



Gas Operations Corrective Action Program (CAP)

Summary

This standard establishes requirements for a corrective action program (CAP) in gas operations that accomplishes the following objectives:

- Captures incidents (events that have already happened) and potential incidents (events that haven't happened but pose a risk).
- Analyzes incidents and potential risks, and then recommends corrective actions to reinstate capability and/or prevent recurrence.
- Recommends preventive actions to prevent occurrence in the first place.
- Continuously assesses effectiveness, monitors trends, and communicates results.

Target Audience

All gas operations personnel.

Safety

NA

Table of Contents

Subsection	Title	Page
1	Objectives.....	1
2	Applicability	2
3	Process Overview	2
4	System Overview	3
5	Roles and Responsibilities	4
	Appendix 1 Significance Matrix	8
	Appendix 2 Causal Evaluation Methods/Tools	13

Requirements

1 Objectives

- 1.1 The CAP incorporates best practices from numerous industries and sets the standard of excellence within the natural gas industry.



Gas Operations Corrective Action Program (CAP)

1.2 The following are further objectives of the CAP:

1. To identify problems, issues, concerns, and opportunities for improvement.
2. To evaluate, classify, analyze, and investigate these issues.
3. To develop and implement corrective and preventive action plans.
4. To ensure completion, effectiveness, and sustainability through follow-up activities.

2 Applicability

2.1 This standard applies to all asset-related failures, incidents, nonconformities, and problems involving and/or affecting gas operations personnel.

2.2 These items can come from a variety of sources including, but not limited to, the following items:

- Safety-related conditions.
- Internal, external, and third-party audit findings.
- Equipment failures.
- Regulatory violations and reportable incidents.
- Advisory recommendations.
- Overpressure events.
- Unplanned outages.
- Near hits.
- Lack of a procedure, or discovery of a deficiency or inaccuracy in an existing procedure.
- Engineering design deficiency.
- Lessons learned.

3 Process Overview

3.1 The CAP process includes the 6 Disciplines (6D) shown in Figure 1, "CAP Process." See [Utility Procedure TD-4020P-01, "Gas Operations Corrective Action Program \(CAP\)"](#) for process details.

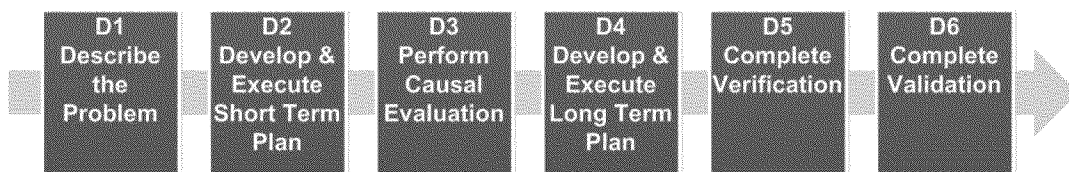


Figure 1. CAP Process



Gas Operations Corrective Action Program (CAP)

3.2 D1 - Describe the Problem:

1. In the D1 phase, any unwanted, unacceptable, or undesired condition that impacts, or could potentially impact, safety, reliability, or compliance is documented in the CAP database. A complete problem statement describes what, when, where, who, and includes a determination of the problem significance. Immediate actions taken to make the situation safe are recorded.

3.3 D2 - Develop & Execute Short Term Plan:

1. A short term plan is developed to address the problem while the causal evaluation is performed. Short term actions are tracked, and relevant documentation is retained in the CAP database to capture completed work product.

3.4 D3 - Perform Causal Evaluation:

1. In this phase, the determination is made which causal evaluation methods and/or tools are appropriate for the particular failure, incident, nonconformity, or problem. Methods and tools are selected based on the significance level chosen and used to conduct the appropriate causal evaluation. All relevant documentation is retained.

3.5 D4 - Develop & Execute Long Term Plan:

1. A long term plan is developed to identify the necessary actions for eliminating the cause(s) of the problem and preventing recurrence based on the causal evaluation results. Long term actions are tracked, and relevant documentation is retained in the CAP database to capture completed work product.

