

Electric Transmission Line (T-Line) Issue for Construction (IFC) to As-Built Records, Including Field Change Tracker

SUMMARY

This utility procedure describes the requirements for creating an as-built record from the release of the job package, including a transmission line (T-Line) field change tracker form, through the construction and mapping process. This procedure applies to any capital or expense work that has a job package. For expense work, Engineering determines if a job package is required.

PG&E has established Electric Transmission Geographic Information System (ETGIS) as its resource for current and accurate data on system components. This procedure creates a path to validate system changes and communicate those changes to ETGIS. The procedure also allows for quality checks on completed work and compliance with design documents, standards, and [California Public Utilities Commission \(CPUC\) General Order 95 \(G.O. 95\), "Rules for Overhead Electric Line Construction."](#)

Level of Use: Guidance Document Mandate

TARGET AUDIENCE

This procedure targets employees in the following groups:

- T-Line Engineering
- Construction
- Order Management Desk (OMD)
- Mapping
- Project Management (PM)
- Asset Maintenance Planning
- Asset Management
- Asset Strategy
- Transmission Asset Development
- Transmission Systems Planning
- Operations Engineering
- Grid Operations
- Energy Management System (EMS) operations
- System Protection
- Automation

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SAFETY

NA

BEFORE YOU START

USE the latest copy of this document. The published version in the [Technical Information Library \(TIL\)](#) is always the latest version.

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PROCEDURE STEPS

1 Capital and Expense Jobs

1.1 The project engineer PERFORMS the following tasks at the Issue for Construction (IFC) stage.

1. In the Documents tab in SAP, UPLOAD the job package, including reference documents.
 - a. In the job package, PROVIDE all applicable names AND LAN ID for the following employees assigned to the project, in the following order:

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1.1 (continued)

- (1) Internal and/or contract project engineer
- (2) Designer engineer
- (3) Engineering supervisor

NOTE

Construction employees use the contacts in the job package as a call list in the Field Change Tracker process.

2. In SAP, CHECK the order long text AND Notification long text to evaluate if the job has both Tower engineering and Poles engineering components.
 - a. IF a job has both Tower engineering and Poles engineering components and both job packages are uploaded to SAP under the same order number,

THEN DOCUMENT in the Notes section that the job package is ready to pre-map on the PC26 task AND CHANGE the status of the PC26 task to "In Process."

NOTE

PC26 task status change is not necessary if the engineer used Grid Search to check in and check out PLS Models, as the TLD info layer pre-maps in ETGIS automatically.

EXAMPLE 1: When uploading a Poles engineering job package, the Poles engineer validates that Tower engineering's job package documents are uploaded. If the Tower engineering's job package is uploaded, the Poles engineer changes the status of the PC26 task to "In Process."

EXAMPLE 2: When uploading a Tower engineering job package, the Tower engineer validates that Poles engineering's job package documents are not uploaded. Since the Poles engineering's job package is not uploaded, the Tower engineer does not change the status of the PC26 task to "In Process."

- b. IF the job is a project-managed job package,

THEN the project engineer ADDS the job package to a designated ProjectWise/SAP location AND SENDS an EMAIL with the IFC attached to notify the OMD and the project team members that the job package is completed. When designs are approved in the T-Line Engineering Materials and Cost Calculator (TEMACC), the DS21 task is approved automatically; completing the DS21 task moves it to APPR status automatically. This only applies to capital projects.

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1.1 (continued)

- c. The project engineer or design engineer for both Poles and Tower engineering STORES all project related files, from working files to final documents in ProjectWise, except for PLS models.

- (1) REFER to [Utility Procedure TD-3330P-31, "Transmission Line Engineering and Estimating Project Records Storage,"](#) for the list of required documents that need to be uploaded.

- 1.2 For Poles and Tower engineered maintenance jobs, OMD employees COMPLETE the AP19 task in SAP (Approved Construction Package Received) AND COMPLETE the DS18 task in SAP (Design Approved).

2 Release to Construction (RTC) Meeting

NOTE

A formal RTC meeting is held only for project-managed jobs.

- The PM schedules meetings, as needed.
- The PM ensures that employees follow the process.

- 2.1 IF a project manager is assigned,

THEN the PM PERFORMS the following actions:

1. SCHEDULE an RTC meeting with the lead project engineer, construction employees, mappers, asset maintenance planner, and operations engineer, as applicable.
 - a. HOLD the RTC meeting at least 30 days before the scheduled construction start date. Exceptions may occur.
 - b. EMAIL the transmission mapping shared inbox to request a Mapping representative for the RTC meeting. REFER to [Appendix B, "T-Line Shared Inboxes,"](#) on Page 26, for the as-built shared inbox addresses.

NOTE

The construction representative must be a construction planning employee, supervisor, contractor, or inspector (if external).

2. PRODUCE a hard copy of the job package, as necessary.
3. FACILITATE the creation of an agreement for a hand-off plan. REFER to [Appendix A, "Process Phases and Service Level Agreements \(SLAs\),"](#) on Page 25, for a description of the hand-off process.

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2.1 (continued)

4. ENSURE that construction employees have access to the job package containing the engineering contact list.
5. SET milestones in Primavera (for project-managed jobs only).
6. CONDUCT ongoing, check-in meetings, as needed, and monthly field visits for the project team, including the project engineers, mappers, and construction employees, as appropriate.
7. TRACK the hand-off plan to ensure stakeholders meet agreed upon dates.

