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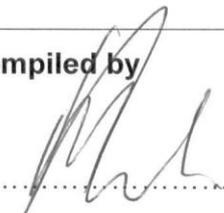|			
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CONTENTS

FIGURES

1. INTRODUCTION

This procedure describes Manage Engineering Accountability (MEA) business rules and governance. This procedure is necessary to ensure that users of the MEA system are conversant with the process requirements. This will help reduce Engineering liability and ensure professional accountability is adhered to when performing Engineering Work for Eskom.

- MEA process ensures that the business provide sufficient information for individuals performing EA Tasks to perform their duties.

- The MEA system makes individuals aware of professional accountability when performing Engineering Work.

- The MEA system protects the interests of the organisation and the rights of employees, clients and present and future stakeholders.

2. SUPPORTING CLAUSES

2.1 SCOPE

The procedure gives detailed guidance, business rules and governance that must be followed in the MEA system by all Engineering Centres of Excellence and Operating Units executing design engineering work within Eskom.

2.1.1 Purpose

The aim of this document is to make individuals understand the MEA procedure and allowing them to be competent in their specific sector within Eskom.

2.1.2 Applicability

This procedure is applicable to all Engineering Centres of Excellence, Engineering Disciplines, Operating Units of Eskom Holdings SOC Ltd and its subsidiaries performing design engineering work for Eskom as defined in the Engineering Policy. This procedure is not applicable to Nuclear.

2.2 NORMATIVE/INFORMATIVE REFERENCES

The following document(s) are referenced in this text and comprise requirements referred to within this document. At the time of publication, the edition(s) indicated was (were) valid. These documents are subject to revision and users are responsible to ensure that the most recent edition(s) of the document(s) listed below are used/ referenced.

2.2.1 Normative

[1]   240-4332798: Engineering Policy

[2]   240-41814760: Competency and Learning Management Policy.

[3]   240-44443156: Process Control Manual (PCM) for Manage Engineering Accountability

[4]   Process knowledge: 32-1216: Manage Documents and Records

[5]   Act 27: 2003: Natural Scientific Professions Act, 2003

[6]   Act 43:2000; Council for the Built Environment Act, 2000

[7]   Act 44:2000: Architectural Professional Act, 2000

[8]   Act 46:2000; Engineering Professional Act 2000

[9]   Act 48: 2000; Project and Construction Management Profession Act,2000

[10]   Act 49: 2000; Quantity Surveying Profession Act, 2000

2.2.2 Informative

[1]   Engineering Council of South Africa Identification of Engineering Work Steering Committee, Baseline Report, Final – 14 August 2005

[2]   Framework for the Identification of Work for Persons Registered in terms of the Engineering Profession Act, 2000 Final Version approved: ECSA Council - 24 November 2005

[3]   Identification of Engineering Work for Persons registered in a Category contemplated in Section 18(1) of the Engineering Profession Act, 2000, (Act No. 46 of 2000)

2.3 DEFINITIONS

2.3.1 Accountability

An individual's ownership of professional actions, decisions, judgement and quality of output for a task or Engineering work assigned to him or her.

2.3.2 Application System

An Application System is a computer program designed to solve a particular business problem or to be used for a particular user-defined requirement. It could be developed in-house or bought, customised and configured for Eskom, e.g. SAP, SPO, etc.

2.3.3 Business Rule

The Business Rule represents a set of standard business practices or policies that need to be applied consistently across business activities in order to achieve organisational goals and stable business growth. Business rules are specifications that describe how a computer program or business process controlled by a business rule should behave. Business rules play a central role in the control and execution of process flows.

2.3.4 Engineering Accountability (EA) Competency

A competency is defined as a mix of skills and related knowledge. A competency or various competencies can be linked to an Engineering Accountability Task. Every competency has a relevant intervention that must be performed to gain the competency.

2.3.5 Engineering Accountability (EA) Task

An EA Task is defined as a deliverable of a specific CoE. Every EA Task has specific competencies with related interventions linked to it.

