

 Eskom	Task Manual	Technology
---	-------------	------------

Title: **INSTALLATION OF ISOLATORS** Unique Identifier: **240-129251032**

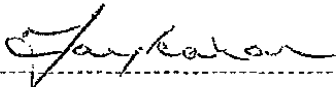
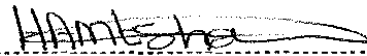
Alternative Reference Number: **34-290**

Area of Applicability: **Engineering**

Next Review Date: **STABILISED**

COE Acceptance

DBOUS Acceptance

Archie Jaykaran

Amelia Mtshali

Power Delivery Maintenance Study
Committee Chairperson

DBOUS Senior Manager

Date: 28-02-18

Date: 07/03/2018

This document is **STABILISED**. The technical content in this document is not expected to change because the document covers: *(Tick applicable motivation)*

1	A specific plant, project or solution	
2	A mature and stable technical area/technology	x
3	Established and accepted practices.	x

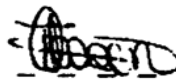
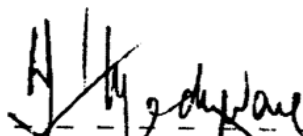

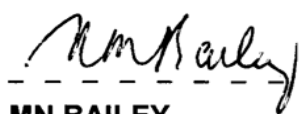
Document already Stabilized with old document number

PCM Reference: <xxxxxx>

SCOT Study Committee Number/Name: **Asset Management**

Document Classification: **Controlled Disclosure**

Title: **Distribution Task Manual – Part 24: Unique Identifier: 34-290**
INSTALLATION OF SUB STATION Document Type: DMN
ISOLATORS Revision: 1
Published date: **JANUARY 2011**
Total pages: **10**
Review date: **JANUARY 2016**

COMPILED BY	APPROVED BY	FUNCTIONAL RESP	AUTHORISED BY
			
T CLAASEN TCO- MEW	I R LEDINGWANE for MEW-Forum	C SMITH for TESCOOD	MN BAILEY CMDT for MD (Dx)
DATE: 04/11/2010	DATE: 04/11/2010	DATE: 24/11/2010	DATE: 20.12.2010

Content

	Page
Foreword.....	2
1 Scope	3
1.1 Purpose	3
1.2 Applicability	3
2 Normative References.....	3
3 Definitions and abbreviations	3
3.1 Definitions	3
3.2 Abbreviations	4
4 Task Manual	4
4.1 Risk Assessment	4
4.2 Installation of isolators	5
4.3 Record keeping.....	6
5 Roles and responsibilities.....	6
5.1 Responsibilities.....	6
6 Process for monitoring	6
Annex A - Impact assessment.....	7

INSTALLATION OF SUB STATION ISOLATORSUnique Identifier: **34-290**Type: **DMN**Revision: **1**Page: **2 of 10****Foreword**

This document has been developed to meet Safety, Health, Environment, and Quality requirement in the construction of lines and substations.

Revision history

This revision cancels and replaces revision no 0 of document no. **DWN_34-290**.

Date	Rev.	Clause	Remarks
Jan 2011	1	-	Compiled By: T Claasen
		Compiled by	J Nezar as the compiler is replaced by T Claasen. Document number change from DWN 34-290 to DMN 34-290.
		Development team	Included and remove names under the development team
		Clause no. 2	Changed the document reference numbers under normative references
		Clause no. 4	Changed Task Manual to task manual
		Clause no.	Draft watermark added
Sept 2007	0		Document approved

Authorisation

This document has been seen and accepted by:	
Name	Designation
MN Bailey	Corporate Manager Divisional Technology
C D Smith	Engineering Processes Manager
I Ledingwane	MEW-Forum

This task manual shall apply throughout Eskom Holdings Limited, its divisions, subsidiaries and entities wherein Eskom has a controlling interest.

