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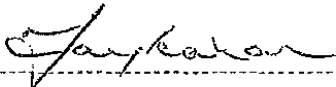
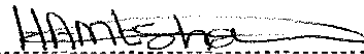
Engineering

Next Review Date:

STABILISED

COE Acceptance

DBOUS Acceptance

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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

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Title: **Distribution Task Manual – Part 24:
INSTALLATION OF NEC'S AND NER'S**

Unique Identifier: **34-292**




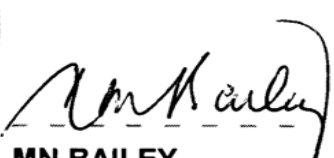
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INSTALLATION OF NEC'S AND NER'SUnique Identifier: **34-292**Type: **DMN**Revision: **1**Page: **2 of 10****Foreword**

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

Revision history

This revision cancels and replaces revision no 0 of document no. **DWN_34-292**.

Date	Rev.	Clause	Remarks
Jan 2011	1	-	Compiled By J Myburgh
		Compiled by	J Nezar as the compiler is replaced by J Myburgh Document number change to DMN 34-292.
		Development team	Included and remove names under 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:	
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This task manual shall apply throughout Eskom Holdings Limited, its divisions, subsidiaries and entities wherein Eskom has a controlling interest.

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Keywords

Guide, installation, NEC, NER

1 Scope

1.1 Purpose

The purpose of this document is to guide the persons required to correctly install NEC's and NER's.

1.2 Applicability

This Task Manual is applicable to all the Major Engineering Works persons doing the installation of NEC's and NER's.

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*.

DPC 43-227: Rev.1, *Pre-task planning and feedback process*.

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

DST 34-1209 – Rev.0 Soils compactions for poles and stays

DST 34-1195: Rev. 5, *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 DPC 34- 227.Rev 1 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

- Correct lifting machine and tackle to lift load
- Enough people to handle guy ropes level and secure equipment
- Barricade the work site if required
- No person is allowed below the equipment being installed
- PPE as per Matrix

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-
- Crane inspection sheet should be used at all time
 - All lifting equipment certificate is still valid
 - 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.
 - Ensure all lifting machine operators certificate are valid
 - Supervision as per ORHVS when working in close proximity

4.2 Installation of NEC's and NER's**4.2.1 Pre-Planning****4.2.1.1 Tools and equipment**

Lifting Equipment	Vehicle Mounted Crane	Hand Tools
Guide Ropes	Oil Spill Kit	

4.2.1.2 Preparations

- Ensure that all tools, plant and manpower is available
- Ensure that work is carried out only in barricaded area when working in existing substation
- Ensure that the supports are secured as per specification
- Ensure that all civil work is as per specification
- Provide suitable access for vehicle mounted crane.
- Ensure equipment description meets applicable specifications

4.2.2 Installation of NEC's and NER's

- Position the vehicle to ensure that the crane does not come into close proximity of overhead conductors
- Position vehicle to prevent overloading of crane due to over reaching
- Secure nylon slings to the equipment lifting lugs
- Install equipment on supports using guy ropes and slings
- Check whether equipment is level
- Fit and fasten securing bolts
- Slack and remove slings and guide ropes

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 for RAS by the relevant person
- Record equipment make and serial numbers

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5 Roles and responsibilities

5.1 Responsibilities

The Designated Person or his delegate shall ensure that persons are trained to install NEC's and NER's.

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 permit has been issued for construction activities to be done

5.1.1.4 All pre-planning is done

5.1.1.5 All workers are informed of the task

5.1.1.6 The correct type of barricading is available on site

5.1.1.7 Applicable drawings and scope of work are on site

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

5.1.2.4 All work to be done under work permit

5.1.2.5 All workers to sign on workers register.

6 Process for monitoring

This document shall be reviewed every three 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)

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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.

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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.

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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.

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Impact assessment completed by:

Name: J Myburgh

Designation: PCO - MEW