3 Pre-Mapping

- 3.1 Mapping employees RUN the PC26 INPR “In Process” report in SAP, per internal processes.
- 3.2 IF the engineer used Grid Search to check in and check out PLS Models,

THEN the PC26 task is not necessary because the TLD info layer automatically pre-maps in ETGIS. GO to [Section 4, “Job Package Construction/Field Change Control Process,”](#) on Page 6.
- 3.3 The mapper PERFORMS the following actions:
 1. In SAP, EVALUATE the job package for completeness.
 - a. IF the job package is incomplete,

THEN EMAIL the project engineer for the missing information/documentation.
- 3.4 When receiving an incomplete documentation email, the project engineer PERFORMS the following actions:
 1. LOCATE missing documentation.
 2. In SAP, PROVIDE the required documentation AND DOCUMENT corrections in the notification long text.
 - a. IF the notification long text is not available,

THEN DOCUMENT the correction(s) in the order long text.
 3. CREATE an email with the following information:
 - a. Subject line of email: Order ###xxxxxxx – Incomplete Documentation.
 - b. Body of email: Requested information is attached in SAP.
 - c. Contact name and number for follow-up questions.

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3.4 (continued)

4. EMAIL the mapper that the documentation was completed.

3.5 IF receiving an email from the project engineer,

THEN the mapper PERFORMS the following steps:

1. REVIEW the provided information/documentation.
2. IF the job package is complete,
THEN PERFORM the following steps:
 - a. UPDATE in SAP and the ETGIS system, per internal processes.
 - b. SUBMIT the ETGIS session AND HAND OFF to the Mapping reviewer.

3.6 The Mapping reviewer PERFORMS the following steps:

1. REVIEW AND COMMUNICATE with the mapper, per internal processes.
2. When validated in ETGIS, POST changes to default AND CLOSE the session (i.e., Job Post/Close).

3.7 In SAP, the mapper COMPLETES the PC26 task.

3.8 REFER to [Appendix A, "Process Phases and Service Level Agreements \(SLAs\),"](#) on Page 25 for hand-off procedures for service-level agreements.

4 Job Package Construction/Field Change Control Process

4.1 The construction supervisor PERFORMS the following steps:

1. ASSIGN a work lead for the project.
2. CONFIRM that the job package is accessible, in either electronic form or hard copy.

4.2 The construction work lead PERFORMS the following steps:

1. PERFORM the work and document attributes using the approved field application.
2. IF changes are needed for the job package, even a temporary change, to a design for electric transmission and distribution (T&D) facilities affects any of the items in [Table 1, "Changes Requiring Approval,"](#) on Page 7,

THEN field personnel (change initiator) must NOTIFY AND OBTAIN approval from the engineer (change owner) before implementing the change.

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4.2 (continued)

Table 1. Changes Requiring Approval

Approved Drawings or Bill of Materials (BOMs)	Any material substitution, addition, or subtraction (e.g., electrical equipment, transmission/distribution components or structures).
	Configuration or location of equipment (e.g., transformers, breakers, switches, transmission towers, distribution pole, conductor alignment, switch location, offset, tie in details, impacts to hazardous area classification, customer point of service).
	Construction method change affecting design intent.

a. Exceptions:

The following field changes do not require approval from the engineer unless noted otherwise on the drawing. All field changes will still require redlining with details:

- (1) A field change that is approved in a published guidance document or waiver.
- (2) A change allowed in the engineered job package.
- (3) Substitution between glass or porcelain insulators, except on new construction.
- (4) Pole anchor size (strength) increase to meet specified strength.
- (5) Pole anchor type change.
- (6) Relocating only tangent poles (not angle poles) ahead or back 5 feet if there is no change in elevation and no change to the ahead and back pole location. Alignment change (relocating to left or right) must be reviewed by engineering.

b. Field personnel CONTACT the project engineer for approval of the proposed field changes.

3. The project engineer PERFORMS the following steps:

- a. REFER to [Attachment 3, "Field Control Change Flowchart"](#) AND [Table 2, "Field Change Decisions,"](#) on Page 8.
- b. EVALUATE the change request before agreeing to and approving a change:
 - (1) ASSESS the safety risk to people, process, equipment, facility, and the environment:

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4.2 (continued)

- Are there any new risks introduced?
 - Are there any planned risk mitigations?
 - If the risk cannot be mitigated, should this change be approved?
- (2) REVIEW the cost of the change:
- Does the change require an increase in cost?
 - If yes, has the PM approved this cost increase?
 - Does the cost increase require sponsor approval?
- (3) REVIEW the change for conformance to standards:
- Does the change conform to applicable standards?
 - If no, has a waiver been obtained?
 - If the answer is no to both questions above, DECLINE the change.

Table 2. Field Change Decisions

Decision	Action
Field change conforms to standards and poses no new risk or issues.	Approve.
Field change does not conform to standards and a waiver is required.	Obtain waiver and approve.
Field change poses new risks or issues, or a waiver was not obtained.	Decline the change request.

c. IF the field change request is approved,

THEN the project engineer PERFORMS the following steps in SAP:

- (1) DOCUMENT the solution communicated to the construction lead in the notification long text.
- (2) COMPLETE [TD-3330P-26-F01, "T-Line Field Change Tracking Form."](#)
- (3) UPLOAD completed [TD-3330P-26-F01](#) to the order level in SAP.
 - IF the notification long text is not available,

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4.2 (continued)

THEN the project engineer ENTERS the solution in the order long text.

- d. IF proposed changes are denied,

THEN construction employees must PROCEED with the initial design.

- 4. IF the work is performed without a job package,

THEN DOCUMENT AND SUBMIT the completed work and component attributes using an approved field application.

5 Work Verification Submittals

5.1 Construction employees PERFORM the following steps:

- 1. COMPLETE the work.

- a. DOCUMENT the work and component attributes using the approved field application **for each notification** in the job package.

- (1) As work is completed, IDENTIFY changes to the design to reflect the as-built condition of the work performed, following [Utility Procedure TD-3330P-29, "Electric T-Line Redlining As-Built Drawings."](#)
- (2) PROVIDE the required equipment information.
- (3) PHOTOGRAPH the completed work, as detailed in the approved field application instructions. Guidance for required photographs is available in the approved field application and in [Attachment 1, "Field Application Photo Requirements."](#)

- 2. SUBMIT the work through the approved field application.