Development team

Major Engineering Works Documentation Standardisation Work Group:

Bertie Kotzi	Willian Sehako	Ishmael Ledingwane
Vuy Lutshaba	Philemon Mzobe	Johan Myburg
Piet Pretorius	Tom Claasen	Tommy Meyer
Josiah Tshabangu	Neil Williams	Kholeka Dyakala

Keywords

Document, Install, Isolators

ESKOM COPYRIGHT PROTECTED

1 Scope

1.1 Purpose

The purpose of this document is to guide the persons required to correctly install isolators.

1.2 Applicability

This Task Manual is applicable to all the Major Engineering Works persons doing installation of isolators.

2 Normative References

The following documents contain provisions that, through reference in the text, constitute requirements of this Task Manual. At the time of publication, the editions indicated were valid. All standards and specifications are subject to revision, and parties to agreements based on this instruction are encouraged to investigate the possibility of applying the most recent editions of the documents listed below. Information on currently valid national and international standards and specifications can be obtained from the Information Centre and Technology Standardization Department at Megawatt Park: Definitions and abbreviations

OSHA Construction Regulations

PC 32-846: Rev. 0, *Operating regulations for high voltage systems (ORHVS)*.

DSP 34-323: Rev.1, *Personal protective equipment specification*.

DST 34-1717: Rev.0, *Provision and issue of personal protective equipment*.

DPC 34-227: Rev.1, *Pre-task planning and feedback process*.

EPL 32-94: Rev.0, *Safety, health and Environment (SHE) policy*.

ETE 34-1005: Rev.0, *Distribution Environmental management policy*.

41-606: Rev.0, *Specification for outdoor isolators and earth switches*

DGL 34-190: Rev.0, *Access to farms*

OSHA Construction Regulations

DPC 34-333: Rev. 0, *OHS act requirements to be met by principal contractors employed by Eskom distribution*

DPC 34-228: Rev. 1, *Health and Safety representative's inspection reports and guidelines*

DST 34-1238: Rev. 0, *Quality control process for the checking of distribution substation construction before handing over for commercial operation*.

3 Definitions and abbreviations

3.1 Definitions

Trained: means to be trained, assessed and found competent

3.2 Abbreviations

MEW: Major Engineering Works

RAS: Risk Audit System

4 Task Manual

4.1 Risk Assessment

Risk assessment shall be done on site for each new task and in accordance with DCP 34-227. Risks identified shall be recorded together with the steps to be taken to minimize such risks.

4.1.1 The risk assessment shall cover risks associated with at least the following:

- Working in close proximity of live equipment
- Work in accordance with ORHVS requirements
- Roadside work
- Noise levels and effectiveness of communication
- Work in elevated positions
- Condition of poles, structures, hardware and conductors
- Weight of poles, structures, hardware and conductors to be lifted or displaced
- Rating of equipment (SWL, kV)
- Integrity of line
- Integrity of structures
- Integrity of holes and foundation
- Bystanders
- Weather conditions
- Equipment and tools
- Material or spares
- Work position of workers and specific tasks
- Overall supervision
- Complete workers register and sign
-

4.1.2 Safety Requirements

Note: The workers retain the right to refuse to work on grounds of health and safety

- PPE as per Matrix
- Take appropriate steps to minimise risks when working above ground

ESKOM COPYRIGHT PROTECTED

INSTALLATION OF SUB STATION ISOLATORSUnique Identifier: **34-290**Type: **DMN**Revision: **1**Page: **5 of 10**

- Ensure that only material slings are used when lifting equipment that has porcelain or any other type of insulating material that can be damaged by the steel chains.
- No person is allowed below the equipment being installed
- Person responsible for aligning a post and securing and disconnecting load must stay clear of load when suspended.

