

2021 Transmission Detailed Climbing Inspection Program

Introduction: PG&E has standardized its Transmission Detailed Climbing Inspection Program so that all Inspectors are employed by PG&E. PG&E does not use Contractors for Climbing Inspections.

1.0 Detailed Climbing Inspection (6 major tasks)

1. Identify and record compelling abnormal conditions and third-party caused infractions that negatively impact safety or reliability
2. Take photos of field conditions and PG&E assets
3. Complete an enhanced Inspection Checklist to document your inspection results, observations, findings, photos. Not every condition is listed on the checklist.
4. When a compelling abnormal condition is not listed on the Inspection Checklist, complete the Inspection Checklist according to normal processes and separately create a Line Corrective (LC) notification for the unique condition that was not identified in the Inspection Checklist

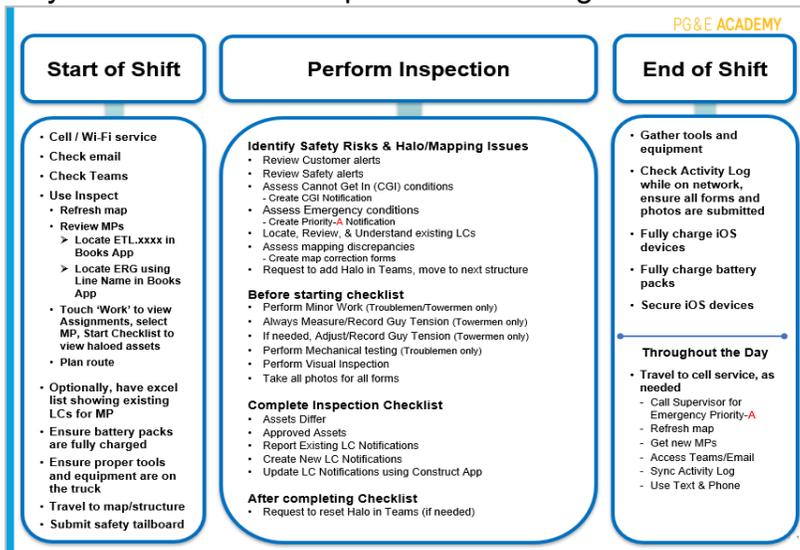
Note: PG&E's Transmission Inspections Program is a preventative maintenance program designed to perform enhanced inspections on PG&E's transmission facilities. The program uses a risk-based model that prioritizes enhanced inspection cycles based upon California's High-Fire Threat District (HFTD) maps and other criteria.

2.0 Approved Tower Assets

1. Structure is in the field
2. Structure is a Transmission asset
3. Structure is a Steel/Lattice Tower
4. Structure is a LDSP or Non-Steel Pole

3.0 Daily Workflow

Overview: PG&E has standardized a mandatory daily workflow to be followed for all inspectors who conduct a climbing inspection. The training program reviews each mandatory step within the (1) Start of Shift, (2) Perform Detailed Inspection, and (3) End of Shift sections. Failure to comply to these mandatory requirements may lead to reminders up to and including termination.



4.0 Field Assessments (to help identify compelling abnormal conditions)

Overview: Field assessments are one or more observations, examinations, or tests of a structure and its components in order to identify compelling abnormal conditions requiring action. The location of the structure and other site-specific conditions may influence the evaluation of the work required. The priority and recommended repair date associated with any notification depend on the proximity to roadways or pedestrian traffic, accessibility of the location to the public, or the impact of failure or exposure.

Always consider these conditions:

1. The risk of exposure to the public, workers, or employees
2. The abnormality encountered
3. Risks if the condition continues to deteriorate
4. Likelihood of facility failure
5. Impact of failure to system reliability, customers, and service, and/or the potential for injury

Requirement: All compelling abnormal conditions requiring action must be recorded using the Inspect App.

5.0 Line Corrective Overhead Facility, Damage, and Action Codes (FDA)

Overview: FDAs are listed in the Electric Transmission Preventive Maintenance Manual (ETPM) (screenshot of a portion of the list is shown in screenshot below).

F means Facility which groups assets like Anchor-Steel, Foundation, etc.

D means Damage which has descriptions like Missing, No Good/Out of Standard, etc.

A means Action which describes the recommended action to correct the abnormal condition or regulatory infraction like Repair, Replace, Install, etc.