- a. INCLUDE all relevant documents, including any redlined as-built information, required equipment information, and photographs of the completed work.
- b. COMPLETE the Construction Completion Standards Checklist (CCSC) section in the approved field application according to [Utility Procedure TD-1018P-01, "Transmission Construction Completion Standards Checklist \(CCSC\)."](#)
- c. IF the CCSC is a printed copy,

THEN the submitter must PERFORM the following steps:

- (1) COMPLETE [Form TD-1018P-01-F01, "Transmission Construction Completion Standard Checklist \(CCSC\) Overhead \(M601644\)."](#)

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5.1 (continued)

- (2) PHOTOGRAPH each side of the completed [Form TD-1018P-01-F01](#).
- (3) SUBMIT photos of the completed [Form TD-1018P-01-F01](#) in the approved field application.

NOTE

After work submittal, the COMP task in SAP is completed automatically. Completing the COMP task creates a REVW task automatically.

- d. If switch or conductor rating changes on a line,

THEN DO NOT ENERGIZE these new features until the as-built drawing is mapped in ETGIS or until the Grid Control Center (GCC) has received an updated switch form and agrees to release operations.

5.2 The T-Line Engineering work verification team PERFORMS the following steps:

1. EVALUATE the submission for completeness and image quality as described in [Appendix D, "Tips for Evaluating Image Quality,"](#) on Page 28.
2. IF the submission or images have quality issues,

THEN the T-Line Engineering work verification team PERFORMS the following steps:
 - a. EMAIL the submitter.
 - b. NOTE the quality issues in the Notification Long Text in SAP.
3. The submitter APPENDS submission in the approved field application and then NOTIFIES the T-Line Engineering work verification team of the appended submission.
4. The designated design engineer, civil engineer, or subject matter expert (SME) REVIEWS the submittal for completion of the work outlined in the job package and for compliance with applicable standards.
 - a. On approval, the engineering assistant PERFORMS the following actions:
 - (1) COMPLETE the REVW task in SAP, as applicable.
 - (2) EMAIL TlineClerical@pge.com, requesting that clerical complete the notification.
 - (3) IF the notification is the final notification completed in an order,

THEN M&C Clerical personnel COMPLETE the CN24 task in SAP.

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5.2 (continued)

- b. IF the SME identifies that additional work is needed, depending on the type of go back,

THEN the engineering assistant PERFORMS the following steps based on the specific instances at the request of the designated engineer or SME:

- (1) IF a crew error is identified,

THEN, the engineering assistant/intaker EMAILS the crew, supervisor, superintendent, and planner to perform go back to work and resubmit once completed. Notification is flagged for go back in T-Line Maintenance Tracker (TLM). M&C Notification and Order Management personnel removes the COMP task.
- (2) IF the notification is Priority A and the existing safety issue has been mitigated,

THEN GO to Subsection [5.2.4.c](#) below for with additional work processes.
- (3) The crew RESUBMITS notification to Work Verification AND completes the COMP task in SAP.
- (4) Work Verification RE-REVIEWS the notification.

- c. IF the work identified is **not** the result of crew error,

THEN the engineering assistant/intaker PERFORM the following steps:

- (1) To mitigate a safety issue or meet GO-95 requirements, CREATE a new LC notification, describing what is needed to bring the facility into compliance with the applicable standards.
- (2) To mitigate all other issues, CREATE a new LR notification, OR, if the new notification meets the requirements of a Priority P notification and is related to defined program work, CREATE a new LC notification with Priority P describing what is needed to bring the facility into compliance with the applicable program standards.
- (3) IF additional work is required to correct a design error,

THEN EMAIL the design engineer and supervisor AND DESCRIBE the design issue.
- (4) NOTIFY the submitter via email of the notification closure.

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5.3 T-Line Engineering As-Built Process

1. After the CN24 is completed, the engineering assistant **REVIEWS** the as-built for quality control (QC), per internal processes.
 - a. IF there is a quality concern OR IF the submittal is incomplete or inaccurate, THEN EMAIL the appropriate group, AND **CHANGE** the status of the CNI* task to "In Process."
 - b. IF construction validates a quality defect, THEN **CHANGE** the status of CNI* to "In Process."
 - c. IF a task is not visible on an order in SAP, THEN **ACTIVATE** the task to change the task's status to INPR "In Progress."
 - d. **SELECT** the CNI* task that matches the number of the CNQ* (e.g., for CNQ1, USE CNI1; for CNQ2, use CNI2).
 - e. In SAP, **DOCUMENT** the Structure IDs, Location IDs, details of the change request, requester, and approver in the Notification Long Text.
 - (1) IF the Notification Long Text is unavailable, THEN **DOCUMENT** the information in the Order Long Text.
 - f. **WORK** with the project's construction supervisor to complete updates and address all concerns.
 - g. After all concerns are resolved, **COMPLETE** the CNI* task in SAP.

NOTE

* Indicates the task is iterative: CNI1, CNI2, CNI3, CNI4, CNI5, or CNIF. CNIF indicates the final iteration.

- (1) IF settlement rules are still valid, THEN **VERIFY** if the model requires an update.
 - (2) IF it is determined that the model is no longer valid, THEN **ACTIVATE** Document Model Update (DCMU).
 - (3) **INFORM** the project engineer of the redlines.
- h. IF settlement rules are invalid,

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5.3 (continued)

THEN ACTIVATE Document Settlement Rule (DCSR).

(1) The redesign process is automatically initiated in TEMACC.