4.2 Installation of isolators**4.2.1 Pre-Planning****4.2.1.1 Tools and equipment**

Vehicle Mounted crane	Aerial device	Lifting gear
Hand tools	Ladders	Generator

4.2.1.2 Preparations

- Ensure that work is carried out within barricaded areas where applicable.
- Ensure specified isolators are on site and in a good condition
- Determine the tools and equipment required
- Ensure the position of the normally open isolators on ring feeds is stated
- Ensure that appropriate support has been installed / erected correctly
- Ensure that correct installation drawings are on site
- Ensure equipment description meets specifications
- Inspect equipment to ensure that not physical damaged occurred doing storages and transportation

4.2.2 Install isolators

- Lift isolators with nylon slings to prevent damage to insulation
- Lift isolator onto support, level and secure
- Repeat for all phases

Note: Ensure isolators post is secure before removing the crane to prevent undue movement or falling. Never lift loads without guy ropes.

- Level and align all three phases
- Install all operating pipes and operating handle
- Set up mechanism to operate in unison and maintain clearances
- Operated isolators to ensure correct functioning and operation
- Make appropriate earth connections
- Test earthing leads for continuity and record

4.3 Record keeping

- A record of all risk analysis and tool box talks
- A record of all quality checks shall be kept in the project file by MEW
- A record of all on job task observation shall be kept in the RAS file by the relevant person
- All documents pertaining to service contracts must be kept according to site file index.
- Original landowner clearance to be kept on file.

5 Roles and responsibilities

5.1 Responsibilities

The Designated Person or his delegate shall ensure that persons are trained and equipped to do the installation of isolators.

5.1.1 The Principal Construction Official or his delegate shall ensure that:

- 5.1.1.1 Quality inspections are carried out and the quality report is completed
- 5.1.1.2 All environmental requirements are met
- 5.1.1.3 The landowner is aware that construction activities are about to begin

5.1.2 The responsible person on site shall ensure that:

- 5.1.2.1 All safety requirements are met for every specific scope of work
- 5.1.2.2 Risk analysis is done
- 5.1.2.3 Adequate supervision on all persons on the work site is carried out to ensure their safety

6 Process for monitoring

This document shall be reviewed every five years if necessary. The MEW managers and or the IARC representative (for MEW) may at any time request a revision of this document. This document shall also be revised if major changes to technology, legal requirements or best practices necessitate it.

Minor changes that will affect the outcomes detailed in this document if recorded in the MEW manager's forum decision log will be valid till date of next revision.

Annex A - Impact assessment

(Normative)

Impact assessment form to be completed for all documents.

1 Guidelines

- All comments must be completed.
- Motivate why items are N/A (not applicable)
- Indicate actions to be taken, persons or organisations responsible for actions and deadline for action.
- Change control committees to discuss the impact assessment, and if necessary give feedback to the compiler of any omissions or errors.

2 Critical points

2.1 Importance of this document. E.g. is implementation required due to safety deficiencies, statutory requirements, technology changes, document revisions, improved service quality, improved service performance, and optimised costs.

Comment: This document has been developed to ensure that the method of working in the MEW environment is aligned to the latest safety, health, environmental and quality requirements and technology and that all work is standardised through out Eskom Distribution

2.2 If the document to be released impacts on statutory or legal compliance - this need to be very clearly stated and so highlighted.

Comment: The document enhances the existing statutory or legal compliance requirements.

2.3 Impact on stock holding and depletion of existing stock prior to switch over.

Comment: The existing commercial practices are applicable at the implementation of the document.

2.4 When will new stock be available?

Comment: N/A. The prevailing stock arrangements will be applicable at implementation of the document.

2.5 Has the interchangeability of the product or item been verified - i.e. when it fails is a straight swop possible with a competitor's product?

Comment: N/A. The document deals more with construction methods and not with products.

2.6 Identify and provide details of other critical (items required for the successful implementation of this document) points to be considered in the implementation of this document.

Comment: The staff should have been adequately trained in the execution of the work as this does not constitute a training manual.

2.7 Provide details of any comments made by the Regions regarding the implementation of this document.

Comment: The document was developed by the regional MEW subject matter experts (SME's)

ESKOM COPYRIGHT PROTECTED

Annex A
(continued)

3 Implementation timeframe

3.1 Time period for implementation of requirements.

Comment: N/A The time frame for the implementation of the out puts will be ongoing on both the existing and to all new work.

