Eskom	Procedure	Technology

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1. INTRODUCTION

In meeting Eskom Document and Records Management Policy [1] requirements, this procedure describes the process and requirements for the registration (identification & retention), support review and authorisation, publication, archiving and disposal of documents and records within the Engineering Business Management System.

It is a principle requirement that all Eskom business functions and activities are documented or recorded to provide authentic, reliable and retrievable evidence. The documents must also be maintained and kept up-to-date for as long as the business elements they support are in use.

This procedure describes the requirements in support of meeting the ISO9001 Quality management systems – Requirements [1] and ASME NQA-1 Quality Assurance Requirements [3] for the control of documents and the control of records.

2. SUPPORTING CLAUSES

2.1 SCOPE

This procedure describes the requirements and controls for managing three (3) classes of documentation, namely –

- Paragraph 3 - Governance documents as used by Engineering,
- Paragraph 4 - Technical documentation that are managed in the approved document and record management applications for engineering, eg Smartplant Foundation and Hyperwave,
- Paragraph 5 - General engineering business documents that are managed in the EDMS.

This procedure is applicable to all documents, drawings and records (also referred to as documentation) as defined by 32-9: Definition of Eskom documents [2] and 240-54179170 Definition of Engineering Documentation [6], which are created, used, stored and controlled during the execution of functions and activities described by the Business Management System (also known as the Quality Management System (QMS)) as applicable to Engineering.

The procedure also provides direction regarding the structure of document types (i.e. classification), document naming, revision control and taxonomy structures to support document and record control. Further this process has been described and mapped under the Process Control Manual [7].

2.1.1 Purpose

The purpose of this procedure is to comply with 32-1: Eskom Document and Records Management Policy [1] and supporting document and record Standards, to set the direction and controls applicable for Engineering documents and records to assure standardisation, optimisation and simplification.

Document and records enable organisations to, inter alia -

- meet legislative and regulatory requirements including archival, audit and oversight activities,
- provide protection and support in litigation including the management of risks associated with the existence of, or lack of, evidence of organizational activity,
- protect the interests of the organization and the rights of employees, clients and present and future stakeholders, and
- maintain corporate, individual or collective intellectual property.

2.1.2 Applicability

This procedure is applicable to employees, including contractors, performing engineering work within operating units, projects, and service functions, for Eskom Holdings SOC Limited, including Eskom subsidiaries.

2.2 NORMATIVE/INFORMATIVE REFERENCES

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

2.2.1 Normative

[1] 32-1: Eskom Document and Records Management Policy

[2] 32-9: Definition of Eskom documents

[3] 32-392: Eskom document identification, numbering and classification standard

[4] 32-644: Eskom documentation management Standard

[5] 36-943: Engineering Drawing Office and Engineering Documentation Standard

[6] 240-54179170 Definition of Engineering Documentation

[7] 32-1216 Process Control Manual for Manage Documents and Records.

2.2.2 Informative

[8] ISO 9000 Quality management systems — Fundamentals and vocabulary

[9] ISO 9001 Quality management systems – Requirements

[10] ASME NQA-1-2008 Quality Assurance Requirements for Nuclear Facility Applications

[11] 240-53665024 Quality Management System Manual

[12] 240-53114190 Internal Audit Procedure

[13] IEC 61355: Classification and designation of documents for plants, systems and equipment

[14] 240-4417997: Documentation Preservation Standard

[15] 240-53113704 (474-190) Design Base Standard.

2.3 DEFINITIONS

Accountable Domain Manager – is a duly delegated person with the responsibility to review the document; for alignment to business strategy, policy, objectives, requirements, and the impact of implementing the document in the area of applicability.

Authenticity – An authentic record is one that can be proven:

to be what it intended/purports to be,

to have been created or sent by the person identified to have created or sent it, and

to have been created or sent at the time recorded.

Disposition – range of processes associated with implementing records retention, destruction or transfer decisions which are documented in disposition authorities or other instruments

Document and Records management – field of management responsible for the efficient and systematic control of the creation, receipt, maintenance, use and disposition of records; including processes for capturing and maintaining evidence of and information about business activities and transactions in the form of records.

Document Metadata – is all additional related document information that describes the attributes of a specific document (or record). Metadata includes but are not limited to the following; document title, document identifiers, document revision number, document compiler, document revision dates, document types, and areas of applicability.

Document Type – is a descriptor of the intended purpose and function of the document. Standard document types are identified in Eskom Standard 32-9 [2].

Controlled Hard Copy – is a status assigned to those documents which are issued to specific user (a controlled copy holder) for a specific location, to support the execution of safety critical tasks; without access to a document management system.