(2) INFORM the project engineer of the redlines.

i. IF there are no documentation issues,

THEN COMPLETE the appropriate CNE* task AND GO to [Subsection 5.3.2](#). below. SAP then automatically activates the CNQ* task.

j. USE incremental tasks to indicate the order of receipt for partial and final as-built drawing(s); e.g., CNE1, CNE2, CNE3, CNE4, CNE5, CNEF (Final).

2. IF the project was built as designed (i.e., no redlines),

THEN COMPLETE the CNQ* task AND GO to [Section 6, "Mapping Partial Submittals,"](#) on Page 14, OR [Section 7, "Mapping Final As-Built Submittals,"](#) on Page 16, as applicable.

3. IF the project was **not** built as designed,

THEN REVIEW the notification and order long text to determine if the redlines were communicated and approved by T-Line Engineering.

a. CHANGE the CN31 task status to "In Process" **only** if it has a design package.

NOTE

CN31 is completed for project work but is never completed or incremented for maintenance work. CN31 is for tracking purposes only.

b. The designated SME may contact the responsible engineer to assure that the redlines do not deviate from the standards.

c. IF the redlines are approved,

THEN COMPLETE the CNQ* task AND GO to [Section 6](#) on Page 14, or [Section 7](#) on Page 16, as applicable.

d. IF the redlines are **not** approved,

THEN NOTIFY the designated SME/ project engineer that the as-built was received with redlines. The designated SME/project engineer PROVIDES guidance on corrective work for in-scope work identified that is not in compliance AND NOTIFIES engineering assistant for LC creation in [Subsection 5.2.3](#) on Page 10.

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5.3 (continued)

4. The project engineer PERFORMS the following steps:
 - a. IF the job includes Supervisory Control and Data Acquisition (SCADA), OR changes the impedance of the line (e.g., taps, grounding, types of poles, conductor spacing), OR switch (addition, replacement, modification),

THEN CALL OR EMAIL the following groups receiving the as-built, as appropriate:
 - (1) [REDACTED] (Automation)/SCADA
 - (2) System protection
 - (3) Grid Operation & EMS Modeling (impedances, ratings, telemetry)
5. The design engineer DETERMINES if the design change requires a model update.
 - a. IF the model requires an update,

THEN PERFORM the following steps:
 - (1) CHECK OUT the model in Grid Search.
 - (2) MAKE model updates AND CHECK IN the as-built.
 - (3) IF the design change requires revised settlement rules,

THEN LOAD the BOM and REVISE CUs, as needed, AND RE-SEND the model to TEMACC.
 - b. IF the redesign process has not been initiated,

THEN INITIATE the redesign process in TEMACC.
 - c. REVISE CUs as necessary.
 - d. COMPLETE DCMU or DCSR, if activated.

5.4 REPEAT [Step 5.3](#), on Page 12, for each iterative as-built submittal.

6 Mapping Partial Submittals

6.1 IF built as designed (i.e., without any redlines),

THEN the project engineer or the engineering assistant, PERFORMS the following steps:

1. IF a partial submittal does not contain quality issues,

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6.1 (continued)

THEN COMPLETE the CNQ* task to hand off the partial submittal to Mapping employees.

- a. SAP automatically changes the status of the PCM* task to "In Process."

NOTE

PCM* increments PCM1, PCM2, PCM3, PCM4, and PCM5 mirror CNQ*.

6.2 Mapping employees PERFORM the following steps:

1. RUN the SAP PC26 jobs report, per internal processes.
2. REFER to [Appendix A](#) on Page 25 for the hand-off, service-level agreements.
3. In SAP, EVALUATE the as-built submittal for completeness and by referring to ETGIS mapping requirements criteria.
4. IF the partial submittal is incomplete,
THEN EMAIL the project engineer for clarification.
5. In SAP, DOCUMENT the description of the issue in the Notification Long Text in the order, as well as in the Notification Long Text task.
6. IF the Notification Long Text is not available,
THEN DOCUMENT the information in the Order Long Text in SAP.

6.3 The project engineer PERFORMS the following steps:

1. UPLOAD the required documentation in SAP.
2. EMAIL the mapper when completed.

6.4 The mapper PERFORMS the following steps when receiving documentation from the project engineer:

1. REVIEW the documents.
2. IF the job package is complete,
THEN the mapper TAKES the following actions:
 - a. UPDATE SAP and ETGIS, per internal processes.
 - b. SUBMIT the ETGIS session AND HAND OFF to the Mapping reviewer, per internal processes.

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6.5 The Mapping reviewer PERFORMS the following steps:

1. REVIEW AND COMMUNICATE with the mapper, per internal processes.
2. When the information is validated in ETGIS, POST changes AND CLOSE the session (i.e., Job Post/Close).

6.6 In SAP, the mapper PERFORMS the following steps:

1. COMPLETE the PCM* task.

7 Mapping Final As-Built Submittals

7.1 After receiving the final as-built submittal from construction employees, the T-Line Engineering's employee administering the inbox REPEATS [Step 5.3](#) on Page 12.

7.2 The design or civil engineer/responsible engineer (if not built as designed) or engineering assistant (if built as designed) PERFORMS the following steps:

1. REPEAT [Step 5.3](#) on Page 12.
2. IF the final submittal does not contain quality issues,

THEN COMPLETE the CNQF task. ASSEMBLE all the documents into one final PDF job package AND UPLOAD the PDF package into SAP.
3. UPDATE the drawings, if any in Documentum, per internal processes.
4. In SAP, COMPLETE the DC05 task. SAP automatically changes the status of the DC14 task to "In Process."

7.3 Mapping employees RUN the DC14 INPR "In Progress" report in SAP.

1. REFER to [Appendix A](#) on Page 25 for hand-off, service-level agreements.

7.4 The mapper PERFORMS the following steps:

1. In SAP, EVALUATE the job package for completeness.
 - a. IF the job package is incomplete,

THEN FOLLOW the Incomplete Documentation (IDOC) process, per internal processes.
 - (1) CHANGE the job status to "Incomplete Documentation" in SAP.
 - (2) ENTER the specific reason for the IDOC in the Notification Long Text in the order as well as in the Notification Long Text on the task in SAP.