3.2 Deadline for changeover to new item and personnel to be informed of DX wide change-over.

Comments : N/A .The document does not introduce new practices.

4 Buyers Guide and Power Office

4.1 Does the Buyers Guide or Buyers List need updating?

Comment: N/A All resources envisaged in the document are expected to be as listed previously.

4.2 What Buyer's Guides or items have been created?

Comment: None.

4.3 List all assembly drawing changes that have been revised in conjunction with this document.

Comment: None

4.4 If the implementation of this document requires assessment by CAP, provide details under 5

Comment: N/A .No assessment is required.

4.5 Which Power Office packages have been created, modified or removed?

Comment: None

5 CAP / LAP Pre-Qualification Process related impacts

5.1 Is an ad-hoc re-evaluation of all currently accepted suppliers required as a result of implementation of this document?

Comment: No

5.2 If NO, provide motivation for issuing this specification before Acceptance Cycle Expiry date.

Comment: N/A. No new services or products are required from the Suppliers.

5.3 Are ALL suppliers (currently accepted per LAP), aware of the nature of changes contained in this document?

Comment: N/A.. No new services or products are required from the Suppliers.

ESKOM COPYRIGHT PROTECTED

INSTALLATION OF SUB STATION ISOLATORS

Unique Identifier: **34-290**
Type: **DMN**
Revision: **1**
Page: **9 of 10**

Annex A
(continued)

Is implementation of the provisions of this document required during the current supplier qualification period?

Comment: N/A. There will be no impact on any product

5.4 If Yes to 5.4, what date has been set for all currently accepted suppliers to comply fully?

Comment: N/A. There is no impact on any product.

5.5 If Yes to 5.4, have all currently accepted suppliers been sent a prior formal notification informing them of Eskom's expectations, including the implementation date deadline?

Comment: N/A. No products and services from the suppliers are affected

5.6 Can the changes made, potentially impact upon the purchase price of the material/equipment?

Comment: N/A .Existing conditions will apply.

5.7 Material group(s) affected by specification: (Refer to Pre-Qualification invitation schedule for list of material groups)

Comment: N/A. None

6 Training or communication

6.1 State the level of training or communication required to implement this document. (E.g. none, communiqués, awareness training, practical / on job, module, etc.)

Comment: Awareness of the requirements of the standard are to be discussed as part of pre-task planning during the toolbox talk.

6.2 State designations of personnel that will require training.

Comment: All the designation as indicted in the roles and responsibility section of the document which include PCO, SCO and CO.

6.3 Is the training material available? Identify person responsible for the development of training material.

Comment: The document itself shall be used for personnel awareness.

6.4 If applicable, provide details of training that will take place. (E.G. sponsor costs, trainer, schedule of training, course material availability, training in erection / use of new equipment, maintenance training, etc).

Comment: The document is to be made available at each instance where the activity is to be executed. The document is formulated around the construction activities.

6.5 Was Training & Development Section consulted w.r.t training requirements?

Comment: N/A. The services of the Training and Development Section are not required.

ESKOM COPYRIGHT PROTECTED

INSTALLATION OF SUB STATION ISOLATORS

Unique Identifier: **34-290**
Type: **DMN**
Revision: **1**
Page: **10 of 10**

Annex A
(continued)

7 Special tools, equipment, software

7.1 What special tools, equipment, software, etc will need to be purchased by the Region to effectively implement?

Comment: None. The existing resources are applicable.

7.2 Are there stock numbers available for the new equipment?

Comment: N/A. No new equipment is to be introduced to implement this document.

7.3 What will be the costs of these special tools, equipment, software?

Comment: None.

8 Finances

8.1 What total costs would the Regions be required to incur in implementing this document? Identify all cost activities associated with implementation, e.g. labour, training, tooling, stock, obsolescence

Comment: N/A. No major costs are incurred.

.....
.....
.....

Impact assessment completed by:

Name: T Claasen

Designation: TCO - MEW