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Using FDA Codes

Overhead Facility, Damage and Corrective Action Codes

Facility	Damage	Action	Facility	Damage	Action
Anchor-Steel	Missing	Install	Hardware-Steel	Missing	Install
	No Good/Out of Stdrd	Repair		No Good/Out of Stdrd	Replace
Anchor-Wood	Missing	Install	Hardware-Tower	Missing	Install
	No Good/Out of Stdrd	Repair		No Good/Out of Stdrd	Replace
Animal Guard-Steel	Missing	Install	Hardware-Wood	Missing	Install
Animal Guard-Wood	Missing	Install		No Good/Out of Stdrd	Replace
Anode-Tower	Missing	Install	Insulator	Contaminated	Ground Wash
	No Good/Out of Stdrd	Repair		Insulator Bond Wire-Steel	No Good/Out of Stdrd
Auto Guy Wire Splice-Steel	Missing	Install	Insulator Bond Wire-Wood	No Good/Out of Stdrd	Repair
	No Good/Out of Stdrd	Repair		Insulator-Steel	No Good/Out of Stdrd
Auto Guy Wire Splice-Wood	Missing	Install	Insulator-Wood	No Good/Out of Stdrd	Repair
	No Good/Out of Stdrd	Repair		Jumper-Steel	No Good/Out of Stdrd
Bay Water-Tower	Missing	Install	Jumper-Wood	No Good/Out of Stdrd	Repair
	No Good/Out of Stdrd	Repair		Marker (i.e. signs)-Steel	Missing
Boardwalk	Missing	Install	Marker (i.e. signs)-Wood	No Good/Out of Stdrd	Install
	No Good/Out of Stdrd	Repair		No Good/Out of Stdrd	Install
Conductor-Steel	Debris/Nests/etc.	Remove	Non-Routine Patrol	Investigate	Air Patrol
	No Good/Out of Stdrd	Repair		Ground Patrol	Infrared Patrol
Conductor-Wood	Debris/Nests/etc.	Remove	Other	Other	Other
	No Good/Out of Stdrd	Repair			

6.0 Using Priority Codes to rate the field condition

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Using Priority Codes

Priority codes A, B, E, or F are automatically assigned by the INSPECT App. HOWEVER, consider if the Priority is appropriate based on the individual situation.

Priority Code	Priority Description
A ¹	The condition is urgent and requires immediate response and continued action until the condition is repaired or no longer presents a potential hazard. SAP due date will be 30 days to allow time for post-construction processes and notification close-out.
B ²	Corrective action is required within 3 months from the date the condition is identified. The condition must be reported to the transmission line supervisor as soon as practical.
E	Corrective action is required within 12 months from the date the condition is identified.
F	Corrective action is recommended within 24 months from the date the condition is identified, (due beyond 12 months, not to exceed 24 months).

MOST OF THE TIME YOU WILL NOT CHANGE THIS PRIORITY; however, it IS an option.

¹ QCRs must report immediately any "Priority Code A" abnormal condition to the transmission line supervisor and GCC.
² In addition, QCRs must report any "Priority Code B" condition to the transmission line supervisor as soon as practical, to ensure that correction occurs within the appropriate time.

7.0 Use Table 4 to identify Priority for the field condition

Note: Below is one page of the table. The table is available to inspectors using their iPads and the iOS Books app.

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Using Table 4 – Assigning Priority Codes

Component	Priority Code				
	A (Immediate)	B (3 months)	E (12 months)	F (24 months)	
Anchor-Steel Anchor-Wood Guy Wire-Steel Guy Wire-Wood	Rust >50% material loss Worn >50% material loss Cracked >50% Broken or Missing critical members	Cracked 33 to 50% Over tension >50% Broken or missing secondary members Clearance from energized conductors	Rust 30 - 50% material loss Worn 30 - 50% material loss Cracked 5 to 33% Soil Movements/slide/standing water Slack storm guy	Over tension 10 to 50% Twisted	No 24 month tags
Conductor-Steel Conductor-Wood Damper-Steel Damper-Wood	Rust >50% material loss Cracked >50% Gunshot >20% of strands broken Arcing	Cracked 33 to 50% Gunshot 15 to 20% of strands broken Corrosion (heavy) Conductor clearances Broken ground wire or tie wire Broken spacer or connector Loose connector, tie wire, or weight Twisted bundled conductor	Rust 10 - 50% material loss Broken damper Missing damper Bent damper Out of position damper	Cracked 5 to 33% Gunshot 5 to 15% of strands broken Corrosion (medium) Vibrating	No 24 month tags
Electrical clearances: GO95 Clear Infract-Tower GO95 Clear Infract-Wood	Tree contacting line or showing signs of contact (burnt leaves or limbs)	Circuit-to-circuit Burnt Trees Clearance < G.O. 95	Ground Clearance < G.O. 95	Grade change (Ground Clearance < G.O. 95)	No 24 month tags

Requirement: All compelling abnormal conditions and/or regulatory conditions requiring action must be recorded on the Line Corrective (LC) form.