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7.4 (continued)

- IF the notification long text is not available,

THEN ENTER a reason for the IDOC in the task's Order Long Text in SAP.

NOTE

SAP sends an IDOC notification to the person who completed the DC05 task in SAP.

7.5 IF receiving an IDOC notification,

THEN the engineering assistant, project engineer PERFORMS the following steps:

1. When the required documentation is received,

THEN PROVIDE documentation AND DOCUMENT corrections in the Notification Long Text in SAP.
 - a. IF the Notification Long Text is **not** available,

THEN DOCUMENT corrections in the Order Long Text.
2. EMAIL the IDOC initiating mapper about receiving the updated documentation AND CONFIRM that all necessary documentation is now available in SAP:
 - Subject line of email: Order #xxxxxxx – IDOC Report
 - Body of email: Requested information is attached in SAP
 - A contact name and number, for any needed follow up

7.6 The mapper PERFORMS the following steps:

1. IF receiving an IDOC email from the project engineer,

THEN REVIEW the documentation.
2. IF the job package is complete,

THEN PERFORM the following steps:
 - a. COMPLETE the IDOC.
 - b. UPDATE ETGIS, per internal processes.
 - c. SUBMIT the ETGIS session AND HAND OFF to a Mapping reviewer, per internal process.

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7.6 (continued)

- d. In SAP, COMPLETE the DC14 and DC15 tasks. SAP automatically changes the status of the DC10 task to “In Process.”

7.7 Mapping employees RUN the DC10 INPR “In Process” report in SAP, per internal processes.

7.8 The Mapping reviewer PERFORMS the following steps:

1. REVIEW AND COMMUNICATE with the mapper, per internal processes.
2. When validated in ETGIS, POST changes to default, AND CLOSE the session (i.e., Job Post/Close).

7.9 The Mapping reviewer COMPLETES the DC10 task in SAP. Completing the DC10 indicates that the job is completed and ready to close.

8 Final As-Built Complete

8.1 For project-managed jobs only, the PM/project controls analyst (PCA) PERFORMS the following steps:

1. VERIFY the as-builts are in SAP/Clarity.
2. MANIFEST the as-built complete milestone in Primavera.

END of Capital and Expense Jobs Procedures

9 Minor Emergency Work

9.1 Construction employees PERFORM the following steps:

1. USE the approved field application to create a notification for the emergency work.
2. CALL the T-Line Engineering point of contact to discuss work and recommendations.
3. BUILD the project, per engineering recommendations.
4. IF the point of contact is unavailable,
THEN BUILD the project to existing as-builts, “like for like.”
5. CALL the T-Line Engineering point of contact when the work is complete.
6. DOCUMENT the work using the approved field application, indicating the work performed.

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9.2 T-Line Engineering employees PERFORM the following steps:

1. CREATE the post-estimate job package per field submittal.

NOTE

The post-estimate/job package is created in a comparable manner as a standard job package.

2. REPEAT the project and program-managed job steps starting at [Step 5.3](#), on Page 12, through the project's completion, as applicable.

10 Major Emergency Work

10.1 Construction employees PERFORM the following steps:

1. USE the approved field application to create a notification for the emergency work.
2. ASSEMBLE at the jobsite.

10.2 T-Line Engineering employees CREATE design drawings AND HAND OFF the drawings to construction employees as they are completed.

10.3 Construction employees TAKE the following steps:

1. BUILD the project as the drawings become available.
2. DOCUMENT the work using the approved field application.

NOTE

Major emergency work construction and engineering is a repetitive process: Construction sends drawings (sometimes partial drawings) to be engineered as they become available.

10.4 Construction, T-Line Engineering, Mapping, Asset Maintenance Planning, Asset Management, Grid Operations, Project Management, and Order Management Desk employees REPEAT project-managed program, expense, and capital jobs steps starting at [Section 5, "Work Verification Submittals,"](#) on Page 9, through completion, as applicable.

11 Field Inspections

11.1 Field inspectors EXAMINE assets (either visually and/or using routine diagnostic tests, as appropriate) AND DICTATE the condition to be recorded by Mapping employees.

11.2 Field inspectors USE a [Request for Work \(RW\) Notification Process](#) to notify Mapping employees. They do not follow the steps outlined in this procedure; however, exceptions may occur.

END of Instructions

Electric Transmission Line (T-Line) Issue for Construction (IFC) to As-Built Records, Including Field Change Tracker

DEFINITIONS

Approved field application: PG&E maintains several electronic applications (e.g., Construct, Inspect) for documenting work performed in the field and creating notifications for new work.

Approver(s): The person who reviews and approves the preliminary impact assessment, implementation plan, communication plan, and the process hazard analysis (PHA).

Capital jobs: Work related to installing and/or removing assets, as identified in the Capital Accounting Retirement Units Catalog.

Change: An activity that results in a difference between the original design and its current or future state by adding, modifying, or substituting a process, equipment, facility, employees, or procedure. Field changes must continue to meet operational intent.

Change control: A process for evaluating and controlling modifications to facilities, operations, procedures, equipment, organization, or design activities before implementation, to ensure no new hazards are introduced, and the risk of existing hazards is not unknowingly increased. Supports the safety of personnel, the public, environment, electrical, or civil assets, and property. Industrywide change control is referred to as "Management of Change (MoC)."

Design drawing: An engineering drawing describing the requirements for a pending construction job.

Electric Transmission Geographical Information System (ETGIS): A software application that enables accurate records maintenance and efficient operation of the PG&E electric system. GIS can render records into different maps (views) of the electric system.

Engineer: Any person responsible for managing and approving engineering activities, including project and non-project changes.

