pioneer Community Energy

Public Advocates Office

Redwood Coast Energy Authority
Regulatory & Cogeneration Service, Inc.

Resource Innovations

SCD Energy Solutions
San Diego Gas & Electric Company

SPURR
San Francisco Water Power and Sewer
Sempra Utilities

Sierra Telephone Company, Inc.
Southern California Edison Company
Southern California Gas Company
Spark Energy
Sun Light & Power
Sunshine Design
Stoel Rives LLP

Tecogen, Inc.
TerraVerde Renewable Partners
Tiger Natural Gas, Inc.

TransCanada
Utility Cost Management
Utility Power Solutions
Water and Energy Consulting Wellhead
Electric Company
Western Manufactured Housing
Communities Association (WMA)
Yep Energy