External Document - documents created and mastered outside Eskom, owned by National and International authorities, e.g. SANS, ASME, DIN, ISO, and NNR, and does not include documents created by external parties as contracted deliverables to Eskom.

Engineering Work - The application of specific scientific disciplines in the process of developing, designing, maintaining and operating assets with full cognisance of their (the) design and design limitations in order to improve the lives of people.

Integrity – The integrity of a record refers to its being complete and unaltered, i.e. protected against unauthorized alteration.

Governance Document - means documents that set direction and policy, defining authority and responsibility and describe the controls and rules for a given process or set of activities.

Records – information created, received, and maintained as evidence and information by an organization or person, in pursuance of legal obligations or in the transaction of business

Reliability – A reliable record is one whose contents can be trusted as a full and accurate representation of the transactions, activities or facts to which they attest and can be depended upon in the course of subsequent transactions or activities.

Taxonomy – is a classification system. In the context of knowledge management, it is the classification used to publish information and explicit knowledge (such as documentation). Note in engineering applications i.e. SmartPlant the term “configPBS” has a corresponding meaning.

Technical Documentation – means various documents with product-related data and information that are used and stored. The data and information intended include matters of product definition and specification, design, manufacturing, quality assurance, product liability, product presentation; description of features, functions and interfaces; safe and correct use; service and repair of a technical product as well as its safe disposal. Excluding the following document types i.e. project execution documents (ie schedules, project mgt, etc), Governance documents and General Business documents.

2.4 ABBREVIATIONS

Abbreviation	Description
ARIS	Architecture of Integrated Information Systems
ASME	American Society of Mechanical Engineers
CARAT	Completeness, Accuracy, Relevant, Accessibility and Timely
COE	Centre of Excellence
CEO	Chief Executive Officer
DIN	German Institute for Standardisation
Div Exec	Divisional Executive
EDMS	Eskom Document Management System
EHPUM	Eskom High Performance Utility Model
EPGB	Engineering Process Governance Body
HAZOP	Hazards and Operability Study
ISO	International Standards Organisation
MDI	Master Document Index
PBS	Plant Breakdown Structure also known as “ConfigPBS”
PDF	Adobe Document Publishing Format
OHS	Occupational Health and Safety
QMS	Quality Management System
SANS	South African National Standard
SCOT	Steering Committee of Technology
SME	Subject Matter Expert
SPE	SmartPlant Environment

2.5 ROLES AND RESPONSIBILITIES

2.5.1 Senior General Manager: Engineering

The Senior General Manager: Engineering is accountable to ensure that this Procedure is applied and continually improved.

2.5.2 Document Manager

The Document Manager shall be appointed by the Business Management System Representative (e.g. Engineering Support Manager), in terms of 32-644: Eskom documentation management Standard [4].

The Document Manager shall ensure compliance to this procedure and 32-1: Eskom Document and Records Management Policy [1] and the requirements of 32-644: Eskom documentation management Standard [4].

The Document Manager shall chair and manage the document management committee, which shall include record management issues.

2.5.3 Document Controller

The Document Controller(s) shall be appointed by the Document Management Representative in terms of 32-644: Eskom documentation management Standard [4] who shall be responsible to facilitate the correct implementation of this procedure including;

- providing administrative support during the document and record management lifecycle (i.e. registration, review and authorisation, publication, archiving and disposal), and
- reporting on document controls including draft document status, redundant documents, templates, adherence to procedure, training and other document and record management related issues.

Document Controllers shall establish and manage a document register identified as the 240-44047082 Master Document Register/ Index [19] (MDI) for all documents and records. The register shall as a minimum list the following information regarding each document –

- clearly defining the ownership (functional responsibility / process owner),
- unique identifier,
- document title,
- status,
- storage location (electronic and hard copy), and
- next review date.

Document Controllers shall be trained in the use of the relevant Document Management System and shall facilitate the administrative duties and responsibilities in registering and maintaining approved documents.

2.5.4 Document Compiler

The Compiler, identified by the Functional Responsible Person (process owner / line manager) to compile the document, shall:

- compile the document using the latest authorised revision of the applicable template (Refer to section 3.2.8),
- ensure that minimum document requirements (as described in section 3.2.1) are adhered to,
- ensure that there is no duplication with existing documentation, regarding the document's objective and content,
- ensure that the document is reviewed, applying the voting process, when changes are submitted, or when the document is due for review,
- ensure that the document content is technically accurate, with integrity and pertinent to the subject matter,
- ensure that proof reading is performed on the developed document, and
- identify and communicate the impact of implementing the document. This is the duel responsibility of the Compiler as well as the Functional Responsible Person (Process Owner).

