

## Field Design Change Process for Distribution Lines and Dual-Asset Facilities

### SUMMARY

This utility procedure describes the process Pacific Gas and Electric Company (PG&E) uses to initiate, assess, evaluate, and document field changes to distribution and dual-asset designs issued for construction.

Design and construction of gas assets must comply with both state and federal regulations. PG&E is required to have traceable, verifiable, and complete records on all pressure carrying components and assets.

If during construction of a gas asset, it is determined the asset cannot be built as designed and a change is needed, then construction must evaluate the change to determine if it meets the criteria for engineering review.

If the change meets the criteria for engineering review, then construction must contact the responsible engineer for the requested change to be reviewed and approved.

This utility procedure improves gas safety performance and aligns with industry management of change (MOC) practices.

Level of Use: Informational Use

### TARGET AUDIENCE

The following personnel; Gas distribution engineers and estimators, service planning and design estimators, including applicant design personnel, maintenance and construction coordinators and crew leads, general construction field engineers and crew leads, new business inspectors, and construction management personnel and inspectors.

### SAFETY

Use standard safe work practices and standard issue personal protective equipment (PPE).

### BEFORE YOU START

NA

# Field Design Change Process for Distribution Lines and Dual-Asset Facilities

## TABLE OF CONTENTS

SUBSECTION	TITLE	PAGE
1	Initiating Field Design Change.....	3
2	Evaluate Change Request.....	5
3	Approve/Deny Change Request.....	7
4	Implement and Verify the Change .....	8
5	As-Built Process Quality Control (QC).....	8
6	Recordkeeping .....	9



Certain changes to asset design during construction, including changes to the latest issued for construction (IFC) drawings, require review and approval by engineering to ensure no additional risk is introduced into the system. Unapproved changes require submittal of a CAP (Corrective Action Program) and an evaluation of the unapproved change, including actions necessary to mitigate risk(s) introduced by the unapproved change. Corrective actions may include the need to re-excavate and possibly replace the newly installed asset.

### NOTE

For Large Volume Customer Regulator (LVCR) stations, Utility Procedure TD-4014P-06, "Field Design Change Process for Transmission Pipeline and Station Designs," will be used.

### NOTE

For dual-asset work installed by a contractor under the supervision of construction management, where Unifier is used as the system of information management, field design change requests, approvals, denials, and after-the-fact changes are documented as a request for information (RFI) within the Unifier work flow process. Follow the field design change process per Utility Procedure TD-4014P-06, "Field Design Change Process for Transmission Pipelines and Transmission Station Designs."

## Field Design Change Process for Distribution Lines and Dual-Asset Facilities

### PROCEDURE STEPS

#### 1 Initiating Field Design Changes

- 1.1 The change initiator (e.g., field engineer, maintenance and construction (M&C) coordinator, crew lead, new business or work at the request of others (WRO) inspector, construction management inspector) identifies the need for change from the approved design.
- 1.2 IF the proposed field change to a design for a gas distribution line or dual-asset facility meets any of the following criteria,
  1. Gas Distribution Facilities (operating at 60 psig or less):
    - Change not allowed within drawing or deviates from PG&E standards or guidance documents (e.g., Gas Design Standard (GDS) A-04, "Cover and Clearance Requirements for Transmission Lines, Distribution Mains, and Service Lines," GDS A-05, "Piggable Pipeline," GDS A-34, "Piping Design and Test Requirements," GDS A-36, "Design and Construction Requirements Gas Lines and Related Facilities," and Utility Manual TD-4160M, *Gas Welding Control Manual*)
    - Substitution of a buried main valve
    - Substitution of material using an unapproved or non-coded item
    - Substitution of material that changes cathodic protection requirements or reduces capacity of design (i.e., change in material type, smaller pipe diameter, different tap design for main)
    - Change in horizontal or vertical alignment of pipe that does not meet a specified requirement on drawing (i.e., cover or separation), or encroaches on property without permit or land approval
    - Change in location of a buried valve if it reduces access, crosses any lateral main, or crosses a geographical feature boundary requiring emergency isolation
    - Reduction in scope of pipe replacement or deactivation unless purpose is to only clear a field conflict
    - Moving the tap location for main to a different header pipe or more than 50 feet
    - Moving the tap location for service to a different header pipe
    - Moving the point of service from the location negotiated by the estimator and customer when specified on the Gas Service Record

## Field Design Change Process for Distribution Lines and Dual-Asset Facilities

### 1.2 (continued)

- Change in construction method to insert pipe in deactivated pipe or in new casing
- Change in cathodic protection (material or operation)
- Change to supervisory control and data acquisition (SCADA) or electronic data recorder (ERX)
- Change to bridge crossing (e.g., materials, pipe supports, configuration)
- Change in test pressure or uprate procedure