3.6 D5 - Complete Verification:

1. Verification is performed to determine whether the corrective and/or preventive action(s) were completed as required.

3.7 D6 - Complete Validation:

1. In this phase, a follow-up evaluation may be performed to determine if the actions taken were effective in eliminating the cause(s). Validation also determines if the actions taken had any unintended consequences or adverse impact on risk.

4 System Overview

4.1 Gas operations CAP uses the Corrective Action (CA) module of the Enterprise Compliance Tracking System (ECTS).

4.2 ECTS provides an electronic database to capture, track, manage, and report the status of corrective and preventive actions. The database functionality also includes automatic notification of completed actions.



Gas Operations Corrective Action Program (CAP)

5 Roles and Responsibilities

5.1 CAP Executive Process Champion (VP of Standards and Policies)

1. Provides gas operations CAP oversight.
2. Aligns CAP with the gas operations strategic operating plan.
3. Ensures compliance with the requirements of this standard.
4. Approves resources for CAP development and implementation.

5.2 CAP Process Owner (Director of Quality and Improvement)

1. Accountable for gas operations CAP process including infrastructure and support systems
2. Ensures compliance with the tasks in Utility Procedure TD-4020P-01, "Gas Operations Corrective Action Program (CAP)."
3. Allocates sufficient resources for CAP development and implementation.
4. Coordinates with the enterprise-wide CAP.
5. Monitors metrics to continually improve the CAP process.

5.3 CAP Systems Manager (Manager of Quality Systems & Auditing)

1. Leads the coordination of the development and maintenance of the CAP database.
2. Oversees the database administration and HelpDesk support activities.
3. Accountable for the preparation, revision, and issuance of CAP documentation.
4. Accountable for the development and execution of CAP training program.
5. Coordinates and develops metrics and reports to continually support the CAP process.

5.4 Coordinator

1. Evaluates all CAP database entries for appropriateness and completeness.
2. Determines the significance level of CAP issues.
3. Monitors progress and supports the request owner or delegate as necessary.
4. Leads or oversees the causal evaluation activities.



Gas Operations Corrective Action Program (CAP)

5.4 (continued)

- 5. Reviews and approves corrective and/or preventive actions for closure.
- 6. Develops and recommends validation actions to ensure the effectiveness of corrective and/or preventive actions.

5.5 Request Owner

- 1. Accountable for ensuring the quality and completion of all corrective and/or preventive actions; may assign responsibilities to a delegate (see Section 5.6 below).
- 2. Identifies the required resources to complete the corrective and/or preventive actions
- 3. Proposes, implements, and monitors the short term, causal evaluation, and long term plans.
- 4. Assigns work to action owners, and reviews the results and work products.
- 5. Monitors the progress and completion of assigned CAP database entries.

5.6 Delegate

- 1. Responsible for any activities delegated by the request owner.

5.7 Task or Action Owner

- 1. Completes tasks or actions that are assigned by the request owner or delegate by the completion due date, and attaches required work products to support closure.

END of Requirements

Definitions NA

Implementation Responsibilities The process owner is accountable for communicating and implementing changes to the CAP Process.

Governing Document NA



Gas Operations Corrective Action Program (CAP)

Compliance Requirement/Regulatory Commitment

Code of Federal Regulations (CFR) Title 49: Transportation, Part 192—
Transportation of Natural and Other Gas By Pipeline: Minimum Federal Safety Standards, Subpart L—Operations, Section (§) 617, “Investigation of failures.”

Reference Documents

Developmental References:

Utility Procedure TD-4020P-01, “Gas Operations Corrective Action Program (CAP).”

Supplemental References:

PAS 55 Part 1: 2008 - Asset Management, Part 1: Specification for the optimized management of physical assets; The Institute of Asset Management, British Standards, ICS code: 03.100.01.

Diablo Canyon Power Plant (DCPP) Interdepartmental Administrative Procedure (IDAP) OM7.ID4, “Apparent Cause Evaluation,” Rev.23, Effective Date 06/19/12.