2.3.6 Individual

Individuals working in the engineering environment performing EA tasks.

2.3.7 Intervention

An intervention is an action to be performed by an individual to gain a competency. Interventions will mainly be reading/understanding of Eskom documentation, attendance of courses, interviews with SME's etc.

2.3.8 Subject Matter Expert

An SME is an accredited or qualified individual who is identified to have the relevant experience relating to a specific discipline.

2.4 ABBREVIATIONS

Abbreviation	Description
CoE	Centre of Excellence
EA	Engineering Accountability
MEA	Manage Engineering Accountability
PCM	Process Control Manual
SME	Subject Matter Expert
SAP	System Applications and Products
SPO	SmartPlant Enterprise for Owner/Operator

2.5 ROLES AND RESPONSIBILITIES

2.5.1 CoE/Discipline Manager/MEA Administrato

The CoE/Discipline Manager is responsible to keep the MEA task and competency library up to date and relevant for the deliverables of his CoE. CoE/Discipline Manager or an MEA administrator will have the rights to create, update and change tasks and competencies in the CoE's MEA task and competency library.

2.5.2 Subject Matter Expert (SME)

The SME will be consulted on the specific competencies required for engineering accountability tasks.

2.5.3 Individual

The individual is the person performing EA tasks. The individual has the obligation to keep his/her individual profile updated and relevant in the MEA application system.

2.6 PROCESS FOR MONITORING

The system will monitor and log any changes within the Manage Engineering Accountability Process. If there are additions or updates for an Engineering Accountability Task or Competency, the change is logged. The process also monitors registration status as well as the declaration of Competencies and acceptance of EA Tasks. The following are specific things that will be monitored and reportable:

- Any update to the Task-Competency Library is logged to keep track of all changes that have been made with regards to tasks, competencies and Task-Competency linking. This log needs to be kept

on a continuous basis, and must be electronically accessible as and when required by CoE/Discipline Managers and MEA administrators.

- Individuals have declared their competencies and accepted accountability for certain Engineering Accountability tasks. If any change occurs to an Engineering Accountability task or competency that is part of an individual's profile, that individual must be notified of the change immediately for him/her to be able to update his/her competency declaration and accountability acceptance with regards to the change.

- Log changes in an individual's registration status, competency declarations and Engineering Accountability task acceptance. This log needs to be kept on a continuous basis, and must be electronically accessible as and when required by CoE/Discipline Managers and MEA administrators.

- Once a week (or on demand) a notification is sent to the CoE/Discipline Manager on his/her staff's individual profile changes.

Senior Managers within the organisation will monitor compliance to this procedure.

2.7 RELATED/SUPPORTING DOCUMENTS

[1]   240-53113946: Manage Engineering Accountability Task-Competency Generating Guide.

3. MANAGE ENGINEERING ACCOUNTABILITY PROCEDURE

Manage Engineering Accountability is a support tool that ensures accountability due to competencies that are defined correctly by the Centre of Excellence. Once these competencies are made available individuals have the ability to declare themselves competent in various competencies by performing the applicable interventions and consequently accept accountability for EA tasks. This will minimise liability and professional risks by effectively and proactively managing professional accountability.

It will also assist individuals to determine the appropriate professional registration and competencies required to perform different jobs or task assignments and promote their individual accountability growth.

The following points are considered in the MEA system with regards to individuals performing Engineering Work:

- Engineering Accountability (EA) Tasks must be dealt with by an individual with the appropriate qualifications and competencies.

- Every individual performing EA Tasks must be registered with a professional body in an appropriate category to perform specific Engineering Work.

- All individuals not yet professionally registered must comply with the competency requirements and takes responsibility for performing EA Tasks. The professional overseeing the non-professional takes professional accountability.

- The obligation to ensure that the individual meets all the competency requirements before performing the EA Task rest with the individual performing the Engineering Work.