### 2. Gas Distribution Dual-Asset Facilities (operating above 60 psig):

- Change not allowed within engineering drawings or deviates from PG&E standards/guidance docs (e.g., GDS A-04, GDS A-05, GDS A-34, GDS A-36, Utility Manual TD-4160M)
- Substitution of material that is not a replacement-in-kind (RIK) (e.g., piping, valves, fittings)
- Addition or deletion of a component
- Change in location or configuration of components when outside of specified dimensions or requirements (e.g., pipe or conduit alignment, valve location, offset, tie-in detail, impacts to hazardous area classification)
- Change in construction method (e.g., open trench, bore, horizontal directional drilling [HDD])
- Change to cathodic protection (material or operation)
- Change to SCADA monitoring or control equipment (e.g., pressure transmitters [PT], pressure switches [PS], wiring configuration)
- Change in length greater than 12" for pipe segments or branch locations to accommodate field fit-up
- Change greater than 6-degrees to angle points to accommodate field fit-up
- Change to horizontal and vertical pipe offsets other than at high pressure regulator (HPR) inlet piping (smaller than 2") between the pin off tee and riser for first stage of regulation
- Change to horizontal and vertical pipe offsets other than sense line piping between the pin off tee and isolation valve

## Field Design Change Process for Distribution Lines and Dual-Asset Facilities

### 1.2 (continued)

THEN the change initiator must notify and obtain approval from the appropriate change owner:

- a. Associate distribution engineer (ADE) responsible for the design of a single service or new business job.
- b. Responsible engineer identified on the drawing for all other changes.

### 1.3 The change initiator notifies the appropriate change owner (via phone or email) of the need for change and provides the following information:

- Project/Job number
- Description of proposed design change
- Reasons for proposed design change
- Identification of safety risks the design change will introduce
- Specific drawings affected

### 1.4 See Attachment 1, "Distribution Lines and Dual-Assets Field Design Change Process Flow," for a one-page flow chart summary of the process.

## 2 Evaluate Change Request

### 2.1 The change owner evaluates the change request and performs the following steps.

1. May contact the change initiator (via phone or email) for additional information and can provide preliminary verbal approval for a requested field change. However, the request must follow the field design change (FDC) for design drawing process, and be documented accordingly.
2. When the change request is for a change already implemented in the field (after the fact [ATF] request), it must be noted in the subject header of the email.
3. IF the change request is an ATF request,

THEN submit a CAP as follows:

- Issue Title: ATF field design change
- Issue Owner: Construction superintendent responsible for the work
- What and Where is the issue: Work order number, location, issue

## Field Design Change Process for Distribution Lines and Dual-Asset Facilities

### 2.2 Perform risk analysis

1. How does change introduce new risk and how can it be mitigated.
2. Does the change introduce additional hazards or eliminates safeguards already identified during the original Process Hazard Analysis (PHA) performed during the design review?

### 2.3 Determine if a PHA document exists for the project.

1. IF a PHA document exists,  
THEN review the previous analysis and design decisions when evaluating the change request.
2. IF a PHA document does not exist,  
THEN proceed with [Step 2.4](#).

### 2.4 Evaluate the following:

- Failure modes, including hazards and consequences
- Likelihood of occurrence
- Mitigation of identified hazards and consequences

### 2.5 Use the following format in an FDC email to document the results of the risk analysis.

- To: change initiator (Enter name)
- Subject: (ATF, if applicable) FDC Design Request (Enter the job order number)
- Project name/job number
- Description of the change
- Reasons for the change
- Results of risk analysis

### 2.6 The change owner may contact the change initiator (via phone or email) to discuss the outcome of the analysis and can provide preliminary verbal approval for a requested field change. However, the analysis and resulting actions must be documented as required in [Step 2.5](#).

## Field Design Change Process for Distribution Lines and Dual-Asset Facilities

### 3 Approve/Deny Change Request

3.1 The change owner performs the following steps.

3.2 IF requested change is approved,

THEN update the following information in the FDC email created in [Step 2.5](#).