Energized: Electrically connected to or having a source of voltage.

Expense jobs: Work related to installing or replacing minor items of property, independent of the associated retirement unit. Retirement units are defined as associated minor items of property.

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

Field correction: When field employees notify Mapping employees of discrepancies between assets in the field and PG&E's system of record (ETGIS).

Hand-Off Plan: A document indicating how often to submit as-built drawings. The plan does not necessarily indicate specific dates. The project manager is responsible for facilitating the plan's creation. Project team members provide feedback and commit to the frequency of hand-offs. Hand-offs primarily occur as follows: Construction to Engineering, Engineering to Mapping, and Mapping to Asset Maintenance Planning.

Electric Transmission Line (T-Line) Issue for Construction (IFC) to As-Built Records, Including Field Change Tracker

DEFINITIONS (continued)

Job owner: The job owner is based on the type of project being performed. The job owner is the project manager for project-managed work. The job owner is the M&C engineer for steel maintenance work.

Job package: A set of documents describing the requirements for a pending construction job. A job package can include: an engineering Issued for Construction (IFC) package, permits, encroachment permits, environmental release to construction permits, and joint pole forms.

Major emergency work: Work where the Substation Transmission Operations Emergency Center (STOEC) is activated. Common causes of major emergency work are large fires or severe storms.

Minor emergency work: Emergency work where the STOEC is not activated. Common causes of minor emergency work are car-pole and pole fires.

Operational date: The date that all new features for a job are energized.

Permanent change (normal change): A modification that is not expected to change for an indefinite time. Sometimes referred to as “normal change.”

Pre-map: The act of mapping an IFC or design package in ETGIS, reflecting the to-be state.

Program-managed jobs: Jobs that may include shorter-duration projects managed by program management employees. Examples of program-managed jobs are pole replacements and maintenance work.

Project-managed jobs: Jobs that are large and/or complicated in scope and are managed by project management employees. These jobs include capacity and reliability projects.

IMPLEMENTATION RESPONSIBILITIES

Supervisors for the employees listed in the [Target Audience](#) on Page 1 must communicate the information in this procedure and associated procedures to all affected construction employees.

Directors of engineering and field construction groups must ensure this procedure is communicated and implemented in their area.

Managers or supervisors of engineering and field construction groups must implement this procedure and support their personnel in applying the change control process.

GOVERNING DOCUMENT

[Utility Standard TD-3330S, “Transmission Line and Substation Project Engineering Requirements”](#)

Electric Transmission Line (T-Line) Issue for Construction (IFC) to As-Built Records, Including Field Change Tracker

COMPLIANCE REQUIREMENT / REGULATORY COMMITMENT

[CPUC G.O. 95, "Rules for Overhead Electric Line Construction"](#)

Information and Records Management:

PG&E Data, Information, and Records are company assets that must be traceable, verifiable, accurate, and complete, and can be retrieved upon request. Functional Areas are responsible for complying with the Information & Records Governance Policy, Standards, and the Information and Records Retention Schedule. Refer to [GOV-7101S, "Enterprise Records and Information Management Standard,"](#) for further guidance or contact Information & Records Governance at Information&RecordsGovernance@pge.com.

REFERENCE DOCUMENTS

Developmental References:

- [Corporation Policy GOV-01, "Enterprise Records and Information Management Policy"](#)

Utility Procedures:

- [GOV-7104P-01, "Sending Physical Records to Offsite Storage"](#)
- [TD-3330P-09, "As-Built Review Process"](#)

[International Organization for Standardization \(ISO\) 55001:2014, "Asset management – Management systems – Requirements"](#)

[Publicly Available Specification \(PAS\) 55-2:2008, "Asset Management," Part 2: Guidelines for the application of PAS 55-1](#)

[International Standards Organization \(ISO\) Standard RC 14001, "Responsible Care Management System"](#)

Supplemental References:

NA

APPENDICES

[Appendix A, "Process Phases and Service Level Agreements \(SLAs\)"](#)

[Appendix B, "T-Line Shared Inboxes"](#)

[Appendix C, "SAP Codes"](#)

[Appendix D, "Tips for Evaluating Image Quality"](#)

Electric Transmission Line (T-Line) Issue for Construction (IFC) to As-Built Records, Including Field Change Tracker

ATTACHMENTS

[Attachment 1, "Field Application Photo Requirements."](#)

[Attachment 2, "T-Line As-Built Overview Process Map"](#)

[Attachment 3, "Field Control Change Flowchart"](#)

Forms:

- [TD-3330P-26-F01, "T-Line Field Change Tracking Form"](#)

DOCUMENT REVISION

This utility procedure supersedes Utility Procedure TD-3330P-26, "Electric Transmission Line (T-Line) Issue for Construction (IFC) to As-Built Records, Including Field Change Tracker," Rev. 3, dated 03/03/2022.

DOCUMENT APPROVER

██████████, Senior Manager, Transmission Line Engineering - Tower

██████████, Senior Manager, Transmission Line Engineering - Poles

██████████, Supervisor, GIS Standards and Training

██████████, Manager, Compliance and Quality Control

DOCUMENT OWNER

██████████, Senior Manager, Transmission Line Engineering - Tower

██████████, Senior Manager, Transmission Line Engineering - Poles

██████████, Superintendent, Transmission Line Maintenance and Compliance

██████████, Supervisor, GIS Standards and Training

██████████, GIS Compliance and Improvement

DOCUMENT CONTACT

██████████, Principal Program Manager, T-Line Engineering

██████████, Supervisor, Engineering Services

██████████, Expert Business System Specialist, GIS Standards and Training

Electric Transmission Line (T-Line) Issue for Construction (IFC) to As-Built Records, Including Field Change Tracker

DOCUMENT CONTACT (continued)

