

## 2021 Transmission Detailed Ground Inspection Program

**Introduction:** PG&E has standardized its Transmission Detailed Ground Inspection Program so that all Inspectors, whether employed by PG&E or hired by a contracting agency, receive this standard set of training and technology services.

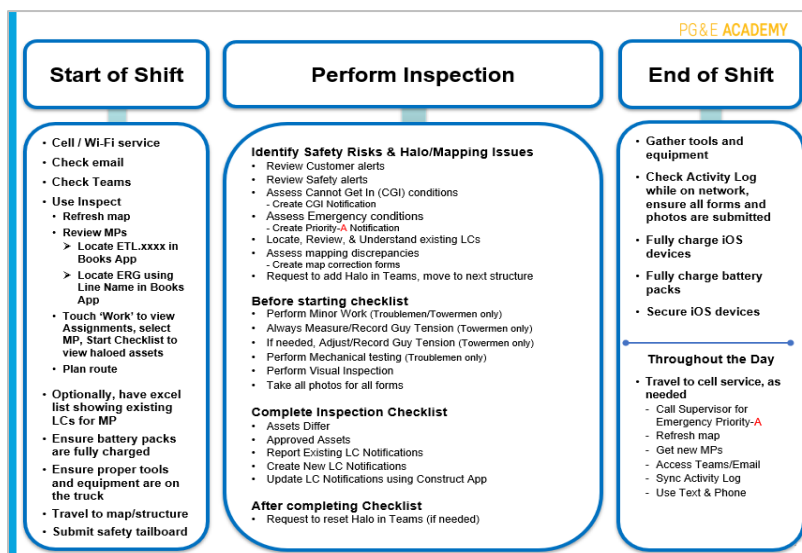
### 1.0 Detailed Ground Inspection (6 major tasks)

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 Daily Workflow

**Overview:** PG&E has standardized a mandatory daily workflow to be followed for all inspectors who conduct a detailed ground 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 include termination.



### 3.0 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.

### 4.0 Line Corrective Overhead Facility, Damage, Action Codes (FDA)

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

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

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

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

PG&E ACADEMY  
Human Resources

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

### 5.0 Using Priority Codes to rate the field condition

## 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 <sup>1</sup>	The condition is urgent and requires <b>immediate</b> 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 <sup>2</sup>	Corrective action is required within <b>3 months</b> 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 <b>12 months</b> from the date the condition is identified.
F	Corrective action is recommended within <b>24 months</b> 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.**

<sup>1</sup> QCRs must report immediately any "Priority Code A" abnormal condition to the transmission line supervisor and GCC.

<sup>2</sup> 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.

## 6.0 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.

### 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 Movement/slide/standing water Slack storm guy	Over tension 10 to 50% Twisted  <b>No 24 month tags</b>
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  <b>No 24 month tags</b>
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 < <a href="#">G.O. 95</a>	Ground Clearance < <a href="#">G.O. 95</a>	Grade change (Ground Clearance < <a href="#">G.O. 95</a> )  <b>No 24 month tags</b>

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





















## 7.0 Other Standardized Content

**Overview:** Using the ETPM manual and Job Aids as guidance, the training material provides identical content for all Inspectors, whether employed by PG&E or hired by a contracting agency, 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. Conductor and Insulator 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 identify and report conductor splices
15. How to read and use the Job Aids
16. How to use the mobile Inspect App for Electric Transmission – Ground Inspections
17. How to read PG&E's mapping symbology
18. How to use the 2020 Ground Inspection Checklist
19. How to find and use the correct FDA for each checklist question
20. How to use Apple's Books app where offline manuals and training guidance is forced downloaded to Inspector trainee's iPads
21. Understanding when to call your assigned Supervisor or designee
22. How to use and reference Cal Fire's 2020 Field Guide for Exempt and Non-Exempt Equipment

## 8.0 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

## 9.0 Content Customized by employer (PGE's Inspector vs Contractor Inspector)

**Overview:** The names of these sections are identical for the following topics. The difference is due to who the inspector contacts for the specific condition:

