



Drone Inspection Review Team (DIRT)

SUMMARY

This utility procedure establishes the composition and requirements of the Drone Inspection Review Team (DIRT) for inspecting assets and creating notifications for identified deficiencies.

DIRT is part of an unmanned aerial vehicle (UAV or drone) inspection program that supports the Wildfire Safety Inspection Program (WSIP) as follows:

- Supplements the detailed ground and climbing inspections on transmission line poles and towers as required in [TD-1001M, *Electric Transmission Preventative Maintenance \(ETPM\) Manual*](#).
- Identifies conditions that may impact overhead transmission equipment reliability or introduce a wildfire ignition or public or personnel safety risk.

DIRT performs the following functions to supplement the required inspections performed by Qualified Company Representatives (QCR) as described in [TD-1001M](#):

- Inspect structures and components to assess the condition.
- Identify nonconformances and create an SAP notification, as appropriate, for each nonconformance.
- Determine and record the following information:
 - Structure and component conditions identified during inspection.
 - Preliminary Facility, Damage and Corrective Action (FDA) code.
 - Preliminary priority level based on the severity of the condition and risk factors.
- Enter additional information in SAP as needed to support preliminary priority and FDA decisions.

Level of Use: Informational Use

TARGET AUDIENCE

This procedure applies to DIRT members and all personnel who work with CIRT or use information generated by DIRT.

SAFETY

NA

BEFORE YOU START

NA



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PROCEDURE STEPS

1 General Information

- 1.1 [TD-1001M](#) provides direction to personnel on how to perform transmission system inspections and patrols, identify issues, and create notifications to document nonconformances or abnormal conditions.
- 1.2 Structure and component inspections using drone photography supplement the inspections and patrols of transmission field personnel and can provide detailed images of individual components on transmission line poles and towers.
- 1.3 California Public Utilities Commission (CPUC) [General Order \(G.O.\) 95, "Rules for Overhead Electric Line Construction."](#) and [TD-1001M](#) require any nonconformance that impacts safety or reliability, or an abnormal condition caused by third parties that negatively impacts Company facilities must be documented by a notification.
- 1.4 DIRT provides a consistent, efficient approach to reviewing drone photography, assessing structure and component conditions, completing inspection forms, and creating notifications as appropriate for nonconformances and assigning preliminary prioritization for required work.
- 1.5 Although the review of drone photography does not implement the inspections and patrols required by [TD-1001M](#), the methods to select personnel and the process to review, identify, and provide preliminary priority mimic the requirements of a QCR.
 1. Personnel performing the drone photography review are not required to be a Qualified Electrical Worker (QEW).

2 DIRT Responsibilities

- 2.1 DIRT REVIEWS drone photography to assess and inspect structures and components per the requirements of this utility procedure.
- 2.2 The DIRT supervisor PROVIDES oversight of the members performing photography review AND ENSURES timely decision making.

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- 2.3 DIRT members EXECUTE the DIRT process as described in this utility procedure.
- 2.4 DIRT subject matter experts (SMEs) PROVIDE acknowledged technical authority on transmission system poles and towers and associated components in support of drone inspectors identifying deficiencies AND CONCUR with preliminary FDA and priority codes.
- 2.5 The director in charge of transmission and substation risk analytics ENSURES that DIRT meets regularly, is comprised of an effective membership, and effectively carries out its charter as defined in this utility procedure.

3 DIRT Instructions

3.1 Drone Photographs

- 1. Drone vendors are contracted to acquire photographs of transmission system components (e.g., structures, hardware) at prescribed locations to facilitate assessment of asset condition.
- 2. Drone vendors ACQUIRE photographs at each defined pole or tower at prescribed locations in a manner that uniquely identifies the structure for future review according to [Attachment 3, "Structure Inspection Drone Data Capture Guideline."](#)
 - a. Drone vendors PROVIDE a post-flight review to verify the required locations have been photographed and properly recorded.
- 3. SAVE photographs associated with each specific transmission structure using a controlled and designated file structure to preserve photograph integrity, chain of custody, and retrievability.
- 4. Photographs receive quality control (QC) reviews before evaluation by DIRT.
 - a. ENSURE adequate clarity AND orientation to effectively evaluate the subject of the photograph.
 - b. VERIFY photograph complies with [Attachment 3, "Structure Inspection Drone Data Capture Guideline."](#)
 - c. IDENTIFY inadequate photographs for recapture of the image by the drone vendor.
- 5. Following the QC reviews, the file folders are available to DIRT for inspections, per this procedure.

3.2 DIRT Membership

- 1. DIRT must be composed of inspectors that collectively have knowledge and background in transmission and distribution system maintenance and engineering.