- Subject: APPROVED (ATF, if applicable) FDC Design Request (Enter the job order number)
- Decision and Guidance:
  - Statement confirming approval
  - List affected documents to redline (e.g., drawings, forms, pipe and instrument diagrams)
  - List risk mitigation controls to affected personnel
  - List training requirements (as applicable)
  - Reference any attachments that are provided

3.3 Send the FDC email to the change initiator.

3.4 Save the FDC design approval response email and attachments as a single .pdf using the following name notation: PM#FDCApprovedLoc#.pdf OR PM#FDCATFApprovedLoc#.pdf

- Attach the file to SAP/DMS using Doc Type A-20
- User Description: select “Correspond”
- Attribute Name: select “Date”
- Attribute Value: enter the date of approval

3.5 IF the requested change is not approved,

THEN enter the following information in the FDC email created in [Step 2.5](#):

- Subject: DENIED (ATF, if applicable) FDC Design Request (Enter the Job Order Number)
- Decision and Guidance:
  - Statement confirming denial
  - Recommendations or corrective requirements (as applicable)
  - Reference any attachments that are provided

## Field Design Change Process for Distribution Lines and Dual-Asset Facilities

- 3.6 Send the FDC email to the change initiator.
- 3.7 Save the FDC design denial response email and attachments as a single .pdf using the following name notation: PM#FDCDeniedLoc#.pdf OR PM#FDCATFDeniedLoc#.pdf

- Attach the file to SAP/DMS using Doc Type A-20
- User Description: select "Correspond"
- Attribute Name: select "Date"
- Attribute Value: enter the date of denial

- 3.8 IF change request is not approved,  
THEN change initiator must not implement the change or may be required to correct the unapproved change.

- 3.9 Change initiator verifies that the denial email is uploaded in SAP/DMS before the as-built package is completed.

### 4 Implement and Verify the Change

- 4.1 IF change request is approved,  
THEN change initiator must implement the approved change per guidance from the change owner.

- 4.2 Change initiator verifies that the change achieved the intended purpose.

- 4.3 Change initiator or representative verifies that the approval email is uploaded in SAP/DMS before the as-built package is completed.

### 5 As-Built Process Quality Control (QC)

- 5.1 QC ensures alignment of as-built package and field design change documents.

1. Tracks, trends, and reports FDC in the field, including ATF and changes that were made but denied.

- 5.2 IF an as-built package is reviewed by a change owner and an unapproved change is identified,  
THEN change owner must submit a CAP item as follows:

- Issue Title: Unapproved field design change trans
- Issue Owner: Supervisor or manager responsible for the work
- What and where is the issue?: Work order number, location, and issue



## Field Design Change Process for Distribution Lines and Dual-Asset Facilities

### 6 Recordkeeping

- 6.1 Retain records per the Record Retention Schedule.

### END of Instructions

### DEFINITIONS

**After the Fact (ATF) Change:** Change made in the field prior to requesting engineering review and approval.

**Change:** An activity that results in a difference between the original design or the current state, and a future state, by addition, modification, or substitution of a process, equipment, facility, personnel, or procedures.

**Change Owner:** The person responsible for evaluating and recommending approval of the change, i.e., asset distribution engineer (ADE) for single service/applicant install, responsible engineer identified on the drawing for all others.

**Change Initiator:** The person requesting a change from design, i.e., foreman, applicant install PG&E inspector, construction management inspector.

**Design Change:** For construction projects, any change in materials or physical arrangement that deviates from approved construction drawings.

**Design Drawings:** Refers to the most recent revision, issued by engineering for construction (IFC). Any redlined changes to the latest revision of the IFC design drawings that warrant the FDC process and subsequent approval, must have a printed copy of the approval email or RFI, as applicable, in the As-Built package.

**Dual Asset Facility:** A distribution facility as defined in Utility Procedure TD-4125P-10, "Identifying Gas Transmission Assets," that operates over 60 psig (e.g., farm tap, HPR, regulator station).

**Engineer:** Any person responsible for managing and approving all engineering activities, including project and non-project changes (includes estimators for service replacement projects).

**Management of Change:** A process for evaluating and controlling modifications to facilities, operations, procedures, equipment, organization, or design activities prior to implementation, to ensure that no new hazards are introduced and that the risk of existing hazards is not increased unknowingly.

**Replacement-in-kind (RIK):** Material, equipment, system, or procedure that meet the design specification of the item it is replacing.

## Field Design Change Process for Distribution Lines and Dual-Asset Facilities

### IMPLEMENTATION RESPONSIBILITIES

Directors of engineering, field construction, and construction management must ensure that this utility procedure is communicated and implemented in their area.

Managers or supervisors of engineering, field construction, and construction management must implement this utility procedure and support their personnel in applying the field design change process.