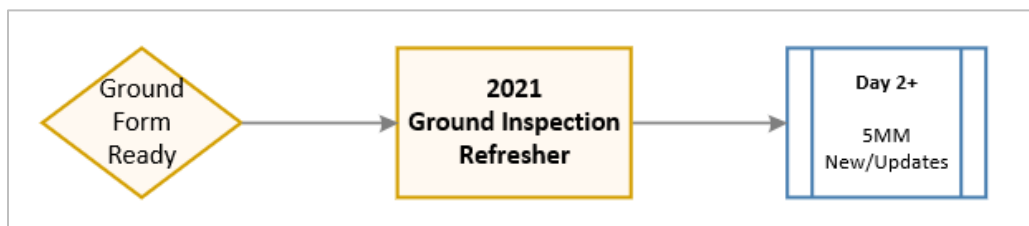
Topic	PG&E Inspector	Contractor Inspector
Contact for Emergency Priority A Conditions	Contact to PG&E M&C Supervisor and division supervisor	Contact PG&E supervisor or designee
Who to contact for CGI conditions	Contact Local division headquarter	Contact special CGI phone line
Handling Paper Forms	Contact Local division headquarter	Take photo of form then email to local division

**10.0 Job Duties by employer (PG&E, Contractor, and Canus Inspectors)**

<b>Job Duty</b>	<b>PG&amp;E Inspector</b>	<b>Contractor Inspector</b>	<b>Canus Inspector</b>
Perform Detailed Ground Inspection (BFZ)	Yes	Yes	Yes, if utilizing Canus
Perform PSPS Support	Yes	Yes, if under separate contract	Yes, if utilizing Canus
Perform Detailed Underground Inspection	Yes	No	No
Perform (Overhead) Ground Patrol (BFU)	Yes, Transmission-line Troublemens	No	Yes, if utilizing Canus
Perform Underground Patrol	Yes	No	No
Perform Infrared Inspections during underground inspections	Yes	No	No
Perform Infrared OH Inspections only	Yes, local Transmission-line Troublemens	Yes (Drone Contractor only)	No
Perform standalone Field Safety Reassessments (FSRs)	Yes	Yes	No
Perform other duties, if trained	Yes	Yes (excluding corrective work)	Yes (excluding corrective work)
Perform Minor Work for Overhead assets	Yes/All	No, was not in 2020 contracts	No
Perform Minor Work for Underground assets	Yes	Yes, will utilize specialized contractors if PG&E Inspectors unable to complete due to volume	No

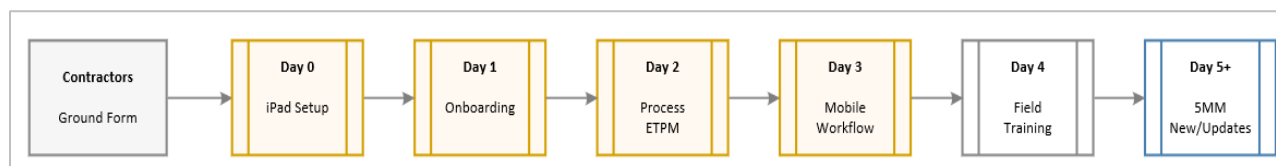
## 11.0 Training for PG&E Inspector

**Overview:** The 2021 Ground Inspection Program includes updates to the iOS Inspect App, the Detailed Ground Inspection Form, the Field Safety Reassessment (FSR) Program, and Cal Fire 2020 Field Safety Guide. The training is named "2021 Ground 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.



## 12.0 Training for Contractor Inspector

**Overview:** The 2021 Ground Inspection Program includes updates to our Contractor's prior year's training material for the iOS Inspect App, the Detailed Ground Inspection Form, the Field Safety Reassessment (FSR) Program, Tree-Connect Requirements, Cal Fire 2020 Field Safety Guide. The training is named "2021 Contractor Training" and is trained remotely due to COVID.