The Manage Engineering Accountability stream allows each individual to have access and control over their own profile. Individuals will declare their competencies when they have performed the related interventions and accept accountability tasks.

The overall support system for Manage Engineering Accountability has three sub-processes as follows:

1. Match Accountability.

2. Manage Task-Competency Library

3. Manage Individual Accountability.

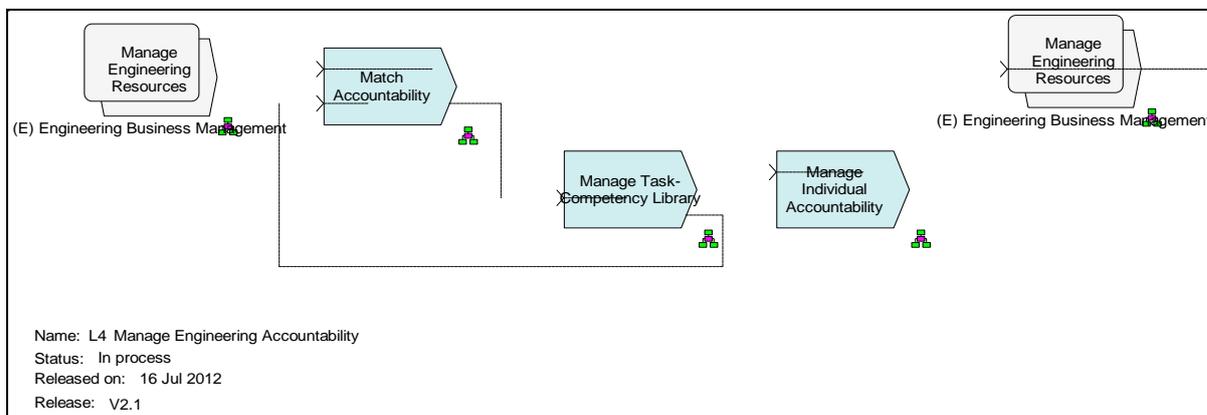The figure below shows the flow of each sub-process and how they are linked together.

Figure 1 : Manage Engineering Accountability Process

The following sections describe each sub process of Figure 1.

3.1 MATCH ACCOUNTABILITY

Match Accountability is the only process that interacts and can be triggered by another stream (Manage Engineering Resources). If Match Accountability is triggered by Manage Engineering Resources, a list of individuals that are accountable is required.

The process objective of Match Accountability is to determine the applicability of the defined task to an area of Engineering, by matching the defined Engineering Work task request to a corresponding Engineering Accountability task and then matching resources with appropriate competency profiles to the requested Engineering Work task.

Match Accountability consists of two activities that will guide the CoE Manager in generating the list of capable individuals. The two activities are:

3.1.1 Match Engineering Work Task to Engineering Accountability Task

The objective of this activity is to match the incoming Engineering Work Task to the Engineering Accountability Task. The reason why the matching has to occur is due to the fact that the Engineering Work Task received from Manage Engineering Resources can be specific to a project, where as in the Engineering Accountability Task library the task is generic to a discipline and not specific to a project.

Example:

Engineering Work Task: Develop a scope of work for the 400kV Tele-Protection between Kusile Power Station and Minivera Substation

Engineering Accountability Task: Develop a scope of work for the 400kV Tele-Protection

The matching is system based.

3.1.2 List Competent Resources

Once the Engineering Work Task is matched correctly to the Engineering Accountability Task another matching process is required. The next matching process occurs within this activity and matches the Engineering Accountability Task to the individual's profiles. The match will compare both the required Engineering Accountability Task to the individuals Accepted Engineering Accountability Tasks listed under his engineering profile.

3.1.3 Scenarios

1. A perfect match between the Engineering Work Task received and the Engineering Accountability Task. Second match between the Engineering Accountability Task to the individuals' Engineering Accountability Task. Therefore the outcome will be a list of accountable individuals.