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3.2 (continued)

2. The knowledge and background of DIRT inspectors, along with the use of job aids, enables DIRT to perform as a Qualified Company Representative (QCR) for preparing an assessment of electric transmission facilities.
 - a. Inherent in this background and knowledge is the understanding of the limitations of inspectors and to call on more specialized assistance if needed to effectively establish an assessment and priority.
 - b. There is no defined number of years of experience since it can vary depending on previous qualifications, experience, roles and responsibilities and job duties while in a position.
3. SMEs are to be available to DIRT for consultation and assistance in evaluating photographs and determining preliminary FDA and priority codes. This function can be performed by the following personnel:
 - An individual designated by CIRT.
 - Direct consultation with CIRT.
4. Maintenance background and knowledge provides the practical and operational perspective based on field experience.
5. Engineering background and knowledge provides the technical and design understanding of the asset and its function.
6. Job functions that provide the maintenance and/or engineering knowledge and experience include, but are not limited to, the following personnel:

<ul style="list-style-type: none"> • Maintenance <ul style="list-style-type: none"> ○ Lineman ○ Technician ○ Inspector ○ Troubleman ○ Specialist 	<ul style="list-style-type: none"> • Engineering <ul style="list-style-type: none"> ○ Design engineer ○ System engineer ○ Transmission electrical engineer ○ Transmission civil engineer ○ Field engineer ○ Standards engineer ○ Project engineer ○ Inspector ○ Estimator
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3.3 Decision Making

1. DIRT inspectors MAKE decisions on condition assessment and notification creation with consultation from SMEs, as necessary.
2. The DIRT supervisor ENSURES that decisions are made in a timely manner.
 - a. The supervisor DETERMINES the appropriate actions to resolve disagreements among DIRT inspectors, SMEs, and/or others involved when a decision cannot be reached.
 - a. CONSULT additional experts to obtain information necessary for prioritization and decision-making.
 - b. The supervisor has final decision-making authority for condition assessment, documentation and creation of a notification.
3. The DIRT supervisor ENSURES DIRT inspectors reviewing drone photographs maintain the knowledge and background previously described.
 - a. The background and knowledge of individuals must be auditable for condition assessments and preliminary FDA and prioritization codes.
 - b. MAINTAIN records used to demonstrate background and knowledge of DIRT inspectors in accordance with enterprise records and information management (ERIM) requirements, since they demonstrate the requirements of this procedure are met.

3.4 Inspections

1. DIRT FOLLOWS [Attachment 1, "Drone Inspection Process,"](#) AND [Attachment 2, "WSIP Transmission DIRT Process."](#)
2. SELECT photographs of structures to be inspected from a file folder containing QC-verified photographs.
3. DIRT inspectors DOCUMENT the structure inspection and assessment of the conditions using the appropriate drone inspection form:
 - Non-Steel structures Drone Inspection Form
 - Steel Structures Drone Inspection Form

These inspection forms are stored on the DIRT OneDrive.

- a. IF during review of photographs the quality does not allow for a complete inspection,
THEN IDENTIFY the photograph for recapture of the image.

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3.4 (continued)

- b. NOTE any abnormal, deficient, or potentially hazardous conditions as a nonconformance on the inspection form.
 - c. DOCUMENT all nonconformances in an SAP notification in accordance with [TD-1001M](#).
- 4. DIRT inspectors REVIEW photographs for nonconformances.
 - a. IF a nonconformance is identified,
THEN TAKE the following steps:
 - (1) IF it could immediately impact public or personnel safety, introduce a wildfire ignition source, or impact reliability,
THEN immediately NOTIFY the SME to verify complete information, preliminary FDA code, and preliminary Priority A.
 - i. IF the SME CONCURS with the preliminary Priority A,
THEN PROCEED to [Step 3.5.3](#).
 - (2) EVALUATE the potential effects of nonconformances in the aggregate, as well as individually.
 - (3) EVALUATE the nonconformances for potential worst-case outcomes, based on available information.
 - (4) ESTABLISH preliminary FDA and priority codes based on [TD-1001M](#) and associated job aids.

3.5 Notification Creation

- 1. DOCUMENT **only one** deficiency or nonconforming condition in a single notification
- 2. When a DIRT member determines a notification should be created, the inspector CAPTURES the following information for review:
 - a. Preliminary FDA and priority codes
 - b. Associated photographs
 - c. Any clarifying comments
- 3. A SME REVIEWS the notification information for completeness AND VERIFIES the preliminary FDA and priority codes.
 - a. CIRT immediately REVIEWS any conditions assessed as a preliminary Priority A.



