

## Field Design Change Process for Transmission Pipelines and Transmission Station Designs

### SUMMARY

This utility procedure describes the process Pacific Gas and Electric Company (PG&E or Company) uses to initiate, assess, approve, and document field changes to transmission and transmission station (including large volume customer regulation [LVCR]) 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, after issuance of a notice to proceed or 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 transmission pipeline and facility engineers, project engineers, project managers, general construction superintendents, field engineers, foremen, crew leads, construction management personnel and inspectors

### SAFETY

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


### BEFORE YOU START

NA

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**CAUTION**

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 in to 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 (LCVR) stations, this utility procedure will be used.

**NOTE**

For transmission assets designed with dual asset facilities, Utility Procedure TD-4014P-05, "Field Design Change Process for Distribution Lines and Dual-Asset Facilities," will be used.

**PROCEDURE STEPS**

**1 Initiate Field Design Change**

- 1.1 The change initiator (e.g., field engineer, construction manager) identifies the need for change from the approved design.

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- 1.2 IF the proposed field change to a design for a gas transmission pipeline or gas transmission station asset meets any of the following criteria:
- Change not allowed within engineering drawings 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 material that is not a replacement-in-kind (RIK) (e.g., piping, valves, meters, fittings, pipe supports)
  - Addition or deletion of a component
  - Change in location or configuration of components (e.g., pipe or conduit alignment, hanger/support spacing, valve location, offset, tie-in detail, impacts to hazardous area classification, customer point-of-service)
  - Change in construction method (e.g. open trench, bore, horizontal directional drilling)
  - Change in welding procedure or configuration
  - Change in cathodic protection (material or operation)
  - Change to supervisory control and data acquisition (SCADA) monitoring or control equipment (e.g., pressure transmitters [PT], pressure switches [PS], wiring configuration)
  - Installation of asset outside the PG&E land, rights, easement
  - 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

THEN the change initiator must initiate a request for information (RFI) in Unifier and obtain approval from the change owner (project engineer).

- 1.3 The RFI must include, at a minimum, the following information:
- Project/Job number
  - Description of design change
  - Reason for the design change

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### 1.3 (continued)

- Observed new hazards generated by the change in the field
- Specific drawings affected

1.4 See Attachment 1, "Transmission Pipelines and Transmission Stations 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 may perform the following steps.

1. Contact the change initiator (via phone or email) for additional information.
2. Provide preliminary verbal approval for a requested field change. However, the request must follow the field design change (FDC) process and, be documented accordingly.

2.2 IF the change request is for a change already implemented in the field (after-the-fact [ATF] request),

THEN tag the RFI as an ATF change request within the Unifier reply.

2.3 Perform risk analysis.

1. How does change introduce new risk and how can it be mitigated.
2. How does the change impact the Process Hazard Analysis (PHA).

2.4 IF a PHA exists for the project,

THEN do the following:

1. Review the previous PHA and design decisions when evaluating the change request.
2. Update the PHA if required, per Utility Procedure TD-4006P-01, "Process Hazard Analysis."
3. Submit revised PHA through the standard Unifier process.
4. Proceed to [Step 3](#).

2.5 IF a PHA does not exist,

THEN proceed with [Step 2.6](#).

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2.6 Evaluate the following:

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

2.7 Document the results of the risk analysis in the RFI.

### 3 Approve Change Request

3.1 IF requested change is approved,

THEN the change owner documents the following information in the RFI and notifies the change initiator via the RFI approval process.

- FDC request project/job number
- Confirmation of approval
- Results of the risk analysis/PHA
- Guidance and actions to implement the change including:
  - Communication of risk mitigation controls to affected personnel
  - Training requirements (as applicable)
- Updates to affected documents (e.g., drawings, forms, pipe and instrument diagrams)

3.2 IF the change request is not approved,

THEN the change owner documents the following information in the RFI and notifies the change initiator via the RFI denial process.

- FDC request project/job number
- Results of the risk analysis/PHA (as applicable)
- Attachment of relevant documents
- Confirmation the request is not approved

3.3 IF change request is not approved,

THEN the change initiator must not implement the change or may be required to correct the unapproved change.

3.4 Change initiator verifies the denial is in Unifier before the as-built package is completed.

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### 4 Implement Change

- 4.1 IF change request is approved,  
  
THEN the 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 verifies the approval is in Unifier before the as-built package is completed.

### 5 Verify the Change

- 5.1 The change owner must verify the change was implemented.
  1. Review the project's final as-built package and verify that red-line changes comply with all approved RFIs and PG&E standards.
  2. IF during the review of the as-built package an unapproved change is identified,  
  
THEN submit a CAP 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 #, location, issue

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

- 6.1 QC reviews the as-built package per Utility Procedure TD-4461P-21, "As-Built Process for Transmission Pipelines," OR Utility Procedure TD-4461P-22, "As-Built Process for Transmission Stations."
  1. Tracks, trends, and reports FDC in the field, including ATF and changes that were made but denied.

### 7 Recordkeeping

- 7.1 Retain records per the Record Retention Schedule.

**END of Instructions**

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### 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., GC foreman, GC field engineer, construction manager, construction management inspector, alliance contractor project foreman.

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

**Design Drawings:** Refer 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.

**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. This process supports the safety of personnel, the public, the environment, gas assets, and property.

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

### 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)"

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### 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”

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”

Utility Procedure TD-4006P-02, “Pre-Startup Safety Review”

Utility Standard TD-4006S, “Process Safety Standard”

SAFE-10005M Gas Safety Excellence Management System Manual

#### Supplemental References:

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”

Utility Manual TD-4160M, “Gas Welding Control Manual”

Utility Procedure TD-4006P-01, “Process Hazard Analysis”

Utility Procedure TD-4461P-21, “As-Built Process for Transmission Pipelines”

Utility Procedure TD-4461P-22, “As-Built Process for Transmission Stations”



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### APPENDICES

NA

### ATTACHMENTS

Attachment 1, "Transmission and Transmission Stations Field Design Change Process Flow"

### DOCUMENT REVISION

Utility Procedure TD-4014P-06, "Field Design Change Process for Transmission Pipelines and Transmission Station Designs," Rev. 0, published 09/18/2019.

**Note:** TD-4014P-06, 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.

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### REVISION NOTES

Where?	What Changed?
Step 3.3	Moved previous Step 4.3 to become Step 3.3.
Step 3.4	Added direction about verifying denial in Unifier.
Step 4.3 (previously Step 4.4)	<ul style="list-style-type: none"> <li>Removed "or denial," to make this step only about verifying upload of approval email.</li> <li>Removed direction to print and file a copy of the FDC request with the as-built package.</li> </ul>
Section 5	Deleted the previous section 5 entirely.
Section 6	Renamed section to "As-Built Process Quality Control (QC)"
Step 7.1	Removed reference to Unifier.

## Field Design Change Process for Transmission Pipelines and Transmission Station Designs

**Note:** TD-4014P-06, 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 in PG&amp;E system of record Unifier</li> </ul>