Any employee may be identified as a Document Compiler, on condition of having applicable knowledge and competency in the subject matter being documented and been trained on this procedure.

2.5.5 Comment Reviewer

The Comment Reviewer, on a voluntary basis may offer review and development comments during the development phase of a document. These comments, being part of the first phase review for document quality and completeness, shall be captured using the voting process, 240-53114078 Comments Voting Form [17] and could include issues of technical content and accuracy, syntax, template compliance and language accuracy.

2.5.6 Acceptance Reviewer

Acceptance Reviewers' are persons identified by the Compiler as representative of the discipline / area in which the developed procedure shall be applicable by virtue of its direct impact or indirect effects, of implementation. The Acceptance Reviewer comment/s shall be captured using the document voting process and forms. The panel of Acceptance Reviewer/s shall be listed, for reference purposes, within the document in the table prescribed.

The Acceptance Reviewers shall review the document to evaluate if the intended purpose and scope are;

- fit for purpose, and
- acceptable for application in the specific discipline / area.

Further, the Acceptance Reviewers may review the document for technical and quality perspectives by reviewing:

- document layout, language and grammar,
- technical accuracy and completeness,
- possible document duplication, or
- compliance to legislation, regulation or higher level document requirements including referenced documents.

2.5.7 Functional Responsible Person (also - COE Engineering Practitioner /SME)

The Functional Responsible Person (manager, supervisor, subject matter specialist, design engineer, or process owner) shall:

- ensure that the document does not duplicate an existing document purpose and content,
- verify the technical correctness and integrity of the document content,
- ensure the use of the correct templates and that layout requirements are met,
- facilitate the development of documentation for critical businesses processes within the business management system or as a product realisation deliverable,
- have the responsibility to approve the document, and
- perform the final review of the document, including confirming compliance to requirements.

The Functional Responsible Person shall determine if the document is fit for purpose, before the document is submitted for authorisation.

2.5.8 Document Authoriser

The Document Authoriser is a duly delegated person with the responsibility to review the document for:

- alignment to business strategy, policy, objectives, requirements, and
- the impact of implementing the document in the area of applicability.

The Document Authoriser shall authorise the release and application of the document and is accountable for the document implementation within the Business domain.

2.6 PROCESS FOR MONITORING

This procedure will be monitored via 240-53114190 Internal Audit Procedure[12], 240-53665024 Quality Management System Manual [11] and self-assessments.

2.6.1 Process measures

The adequacy, effectiveness and efficiency of this procedure will be monitored by reports on document status, documents generated, reviewed and obsolete statistics.

2.6.2 Product measures

When implementing this procedure, the product will be a completed 240-53114081 Document and Record Registration Form [16] (this is a record), authorised document, review cycle authorised document, obsolete document. The product will be measured by identifying if all sections of each form were adequately completed, the document metadata fields are populated and records of reviews captured.

2.7 RELATED/SUPPORTING DOCUMENTS

[16] 240-53114081 Document and Record Registration Form

[17] 240-53114078 Comments Voting Form

[18] 240-44047082 Document Register

[19] 240-44047082 Master Document Register/ Index

[20] 32-2 Policy / Directive Template

[21] 32-4 Eskom Document Template

[22] 32-184 Template for Technical Specifications or Technical Standards

[23] 32-606 Terms of Reference Template

[24] 240-53114089 Document & Record Transmittal Form

[25] 240-53114093 Change document or record status form

[26] 240-54858348 Business Bulletin Template

[27] 240-53114181 Template and Form Approval Form.

3. DOCUMENTS AND RECORD MANAGEMENT PROCEDURE

3.1 GOVERNANCE DOCUMENTS

3.1.1 Ownership

All governance documents used by Engineering are controlled and owned by the Eskom Documentation Manager (Corporate level). The Eskom Documentation Manager shall inter alia ensure that all governance documents remain valid via the management of the applicable review cycle process.

Governance documents are controlled and managed via the centralised governance document environment through which all users shall have access. See Appendix B : Governance document structures, for clarification of which documents are controlled through the central environment and those that may be controlled and managed at a local environment.

Decentralised governance documents created, controlled and managed in a Business Unit (decentralised) shall only be created to address specific local requirements or needs and shall not be in conflict with the referenced governance document. These document types shall be limited to work instructions and guidelines.

Any document type where the contents impacts design limits of an asset design or operation albeit procedure or standard or contains asset information must submitted through controlled technical governance.