### GOVERNING DOCUMENT

Utility Standard TD-4014S, "Change Control (Management of Change)"

### COMPLIANCE REQUIREMENT / REGULATORY COMMITMENT

NA

### REFERENCE DOCUMENTS

#### Developmental References:

American Petroleum Institute (API) 1173 Management of Change (MOC) 8.4

American Society of Mechanical Engineers (ASME) B31.8s Management of Change Plan (2.4.4) and 11

Center for Chemical Process Safety (CCPS), an AIChE Industry Technology Alliance, Guidelines for the Management of Change for Process Safety, Wiley-Interscience, New York

Code of Federal Regulations (CFR) Title 49, Transportation, Part 192—Transportation of Natural and other Gas by Pipeline: Minimum Federal Safety Standards, Section (§) 192.631, "Control room management"

CFR Title 49, Transportation, Part 195—Transportation of Hazardous Liquids by Pipeline, §195.446, "Control Room Management"

GDS J-15, "Gas Meter Locations"

GDS J-15.1, "Gas Meter Locations for Reconstructions, Relocation, Replacement, and Meter Work"

Publicly Available Specification (PAS) 55-2:2008 Asset Management. Guidelines for the application of PAS 55-1

Responsible Care (RC) International Standards Organization (ISO) 14001

Utility Policy TD-01, "Gas Safety Excellence Policy"

## Field Design Change Process for Distribution Lines and Dual-Asset Facilities

### Developmental References (continued)

Utility Procedure TD-4006P-01, "Process Hazard Analysis"

Utility Standard TD-4006S, "Process Safety Standard"

SAFE-10005M Gas Safety Excellence Management System Manual

### Supplemental References:

GDS A-04, "Cover and Clearance Requirements for Transmission Lines, Distribution Mains, and Service Lines"

GDS A-05, "Piggable Pipeline"

GDS A-34, "Piping Design and Test Requirements"

GDS A-36, "Design and Construction Requirements Gas Lines and Related Facilities"

Utility Manual TD-4160M, "Gas Welding Control Manual"

Utility Procedure TD-4461P-20, "As-Built Process for Distribution Mains and Services"

### APPENDICES

NA

### ATTACHMENTS

Attachment 1, "Distribution Lines and Dual-Assets Field Design Change Process Flow"

### DOCUMENT REVISION

Utility Procedure TD-4014P-05, "Field Design Change Process for Distribution Lines and Dual-Asset Facilities," Rev. 0, published 09/18/2019.

**Note:** TD-4014P-05, Rev. 0 superseded Utility Procedure TD-4014P-01, Rev. 2a, "Field Change Control Process," issued 04/18/2018, TD-4014P-01 – Attachment 1, Rev. 1, "Flowchart for Field Change Control Process (Permanent and Temporary Changes)," issued 12/29/2016, and Form TD-4014P-01-F01, Rev. 1, "Change Control Form," issued 12/29/2016.

### DOCUMENT APPROVER

Monica Yankowski, Manager, Gas Safety Excellence

### DOCUMENT OWNER

Jerrold Meier, Principal Gas Engineer, Standards Engineering

## Field Design Change Process for Distribution Lines and Dual-Asset Facilities

### DOCUMENT CONTACT

Kevin Akey, Change Control Expert, Gas Safety Excellence

### REVISION NOTES

Where?	What Changed?
Removed Note Before Section 1	Removed Note stating: "For transmission pipelines designed with dual asset facilities, this utility procedure will be used."
Note Before Section 1	Added second Note above Section 1 to better describe change process methodology for dual asset contract work.
Step 3.8	Moved previous Step 4.3 to become Step 3.8.
Step 3.9	Added direction about verifying upload of denial email.
Step 4.3	Removed "or denial," to make this step only about verifying upload of approval email
Section 4	Deleted previous Step 4.5 (changes are verified electronically).
Step 5.2	Added direction to submit a CAP item if an unapproved change is identified during review of the as-built package.

**Note:** TD-4014P-05, Rev. 0, published 09/18/2019, had the following Revision Notes:

Where?	What Changed?
All	<p>This is a major rewrite of the Field Change Control procedure that includes canceling Utility Procedure TD-4014P-01 "Field Change Control Process" and creating two new procedures, one for distribution, Utility Procedure TD-4014P-05. "Field Design Change Process for Distribution Lines and Dual-Asset Facilities," and one for transmission, Utility Procedure TD-4014P-06, "Field Design Change Process for Transmission Pipelines and Transmission Station Designs." Major process changes are listed below:</p> <ul style="list-style-type: none"> <li>• Changed name from Field Change Control to Field Design Change Control</li> <li>• Clarified criteria for field design change</li> <li>• Eliminated field change Category 1 and Category 2</li> <li>• Removed the requirement to complete a form to document the change control</li> <li>• Removed the requirement to send completed forms to change control email address (i.e., changecontrol@pge.com)</li> <li>• The field design changes will be documented (i.e., approval/denial) in original job packages and SAP.</li> </ul>