Diablo Canyon Power Plant (DCPP) Interdepartmental Administrative Procedure (IDAP) OM7.ID3, “Root Cause Evaluations,” Rev.29, effective date 08/01/12.

Appendices

Appendix 1, “Significance Matrix.”

Appendix 2, “Causal Evaluation Methods/Tools.”

Attachments

NA

Document Recision

NA

Approved By

Jane Yura
Vice President



Gas Operations Corrective Action Program (CAP)

Document Owner Sara Peralta
Director

Document Contact Redacted
Manager

Revision Notes

Where?	What Changed?
NA	This is a new document.

Gas Operations Corrective Action Program (CAP)
APPENDIX 1. SIGNIFICANCE MATRIX
 Page 1 of 5

SIGNIFICANCE LEVEL	SIGNIFICANCE CRITERIA	EXAMPLES
Critical	Any incident, condition, human error, or circumstance that requires immediate action because it:	
	1. Resulted in death or serious disabling injury or posed a serious, eminent threat of death or serious disabling injury to the public, Company personnel or contractors.	
	2. Resulted in serious damage to Company or customer assets.	<ul style="list-style-type: none"> • Gas-related fires/explosions resulting in asset damage greater than \$1million.
	3. Posed a serious, eminent threat to the Company brand, causing, or likely to cause, stakeholders to question system integrity or Company ability to provide safe and reliable gas and electricity.	
	4. Disrupted critical services or posed a serious, eminent threat to the continuity of services.	<ul style="list-style-type: none"> • Disruption of service to greater than 100 residential customers. • Disruption of service to any industrial customers. • Unscheduled decrease in pressure impacting greater than 100 customers or costing customers greater than \$1 million.

Gas Operations Corrective Action Program (CAP)

APPENDIX 1. SIGNIFICANCE MATRIX
 Page 2 of 5

SIGNIFICANCE LEVEL	SIGNIFICANCE CRITERIA	EXAMPLES
High	Any incident, condition, human error or circumstance resulting in the following event:	
	1. Disabling injury, or creating significant exposure to fatalities or disabling injuries, for the public, Company personnel, or contractors.	
	2. Significant damage to Company or customer assets.	<ul style="list-style-type: none"> • Gas-related fires/explosions resulting in asset damage greater than \$100,000. • Third-party damage leading to fire or explosion.
	3. Confirmed or potential damage to Company reputation with regulators and stakeholders.	<ul style="list-style-type: none"> • H₂S (hydrogen sulfide) concentration exceeding four times the network pipeline gas quality H₂S tariff specification
	4. Recurring incidents or trends that indicate the potential for substantial safety, reliability, or regulatory risk.	<ul style="list-style-type: none"> • Repeat self-identified non-compliances. • CPUC reportable with significant impact.
	5. Discovery of a deficiency in an area such as design or analysis, operations, maintenance, procedures, training, or documentation that increases the probability of a significant adverse outcome.	<ul style="list-style-type: none"> • Transmission line overpressure greater than 110% of MAOP. • High pressure distribution system pressure greater than 105% of MAOP. • Low pressure distribution system pressure greater than 14" wc. • Latent defects with major safety risk and/or system wide issues.
	6. Significant, repeat audit non-conformance finding.	
	7. Actions taking longer than 90 days from the issuance of a regulatory compliance order.	

Gas Operations Corrective Action Program (CAP)