<b>Course Code:</b>	<b>PSOS-0450 System Inspections Electric Transmission Day-1</b>
<b>Training Method:</b>	Web Virtual learning
<b>Trainer:</b>	Academy
<b>iOS Trainer:</b>	Various
<b>Primary Deck:</b>	Day 1 – SI-Transmission Training PSOS-0450 V1.1 06-16-2020
<b>Focus On:</b>	Getting Lan-ids
	Setting up iPads
	PG&E processes
	Safety
	Environmental
	Customer
	Intro into System Inspections
	Intro into SI-Transmission
	WBTs

<b>Course Code:</b>	<b>PSOS-0451 System Inspections Electric Transmission Day-2</b>
<b>Training Method:</b>	Web Virtual learning
<b>Trainer:</b>	SI-Process, Control, & Training Team
<b>iOS Trainer:</b>	Academy
<b>Primary Deck:</b>	Day 2 – SI-Transmission Training PSOS-0451 V1.1 06-18-2020
<b>Focus On:</b>	SI-Transmission
	ETPM
	Job Aids
	Daily Workflow - Start of Shift
	Daily Workflow - Detailed Inspections
	Daily Workflow - End of Shift
	LC - Create and Pending
	Books App

<b>Course Code:</b>	<b>PSOS-0452 System Inspections Electric Transmission Day-3</b>
<b>Training Method:</b>	Web Virtual learning
<b>Trainer:</b>	SI-Process, Control, & Training Team
<b>iOS Trainer:</b>	Academy
<b>Primary Deck:</b>	Day 3 – SI-Transmission Training PSOS-0452 V50 06-26-2020
<b>Focus On:</b>	Mobile iOS Apps
	Inspect App
	-Navigation
	-Work Assignment
	-Recording Overhead Checklist
	-Create LC Notifications for repair work
	Construct App to recommend changes to LC Notifications
	Decoder / ET GIS Overlay maps

### System Inspections Safety and Compliance Training

<b>Training Delivery</b>	<b>Transmission</b>	<b>Duration</b>
<b>ISNetworld</b>	Corporate Contractor Safety Orientation, SAFE0101	40 min
	SAFE-1503WBT, Fire Danger Precautions	60 min
	SAFE-4514WBT, T-Line Contractor Safety Orientation	150 min
<b>Administered by Vendor</b>	N/A	
<b>PG&amp;E My Learning</b>	CORP-9044WBT: Records & Info Management	45 min
	ISEC-9020WBT: Security & Privacy Awareness	45 min



**System Inspections Contractor Orientation\_Transmission**

<b>Course Code:</b>	<b>PSOS-0450 System Inspections Electric Transmission Day-1</b>
<b>Training Method:</b>	Web Virtual learning
<b>Trainer:</b>	Academy
<b>iOS Trainer:</b>	Various
<b>Primary Deck:</b>	Day 1 – SI-Transmission Training PSOS-0450 V1.1 06-16-2020
<b>Focus On:</b>	Getting Lan-ids
	Setting up iPads
	PG&E processes
	Safety
	Environmental
	Customer
	Intro into System Inspections
	Intro into SI-Transmission
	WBTs
<b>Course Code:</b>	<b>PSOS-0451 System Inspections Electric Transmission Day-2</b>
<b>Training Method:</b>	Web Virtual learning
<b>Trainer:</b>	SI-Process, Control, & Training Team
<b>iOS Trainer:</b>	Academy
<b>Primary Deck:</b>	Day 2 – SI-Transmission Training PSOS-0451 V1.1 06-18-2020
<b>Focus On:</b>	SI-Transmission
	ETPM
	Job Aids
	Daily Workflow - Start of Shift
	Daily Workflow - Detailed Inspections
	Daily Workflow - End of Shift
	LC - Create and Pending
	Books App
<b>Course Code:</b>	<b>PSOS-0452 System Inspections Electric Transmission Day-3</b>
<b>Training Method:</b>	Web Virtual learning
<b>Trainer:</b>	SI-Process, Control, & Training Team
<b>iOS Trainer:</b>	Academy
<b>Primary Deck:</b>	Day 3 – SI-Transmission Training PSOS-0452 V50 06-26-2020
<b>Focus On:</b>	Mobile iOS Apps
	Inspect App
	-Navigation
	-Work Assignment
	-Recording Overhead Checklist
	-Create LC Notifications for repair work
	Construct App to recommend changes to LC Notifications
	Decoder / ET GIS Overlay maps