2. A mismatch between the Engineering Work Task received and the Engineering Accountability Task. This will then trigger the Process called Manage Task Competency Library to create an Engineering Accountability Task. Once that process has been accomplished the matching scenario can be satisfied.

3. A perfect match between the Engineering Work Task Received and the Engineering Accountability Task. But the second process is a mismatch between the Engineering Accountability Task to the individuals Engineering Accountability Task. Therefore Manage Engineering Resources must be notified that there are no resources that can perform the Engineering Work Task.

3.1.4 Business Rules

Only the CoE/Discipline Manager or MEA Administrator will be able to generate a list of accountable individuals.

3.1.5 Roles

- CoE/Discipline Manager

- MEA Administrator

3.2 MANAGE TASK-COMPETENCY LIBRARY

Manage Task-Competency Library has many process paths in achieving various objectives. These objectives help shape Manage Engineering Accountability. The main objectives of the process are the creation and modification of Engineering Accountability Tasks, Competencies and the linking of an Engineering Accountability Task to numerous Competencies.

This process consists of six activities that will achieve destination paths. The six activities are:

3.2.1 Search EA Task Library

The purpose of this activity is to find out if an Engineering Accountability Task exists in the library. I f the Engineering Accountability Task does not exist then a new Engineering Accountability Task needs to be created. When searching for an Engineering Accountability Task the application system will have specific ways of searching in order to find the existing task, this method of searching is put in place to mitigate the duplication of Engineering Accountability Tasks.

3.2.2 Formulise Engineering Accountability Task

The purpose of this activity is the actual process used in creating a task. Engineering Accountability Task is made up of an *Output, Description of the physical object* and *Purpose*. Example is illustrated below:

Task Example:

Write a specification for a wooden door to be used in a garage of a house.

Output	Write a specification
Description of physical object	for a wooden door
Purpose	to be used in a garage of a house

The system will log all changes that have been made with regards to tasks that are being created or updated. This log is kept on a continuous basis and will be electronically accessible as and when required by CoE/Discipline Managers and MEA administrators.

Individuals have declared their competencies and accepted accountability for certain Engineering Accountability tasks. If any change occurs to an Engineering Accountability task, competency or task-competency linking that is part of an individual's profile, that individual will be notified of the change immediately for him/her to be able to update his/her competency declaration and accountability acceptance with regards to the change.

3.2.3 Determine Competency Required

This is a simple activity to determine if Competencies need to be linked to the created Engineering Accountability Task.

3.2.4 Search Competency Library

The purpose of this activity is to find out if a Competency exists in the library. If the Competency does not exist then a new Competency needs to be created. When searching for a Competency the application system will have specific ways of searching in order to find the existing competency, this method of searching is put in place to mitigate the duplication of Competencies.

3.2.5 Formulise Competency

The purpose of this activity is the actual process used in creating a competency. Competency is constructed with the *Knowledge of, Noun, Knowledge of What* and *Skill*. Example is illustrated below:

Competency Example:

Competencies required to write a technical report would be:

Knowledge of	Ms Word document
Noun	Knowledge of
Knowledge of What	Ms Word
Skill	Writing a technical report using a template

Each Competency shall have an intervention. This intervention is used to familiarise and understand the Competency and after completing the intervention, have the ability to perform an Engineering Accountability Task having many Competencies with confidence.

The system will log all changes that have been made with regards to competencies that are being created or updated. This log is kept on a continuous basis and will be electronically accessible as and when required by CoE/Discipline Managers and MEA administrators.

Individuals have declared their competencies and accepted accountability for certain Engineering Accountability tasks. If any change occurs to an Engineering Accountability task, competency or task-competency linking that is part of an individual's profile, that individual will be notified of the change immediately for him/her to be able to update his/her competency declaration and accountability acceptance with regards to the change.

