

Transmission Line Defect Rating Criteria and Methodology for Rating Defects

Overview

Consistent reporting by inspectors is critical to the effective asset management by the asset manager and is also a necessary element of any asset health index. Therefore, a practice that can be adopted by utilities for use in rating transmission line defects is developed.

The objective of this work is to outline an industry practice that asset and field managers can use to rate transmission line defects based on the severity of degradation and the urgency for repair. In addition, the project provides criteria to rate defects and visual aids to do so.

Overhead
Transmission
Equipment
Interest Group

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How to use this research

This report provides the basis for a more consistent approach to rating transmission line defects and improving the life cycle management of transmission line components, and the basis for improved reliability and safety. In addition, the results of this work provide a tool for training and facilitating improved inspection practices.

- To develop a comprehensive system for ranking the state of utilities
- Implement more rigorous safety standards
- To understand when to start repairs on a damaged facility

Key questions Addressed

- How to create a systematic approach to inspection and component condition categorization?
- How to develop a comprehensive list of components and defects and compile photos to form the basis for life-cycle management & training?
- How to analyze defects and align severity with a likelihood of failure?
- How to develop & document an approach to analysis?
- How to develop training for inspection personnel?


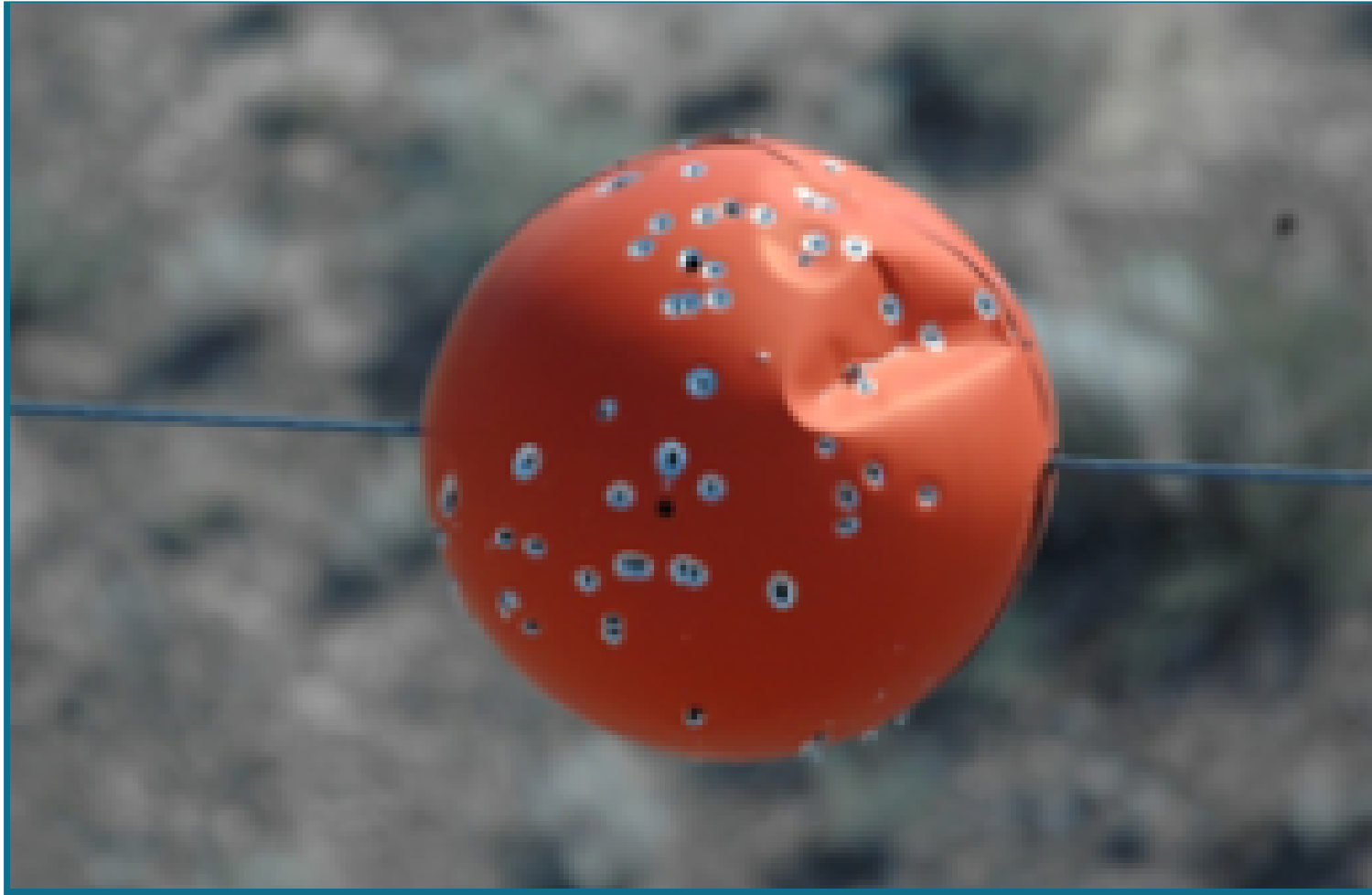



Research Summary

The report includes defects that might be found on any part of a transmission line, with the exception of those below ground, wood poles in the ground line area, and vegetation issues. Identifying such defects is structured to include guidelines to rate defects from the perspective of the severity and urgency of repair.

The structure of the process and the photographs of defects are suitable for training and for providing direction to staff and contractors carrying out inspections.

The following list of components is covered: Toughened Glass & Porcelain Insulators; Non-Ceramic Insulators; Conductors; Insulator Hardware; Conductor hardware; Vibration Dampers; Spacer Dampers; Aircraft Markers; Bonding & Grounding; Disconnect Switches; Guys and Guy Hardware; Wood pole structure Hardware; Timbers; Steel Lattice Structures

Ranking Categories Used:

Defect Category	Description	Figure
A	New or like new.	
B	Full-Service Capability - Some wear, corrosion, etc., but still in acceptable condition for the intended purpose.	
C	Plan Intervention - Sufficient wear, corrosion, or damage to warrant action plans.	
D	Failure Pending – Worn, cracked, corroded, or broken, or no longer suitable for use, but service not yet interrupted. Outright failure or interruption of service is imminent.	
E	Failed – Outright failure of a component with or without service interruption.	

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