██████████, Senior Design Engineer, T-Line Engineering

██████████ Supervisor, Transmission Operations Engineering

██████████, Superintendent, Transmission Line Maintenance and Compliance

REVISION NOTES

Where?	What Changed?
Entire document	Updated department and document terminology, as regulated (e.g., "engineering/estimating" to "engineering" and "engineering job package" to "project-managed job package"). Removed steps no longer performed by Mapping, Asset Management, and Grid Operations.
Section 1	Revised job classification to "Capital and Expense Jobs." Verified roles and documented process updates.
Section 3	Removed PDOC process that is no longer followed by Mapping for incomplete job packages.
Section 4	Added language for new notification creation when redlines are not approved.
Section 5	Added language for submitting work through the approved field application and completing the CCSC form. Updated the steps to include COMP task completion and REVW task creation.
Section 6	Added language for creating a new notification when redlines are not accepted.
Section 7	Removed language referring to process steps no longer performed by Mapping.
Compliance Requirement / Regulatory Commitment	Updated "Information and Records Management" language (formerly "Records and Information Management").
Document Approver, Document Owner, and Document Contact	Updated document approver, owner, and contact information.
Appendix B	Removed Appendix of Work Center Mailboxes for Construct Submittals, due to process change of emailing individuals directly.
Appendix C	Removed ET10 SAP codes and added DCSR and DCMU. Added REVW and COMP codes.

Electric Transmission Line (T-Line) Issue for Construction (IFC) to As-Built Records, Including Field Change Tracker

Appendix A, Process Phases and Service Level Agreements (SLAs)

Pre-Map Submittal	Partial Submittal	Final Submittal
- Job package created - Pre-mapped in ETGIS and SAP - Construction work	If a multiple-segment project, as-built drawings are submitted in predetermined segments with agreed-on due dates (e.g., Segment 1, Segment 2, Segment 3, Final Segment). - Within 1 day of work being completed, construction employees capture as-built image and email Eng. - Eng performs quality controls, creates .pdf files, and uploads the .pdf files to SAP (CNE*, CNQ*). - Eng submits as-built segment to Mapping (PCM*). - Mapping updates ETGIS and reconciles in SAP with Asset Maintenance Planning. - Once in ETGIS, new features can be energized.	When a job is complete or if only a one-segment job: - Within 1 day of work being complete, construction employees submit final drawing(s) of the package to Eng. - Eng Quality Controls *(CNQF) uploads the final package to SAP *(DC05). - Mapping updates ETGIS *(DC14, DC15, DC10) and reconciles in SAP with Asset Maintenance Planning. - Once in ETGIS, new features can be energized. - Stakeholders notified (Asset Management, Grid Ops, SCADA, etc.).
Hand-Off SLAs - Mapping ≤ 3 business days. - Asset Maintenance Planning ≤ 5 business days.	Hand-Off SLAs - Construction ends ≤ 1 day. - Eng ≤ 5 business days. - Mapping ≤ 3 business days - Asset Maintenance Planning < 5 business days.	Hand-Off SLAs - Construction ends ≤ 1 day. - Eng ≤ 5 business days. - Mapping ≤ 3 business days - Asset Maintenance Planning ≤ 5 business days.

Electric Transmission Line (T-Line) Issue for Construction (IFC) to As-Built Records, Including Field Change Tracker

Appendix B, T-Line Shared Inboxes

USE the appropriate email address below to access As-Built Shared Inboxes during electric transmission line (T-Line) construction projects.

- T-Line Engineering As-Built(s) – TlineAsbuilt@PGE.com
- T-Line Transmission Mapping – ElecTransmissionMapping@pge.com
- T-Line Mapping Incomplete Documentation – ETIDOCElecMapping@pge.com
- T-Line Clerical – TlineClerical@PGE.com
- T-Line Work Verification – TlineWorkVerification@pge.com

Electric Transmission Line (T-Line) Issue for Construction (IFC) to As-Built Records, Including Field Change Tracker

Appendix C, SAP Codes

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Task Code	Description	Submittal	Department
AP19	Approved Estimate Received by OMD or CCD	Job Package	Engineering
PC26	Pre-post planned construction work	Job Package	Engineering
CNE1	Eng Inbox (Iteration 1)	Partial	Engineering
CNE2	Eng Inbox (Iteration 2)	Partial	Engineering
CNE3	Eng Inbox (Iteration 3)	Partial	Engineering
CNE4	Eng Inbox (Iteration 4)	Partial	Engineering
CNE5	Eng Inbox (Iteration 5)	Partial	Engineering
CNEF	Eng Inbox (Final)	Final	Engineering
CNQ1	Eng completes QC (Iteration 1)	Partial	Engineering
CNQ2	Eng completes QC (Iteration 2)	Partial	Engineering
CNQ3	Eng completes QC (Iteration 3)	Partial	Engineering
CNQ4	Eng completes QC (Iteration 4)	Partial	Engineering
CNQ5	Eng completes QC (Iteration 5)	Partial	Engineering
CNQF	Eng completes QC (Final)	Final	Engineering
CNI1	As-Built back to Construction (Iteration 1)	Partial	Engineering
CNI2	As-Built back to Construction (Iteration 2)	Partial	Engineering
CNI3	As-Built back to Construction (Iteration 3)	Partial	Engineering
CNI4	As-Built back to Construction (Iteration 4)	Partial	Engineering
CNI5	As-Built back to Construction (Iteration 5)	Partial	Engineering
CNIF	As-Built back to Construction (Final)	Final	Engineering
CN24	Construction Complete	Final	Construction/Maintenance
CN31	As-Built Review	Final	Engineering
DS18	Design Approved – DOA	Job Package	Engineering
DC05	Documents Scanned and Ready to Map	Final	Engineering
DCMU	Document Model Update	Final	Engineering
DCSR	Document Settlement Rule	Final	Engineering
PCM1	As-Built to Mapping (Iteration 1)	Partial	Mapping
PCM2	As-Built to Mapping (Iteration 2)	Partial	Mapping
PCM3	As-Built to Mapping (Iteration 3)	Partial	Mapping
PCM4	As-Built to Mapping (Iteration 4)	Partial	Mapping