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3.5 (continued)

- (1) IF CIRT CONCURS with the preliminary Priority A code,
THEN PROCESS it for initiation of a Priority A notification.
 - b. IF the condition is assessed as a preliminary Priority B, E or F,
THEN PROCESS it for initiation of a notification.
4. CREATE a notification in SAP.
 - a. CREATE the notification by **one** of the following methods:
 - (1) DIRT clerical CREATES the notification in SAP with the information provided by the DIRT inspector or SME.
 - (2) The DIRT inspector ENTERS the necessary information into an electronic notification creation tool.
 - b. CREATE the notification in staging (S5) status.
 - c. INCLUDE the LAN IDs of the DIRT inspector AND SME in the SAP notification.
5. When a condition is identified on a distribution asset, the following alternative to the guidance in the [TD-1001M](#), Section 1.3.4, "Reporting Other Nonconformances with Distribution Facilities," can be performed:
 - a. The inspector PROVIDES a description of the condition necessitating distribution review in an email AND INCLUDES all relevant information, such as photographs or drone images with concurrence by a SME.
 - b. The SME NOTIFIES distribution personnel by contacting Electric Dispatch (troublemen) as follows:
 - (1) IF the condition potentially warrants immediate attention,
THEN CONTACT the 24/7 dispatch at **(559) 347-5175**.
 - (2) For all conditions, SEND an email to the address "Electric D P&P Dispatch Leadership."
6. CIRT PERFORMS the following tasks for the final review of all notifications in staging (S5) status:
 - a. FINALIZES FDA and priority codes.
 - b. PERFORMS the gatekeeping function to move the notification from S5 status to LC status per [TD-1001M](#) and [TD-1001P-10](#).

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4 Records

- 4.1 RETAIN DIRT reviews electronically in SAP, as one of the following documents:
- Inspection form
 - SAP notification
- 4.2 The DIRT supervisor MAINTAINS a living roster of personnel who perform drone inspections that demonstrates the background and knowledge of the individuals.

END of Instructions

DEFINITIONS

Centralized Inspection Review Team (CIRT): A cross discipline team made up of personnel with transmission and distribution system maintenance and engineering background and knowledge (experience) that perform screen notifications for Facility Damage and Corrective Action Codes (FDA) and Prioritization, per [Utility Procedure TD-1001P-10, "Centralized Inspection Review Team."](#)

Drone Inspection Review Team (DIRT): A multi-discipline team of personnel that collectively maintains knowledge in transmission and distribution system maintenance and engineering that review drone photography of transmission facilities to assess conditions and identify non-conformances.

DIRT inspector: The individual that performs primary DIRT functions as described in this procedure, including review of drone photographs for identification of nonconformances.

DIRT supervisor: The individual who is responsible for DIRT decision making and ensuring DIRT operates per the requirements of this procedure.

Facility, Damage and Corrective Action (FDA) Code: These codes are identified in [TD-1001M](#) Table 3, "Overhead Facility, Damage and Corrective Action Codes."

Job aid: A guidance document that provides discussion, photographs, and other information to assist in identifying and prioritizing nonconforming conditions.

Notification: Work-only notifications assigned for all problems for which corrective actions are necessary.

Priority: An assignment that broadly characterizes the urgency of work required to address problems, concerns, or activities identified on notifications as defined in [TD-1001M](#), Table 5, "Priority Codes."

Subject matter expert (SME): For the purposes of this procedure, it is an acknowledged technical authority on transmission system poles and towers and associated components.



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IMPLEMENTATION RESPONSIBILITIES

NA

GOVERNING DOCUMENT

[Utility Standard TD-1001S, "Electric Transmission Line Inspection and Preventive Maintenance Program"](#)

COMPLIANCE REQUIREMENT / REGULATORY COMMITMENT

NA

REFERENCE DOCUMENTS

Developmental References:

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

[TD-1001M, *Electric Transmission Preventative Maintenance \(ETPM\) Manual*](#)

Supplemental References:

Non-Steel Structures Drone Inspection Form*

Steel Structures Drone Inspection Form*

**These inspection forms are stored on the DIRT OneDrive.*

[Utility Procedure TD-1001P-10, "Centralized Inspection Review Team"](#)

APPENDICES

NA

ATTACHMENTS

[Attachment 1, "Drone Inspection Process"](#)

[Attachment 2, "WSIP Transmission DIRT Process"](#)

[Attachment 3, "Structure Inspection Drone Data Capture Guideline"](#)



Drone Inspection Review Team (DIRT)

DOCUMENT APPROVER

Tom Wright Jr., Director, Transmission and Substation Risk Analytics

DOCUMENT OWNER

██████████, Manager, CIRT

DOCUMENT CONTACT

██████████, Manager, CIRT

REVISION NOTES

Where?	What Changed?
NA	This is the initial issue of this utility procedure.