3.2.6 Link EA Task to Competencies

Determine whether linking between EA competencies and EA task is required. Once the required competency has been identified, it can be linked to the Engineering Accountability task. The newly linked Task-competency is reviewed and formally approved.

The system will log all changes that have been made with regards to task-competency linking that are being created or updated. This log is kept on a continuous basis and will be electronically accessible as and when required by CoE/Discipline Managers and MEA administrators.

Individuals have declared their competencies and accepted accountability for certain Engineering Accountability tasks. If any change occurs to an Engineering Accountability task, competency or task-competency linking that is part of an individual's profile, that individual will be notified of the change immediately for him/her to be able to update his/her competency declaration and accountability acceptance with regards to the change.

3.2.7 Scenarios

Within this process there are six objectives:

1. Create an Engineering Accountability Task only
2. Create an Competency only
3. Link an Engineering Accountability Task to Competencies
4. Modification of an Engineering Accountability Task
5. Modification of an Competency
6. Add Competencies to a User's Engineering Profile

3.2.8 Business Rules

- The CoE/Discipline Manager or MEA Administrator must follow the rules in creating Engineering Accountability Tasks and Competencies.

- The CoE/Discipline Manager or MEA Administrator has rights to explore scenarios one to six

- An individual can only explore scenario six.

3.2.9 Roles

- CoE/Discipline Manager
- MEA Administrator

- Individual.

3.3 MANAGE INDIVIDUAL ACCOUNTABILITY

Manage Individual Accountability is the core and most important process in Manage Engineering Accountability. This process allows an individual to accept accountability for specific EA Tasks. The individual declares his/her competency by performing the related interventions.

Any changes in an individual's registration status, competency declarations and Engineering Accountability task acceptance are logged. This log needs to be kept on a continuous basis, and must be electronically accessible as and when required by CoE/Discipline Managers and MEA administrators. Once a week (or on demand) a notification is sent to the CoE/Discipline Manager on his/her staff's individual profile changes.

3.3.1 Confirm Registration Status

This step in Manage Individual Accountability is important with regards to accountability and must be treated with importance. Professionally registered individuals performing engineering work are accountable for the work they do. Individuals not registered as professionals are responsible for what they do but the accountability lies with the professional overseeing or reviewing the work being done.

3.3.2 Perform Intervention Linked to Competency

This step in Manage Individual Accountability was touched earlier in the document with regards to every Competency having an intervention linked to it. This intervention must be attempted and completed by the individual before the declaration activity (section 3.3.3). The intervention helps in the understanding of the competency. This step is monitored or controlled in any way. The individual takes the responsibility as a register person to ensure he/she has the knowledge to perform engineering work for Eskom.

3.3.3 Declare Individual Competency

This activity is application system based and the individual will be prompted after the completion of the Competency intervention. The system prompt will be a statement illustrating all the terms and conditions with regard to the declaration.

3.3.4 Accept Task Accountability

As discussed earlier in the overview of Manage Engineering Accountability (Section 3) an Engineering Accountability Task is made up of one or various Competencies. Once all the Competencies are satisfied and declared, the Engineering Accountability Task can be accepted. Therefore Accept Task Accountability is an activity that is system based and the individual will be prompted after the completion of all related Competencies for the specific Engineering Accountability Task.

3.3.5 Scenarios

Within this process there are five objectives:

1. Ability for an individual to perform an intervention
2. Ability for an individual to declare competence for a competency
3. Ability for an individual to accept accountability for a task
4. Ability for an individual to declare their registration status

5. Ability for an individual to update registration status

3.3.6 Business Rules

An individual can explore scenario's one to five.

3.3.7 Roles

- Individuals

4. AUTHORIZATION

This document has been seen and accepted by:

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5. REVISIONS

Date	Rev.	Compiler	Remarks
October 2012	1	M Andre	New Document

6. DEVELOPMENT TEAM

The following people were involved in the development of this document:

- M Andre
- N Naiken
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7. ACKNOWLEDGEMENTS

N/A