APPENDIX 1. SIGNIFICANCE MATRIX
 Page 3 of 5

SIGNIFICANCE LEVEL	SIGNIFICANCE CRITERIA	EXAMPLES
Moderate / Medium	Any incident, condition, human error, or circumstance resulting in the following event:	
	1. A recordable injury or a near-miss with the potential to generate an OSHA recordable event.	
	2. Damage to Company or customer assets.	<ul style="list-style-type: none"> • Gas-related fires/explosions resulting in asset damage greater than \$100,000. • Third-party damage leading to a leak but no fire or explosion.
	3. Structures, systems, or components are degraded to the point they cannot meet specifications or fulfill intended purpose;	<ul style="list-style-type: none"> • Transmission line overpressure greater than MAOP and less than 110% of MAOP. • High pressure distribution system pressure greater than MAOP and less than 105% of MAOP. • Low pressure distribution system pressure greater than MAOP and less than 14" wc. • Latent defects with moderate safety risk and/or risk of repeated occurrences.
	4. Service disruption or threat posed to the continuity of services.	<ul style="list-style-type: none"> • Disruption of service to greater than 5, but less than 100, residential customers. • Unscheduled decrease in pressure impacting less than 100 residential customers or costing customers greater than \$100,000, but less than \$1 million.
5. Potential threat posed to the Company brand, causing, or likely to cause, stakeholders to question system integrity or Company ability to provide safe and reliable gas and electricity.	<ul style="list-style-type: none"> • BTU, odorant, and H₂S (hydrogen sulfide) concentration exceeding three times the established limits. 	

Gas Operations Corrective Action Program (CAP)

APPENDIX 1. SIGNIFICANCE MATRIX
 Page 4 of 5

SIGNIFICANCE LEVEL	SIGNIFICANCE CRITERIA	EXAMPLES
Moderate / Medium (Continued)	6. Discovery of a deficiency in an area such as design or analysis, operations, maintenance, test procedures, or training that increases the probability of an adverse outcome.	
	7. Instance associated with a significant human error or performance trend that requires improvement.	<ul style="list-style-type: none"> • At-fault dig-in on a critical asset.
	8. Instance that warrants a special report to a regulatory agency outside of normal, routine communication.	<ul style="list-style-type: none"> • Self-identified non-compliance. • CPUC reportables.
	9. Instance that surfaces in the form of an audit finding of non-conformance that requires additional evaluation and tracking.	<ul style="list-style-type: none"> • Major quality control issues.
	10. Instance that results from a deficiency in training, procedures, or document management.	

Gas Operations Corrective Action Program (CAP)

APPENDIX 1. SIGNIFICANCE MATRIX
 Page 5 of 5

SIGNIFICANCE LEVEL	SIGNIFICANCE CRITERIA	EXAMPLES
Low	Incidents, conditions, and circumstances resulting in the following event:	
	1. Instance associated with a human error or performance trend that requires improvement.	<ul style="list-style-type: none"> • At-fault dig-in.
	2. Instance requiring documentation, follow-up, closure, tracking and trending;	<ul style="list-style-type: none"> • Compliance (documentation) review findings.
	3. Audits and inspections items that are addressed with a “quick fix” and closed.	<ul style="list-style-type: none"> • Minor quality control issues.
	4. An audit or inspection area for improvement such as training needs, procedural gaps, and performance improvement opportunities.	<ul style="list-style-type: none"> • Assessment or gap analysis issues.



Gas Operations Corrective Action Program

APPENDIX 2. CAUSAL EVALUATION METHODS/TOOLS

Page 1 of 1

METHOD/TOOL	GUIDANCE FOR USAGE
Apparent Cause Evaluation (ACE)	Use when a formal but less rigorous causal determination method is deemed necessary. An ACE is the most probable cause for an event based on readily available information. An ACE may not entirely prevent recurrence.
Barrier Analysis	Use tool for events where there is an obvious hazard-target interaction. Good basic systemic analysis tool.
Brainstorming	Use tool to quickly generate, clarify, and evaluate a sizable list of ideas using a group of people.
Common Cause Evaluation	Use method to evaluate three or more events that appear to share similar elements.
Fault Tree Analysis	Use tool for equipment failures and when trying to select between multiple possible failure modes. This tool requires system/component knowledge.
Fishbone Diagram	Use tool to help develop/identify possible causes of a problem in an organized way.
Human Factors Analysis Classification System (HFACS)	Use tool to identify the human related causes of an event and to provide structure to assist in the investigation process.
Root Cause Analysis (RCA)	Use this formal investigation method to determine the most basic reason(s) for a failure, incident, nonconformity or problem whose removal prevents, or minimizes the probability of, recurrence of the problem.
5 Whys	Use tool to explore the cause-and-effect relationships underlying a problem through question asking techniques.