

Title: **DEFECT CATEGORIES IN
INSPECTION SHEETS**

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Executive Summary

During December 2018, a public contact incident occurred on the Gowrie/Pentrich 88kV Line 1. The line was undergoing major refurbishment work at the time of the incident. Following the incident investigation conclusion, it was observed that field staff applied the line inspection sheets and interpreted the defect priorities inconsistently. There is a need to standardize defect categories in all DX inspection sheets.

1. Introduction

It is a requirement in the Maintenance Engineering Standards that defects are categorised based on priority.

It has been identified that the current defect categories used in medium voltage and low voltage inspection sheets vary (viz. 0,1,2,3 versus 1, 2, 3 & 4). This document standardises defect categories used in inspection sheets in Distribution.

2. Supporting clauses

2.1 Scope

2.1.1 Purpose

The purpose of this document is to standardise defect categories in inspection sheets in Distribution.

2.1.2 Applicability

This document shall apply throughout Eskom Distribution. It shall apply to all visual inspections, network inspections (viz. overhead, cable and substations), IR scanning, PD scanning). This document excludes wood pole inspections.

This standard supersedes Engineering Instruction 240-149271517 and supersedes the defect categorization in all inspection sheets included in existing Task Manuals.

2.2 Normative/informative references

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

2.2.1 Normative

- [1] ISO 9001, Quality Management Systems.
- [2] 32-9, Definition of Eskom documents.
- [3] 32-644, Eskom documentation management standard.
- [4] OHS Act, Occupation Health and Safety Act 85 of 1993 and Regulations;
- [5] EPL_32-727, Safety, Health, Environmental & Quality (SHEQ) policy;
- [6] EPC_32-520, Occupational Health & Safety Risk Assessment Procedure;
- [7] 240-114967625, Operating Regulations for High Voltage systems;
- [8] 240-62196227, Life Saving-Rules;
- [9] 240-120054284, Personal Protective Equipment Standard;

2.2.2 Informative

None

2.3 Definitions

2.3.1 General

None

2.3.2 Disclosure classification

Controlled disclosure: controlled disclosure to external parties (either enforced by law, or discretionary).

2.4 Abbreviations

Abbreviation	Description
COE	Centre of Excellence
DX	Distribution
IR	Infra-Red
MHD	Maintenance Health Dashboard
OU	Operating Unit
P1	Priority 1
P2	Priority 2
P3	Priority 3
PD	Partial Discharge
TM	Task Manual

2.5 Roles and responsibilities

- a) The Maintenance Centre of Excellence Manager shall:
- Ensure that the relevant TMs are up to date.
 - Prepare reporting.
- b) OUs / Clusters shall:
- Ensure that all relevant staff are trained accordingly.
 - Zone Managers shall be responsible for printing and issuing new books.

2.6 Process for monitoring

- a) The MHD report shall be used to monitor the implementation of this standard.
- b) Implementation date: 1st April 2022

2.7 Related/supporting documents

Not applicable.

3. Requirements

3.1 Convention

Table 1: Convention of defect categories

Defect Category	Defect category description	Process
P1	These types of defects present an immediate risk to safety and asset failure. The appropriate escalation, operating and repair process shall be followed to address the defect within the shortest time frame.	Dispatch
P2	These types of defects can be addressed as per the scheduling process by the relevant execution department.	Scheduling
P3	These types of defects / installations are non-compliant to current standards and are not safety or asset failure related and require Plant Management investigation.	Plant Investigation

3.2 Additional notes on the defect category descriptions

P1: HVREGS - Definition 1.28. Emergency switching means:

- a) The opening only of such breakers or switches as may be necessary to avoid imminent danger to life or damage to apparatus.
- b) The closing only of series capacitors bypass breakers to avoid imminent damage to apparatus.

P2: Whilst P2 defects should be cleared within the slip period of 90 days as per the defect clearing JPs, execution sections are to ensure that certain types of defects are cleared before the onset of adverse weather conditions. Examples, pole mounted transformer surge arrestor replacement before the summer months, trees on or close to lines before the onset of the windy or summer months.

P3: A National P3 defect report will be made available to Plant for further investigations. Plant Asset and Maintenance to ensure that impacted substations and networks are included to the Plant annual investigation plan. P3 defects will be scheduled as per the outcome of the investigation.

3.3 Implementation in terms of inspections sheets / TMs

Prioritized listing of inspection sheets / Task Manuals to be updated simultaneously. The following priority refers.

- a) HV / MV / LV OH Line Inspections
- b) HV / MV Cable systems
- c) Substation inspections
- d) Infra-red inspections
- e) Auto-recloser and Voltage Regulator inspections
- f) Partial Discharge and Corona testing

All maintenance inspection sheets shall reflect the priority of defects (i.e. P1, P2 & P3). A ticked block indicates no defects found on that structure component. A blank block indicates that the respective component does not exist on that structure. Remaining blocks will have the related defect category codes inserted per component per structure.

3.4 Inspection books

All new inspection books that are printed shall have the new categories.

The existing inspection books shall be used with the new defect categories. Include a one pager (i.e. the table above) in the current inspection books.

3.5 Mobile Computing / EDAs

Where mobile computing or EDAs are used, they must be updated to the new requirements. These new defect categories shall be captured on the actuals on the mobile devices.

3.6 Maximo Requirements

- a) With respect to Job Plans there exist categories in Maximo that need to be updated to include the new defect categories.
- b) Reporting

These types of defects (P3) must not be included into the component defect counts in the work order. Example: non-standard components / structures. All maintenance inspection reports to reflect priority of defects.

4. Authorization

This document has been seen and accepted by:

Name and surname	Designation
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5. Revisions

Date	Rev	Compiler	Remarks
Dec 2021	1	A Persadh	First revision

6. Development team

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7. Acknowledgements

Not applicable.