**Electric Transmission Line (T-Line) Issue for Construction (IFC) to As-Built
Records, Including Field Change Tracker****Appendix C, SAP Codes**

Page 2 of 2

Task Code	Description	Submittal	Department
PCM5	As-Built to Mapping (Iteration 5)	Partial	Mapping
DC14	Validate As-Built package for accuracy	Final	Mapping
DC15	Complete As-Built update (GIS, Legacy, AR)	Final	Mapping
DC10	Validate As-Built Updates	Final	Mapping
COMP	Notification Task Indicating Construction Complete	Final	Construction/Maintenance
REVV	Notification Task Indicating Work Verification Complete	Final	Engineering

Electric Transmission Line (T-Line) Issue for Construction (IFC) to As-Built Records, Including Field Change Tracker

Appendix D, Tips for Evaluating Image Quality

Page 1 of 2

1. REVIEW for clarity and focus. ZOOM IN to 100% to see the images clearly.

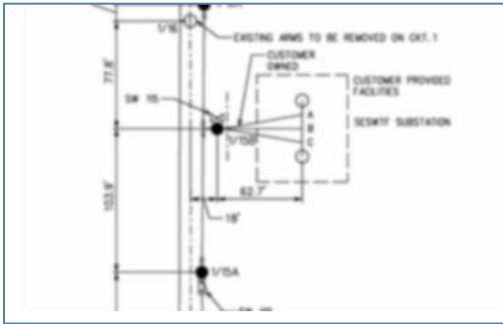


Figure 1. Blurry (Unacceptable)

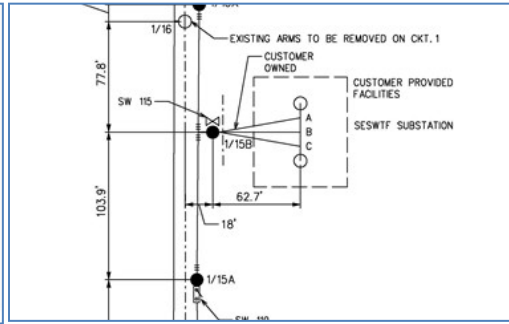


Figure 2. Clear (Acceptable)

2. REVIEW for skew.

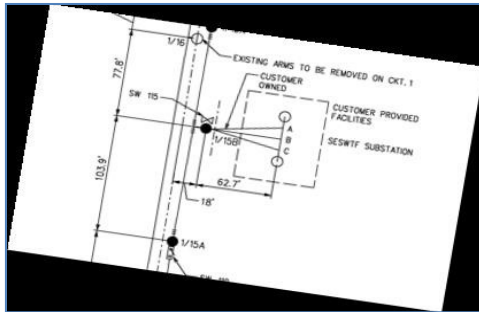


Figure 3. Skewed (Unacceptable)

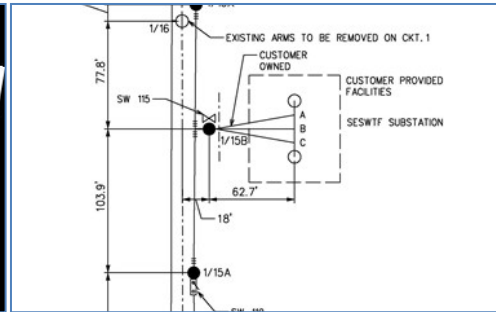


Figure 4. Straight (Acceptable)

3. Partial captures are not acceptable. The entire drawing must be contained in one image. ROTATE the image as needed. Images do not have to be perfectly straight, just as straight as possible.



Figure 5. Incorrect



Figure 6. Correct



Electric Transmission Line (T-Line) Issue for Construction (IFC) to As-Built Records, Including Field Change Tracker

Appendix D, Tips for Evaluating Image Quality

Page 2 of 2

4. CROP the image to remove unneeded borders. USE MS Paint to crop images. If the image quality is not acceptable, CONTACT the construction work lead and request a resubmittal.

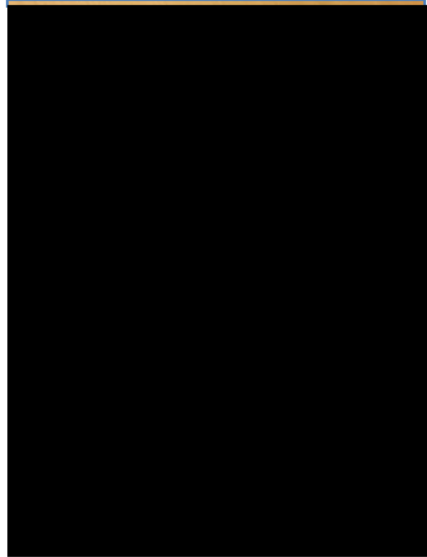


Figure 7. Uncropped Image

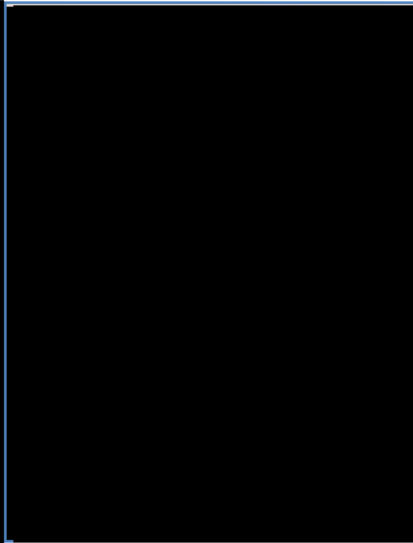


Figure 8. Cropped Image