8.0 Other Standardized Content

Overview: Using the ETPM manual and Job Aids as guidance, the training material provides identical content for all Inspectors for the topics listed below.

1. How to assess Pending Line Corrective (LC) Notifications
2. How to use the FSR process
3. How to assess Emergency Priority-A condition
4. Understanding Photo Requirements
5. Understanding various conditions whereby the inspector cannot gain access to the PG&E facility. This known as Cannot Get In conditions (CGIs)
6. Third-Party Utility conditions and notifications
7. Third-Party Non-Utility conditions and notifications
8. Map Corrections conditions and notifications
9. Understand foundation and structure conditions and notifications
10. Land Management
11. Understand Distribution facilities on Transmission structure
12. Vegetation Management conditions and notifications
13. Understanding other Job Aids and how to find them and use them
14. How to read and use the Job Aids
15. How to use the mobile Inspect App for Electric Transmission – Climbing Inspections
16. How to read PG&E's mapping symbology
17. How to use the 2020 Climbing Inspection Checklist

18. How to find and use the correct FDA for each checklist question
19. How to use Apple's Books app where offline manuals and training guidance is forced downloaded to Inspector's iPads
20. Understanding when to call your assigned Supervisor or designee
21. How to use and reference Cal Fire's 2020 Field Guide for Exempt and Non-Exempt Equipment

9.0 List of Job Aids

Note: Below is a screen shot showing the Job Aids that are available to inspectors using their iPads and the iOS Books app.

 TD-1001M-JA02 Detailed and Climbing Overhead Job Aid 08-31-2020.pdf
 TD-1001M-JA04 Identifying Levels of Deterioration and Corrosion for SI-T 08-31-20.pdf
 TD-1001M-JA06 Identifying Levels of Damage and Condition of Wood Poles and Non-Steel Framing for SI-T 08-31-2020.pdf
 TD-1001M-JA07 Identifying Levels of Corrosion and Condition of Hardware and Insulators for SI-T 08-31-20.pdf
 TD-1001M-JA08 Identifying Levels of Damage and Condition of Animal Guards for SI-T 08-31-20.pdf
 TD-1001M-JA09 Identifying Maintenance Work on Bird Nests on Transmission Line 03-01-20.pdf
 TD-1001M-JA10 Identifying Conductor Conditions for SI-T 08-31-20.pdf
 TD-1001M-JA11 Evaluating Conditions of OPGW for SI-T 08-31-20.pdf
 TD-1001M-JA12 Identifying Foundation Condition on Transmission Line Structures and Supports 03-01-20.pdf
 TD-1001M-JA13 Identifying Levels of Damage and Condition of Guys and Anchors for SI-T 08-31-20.pdf
 TD-1001M-JA14 Identifying Levels of Damage and Condition of Splices on Transmission Line Structures and Supports 03-01-20.pdf
 TD-1001M-JA15 Identifying Levels of Deterioration and Corrosion on Transmission Line Switches 03-01-20.pdf
 TD-1001M-JA16 Identifying Underground XLPE Conditions 03-01-20.pdf
 TD-1001M-JA17 Identifying Underground Pipe-Type Conditions 03-01-20.pdf
 TD-1001M-JA18 Identifying Underground Manhole and Enclosure Conditions 03-01-20.pdf
 TD-1001M-JA19 Evaluating Conditions from Infrared (IR) Inspection in Transmission Line 03-01-20.pdf
 TD-1001M-JA20 Evaluating Conditions for Vegetation Nonconformance in Transmission Line 01-31-20.pdf
 TD-1001M-JA21 Evaluating Conditions of ADSS for SI-T 08-31-20.pdf
 TD-1001M-JA22 Evaluating Conditions of Non-ADSS Lashed Fiber Cable for SI-T 08-31-20.pdf
 TD-1001M-JA23 Idle Line Investigation 10-08-2020.pdf

10. Training for PG&E Inspector

Overview: The 2021 Transmission Detailed Climbing Inspection Program training includes updates to the iOS Inspect App, the Overhead Checklist, the Field Safety Reassessment (FSR) Program, and Cal Fire 2020 Field Safety Guide. The training is named "2021 Tower Inspection Refresher" and is trained remotely due to COVID. During this targeted training, additional supporting team members are also trained; however, the training is designed for the field inspector. Towermen are required to take ETPM Annual Refresher 2020 (ELEC-2020RVL).



11.0 Training for Contractor Inspector - NONE