3.1.2 Creation of governance documents

The applicable Functional Responsible Person per engineering domain (Line/Discipline or COE) depending on the business process shall identify and create the required governance document e.g. Procedure or Standard etc, in accordance with specified document templates and requirements.

Such governance documents shall be registered with the Eskom Documentation Manager who shall support the review and authorisation process. See registration form Document and Records Registration form [16].

Decentralised business units may submit requirements for governance documents to the Technical Governance Committee for resolution approval.

3.1.3 Resolution and authorisation

All technical governance documents shall in addition to normal review and authorisation processes be subject to review by the applicable Technical Governance Committee, including SCOT or EPGB. See Appendix B: Governance document structures

General principles -

- Policy & Directives – developed and approved by designated Top Management representative– resolution approved to the Executive Committee {with support from Technical Governance committee} before authorisation by Accountable Exec Director i.e. CEO or DivExec
- Procedures, Standards and Manuals, – developed by Centre of Excellence, approved by Functional Responsible Person (COE Lead), with resolution approval by as applicable SCOT or EPGB, before authorisation by Accountable Domain Manager
- Work Instruction and Guidelines: as per Procedures and Standards and Manuals, if in direct support of creating technical deliverables, for the operation and maintenance of Plant, Systems and Equipment, shall require review by the applicable SCOT or EPGB.

Before authorisation of a technical Policy or Procedure the Eskom Documentation Manager shall advise regarding the submission by the compiler of the final draft of the reviewed Policy or Procedure to the Policy and Procedures Steering Committee and CARAT Committee for final quality assurance and acceptance review.

3.2 TECHNICAL DOCUMENTS AND RECORD MANAGEMENT PROCEDURE

3.2.1 Document and record Requirements

All technical documentation shall be registered and controlled using an approved Eskom Document Management System (EDMS), eg SmartPlant Foundation or Hyperwave and shall as a minimum comply with the following:

- the document ownership shall reside within the engineering domain,
- document shall be unique in its purpose, content and aim,
- the document or record shall be uniquely identified,
- the document falls within the intent of the Design Base (see [15] 240-53113704 Design Base Standard)

3.2.2 Technical Document and Record Metadata

The Compiler shall ensure that all requirements and applicable metadata for technical documentation, including that described by 36-943: Engineering Drawing Office and Engineering Documentation Standard [5] is provided including the following -

3.2.3 Document Titles

The Compiler shall ensure that the document titles are descriptive of the document content and intention and as far as possible include the Document Type (e.g. Specification, Drawing, Plant Design Manual, HAZOP (Hazard and Operability study) Report, Audit Report, Plant Operating Manual, Equipment catalogue, Commissioning checklist etc.) within the title wording, normally at the end.

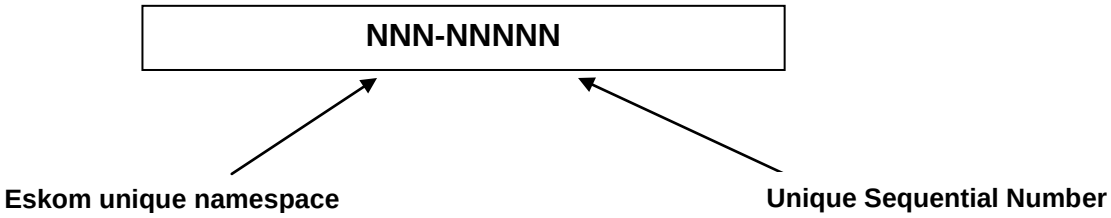
3.2.4 Unique Identifier

Every document, drawing, record shall have a unique identification number, as issued from the document management system applicable to the functional domain controlling the specific document, drawing or record.

Document Controllers shall control the issue of unique identifier per document/record on receipt of a completed 240-53114081 Document and Record Registration Form (or part of an application workflow process) and after validating that such a document (based on available attributes – title, description, process owner, type etc.) does not exist within the business taxonomy (i.e. Plant Breakdown Structure) and 240-44047082 Master Document Register/ Index [19](refer to 3.2.10).

The following unique identifier notation shall be applied and captured in the applicable document management system –

The unique identifier for documentation shall commence with the allocated namespace designation followed by a sequential number, separated by a hyphen.



3.2.5 Revision Control

a) The Document Compiler shall capture the revision control number of the document with a numeric value in the document template, depending on which of two revision schemes, i.e. 1.1 or 1A applied.

The commencement digit for the Revision number for authorised documentation created and mastered in –

- the Smartplant application will be “1”, and
- those in the Hyperwave application may commence at '0'.

Illustrative example

The first draft revision of a document shall commence at revision number 1.1 and any further version made to the draft document will increment the number by the value of 1.1 or 1A.

Therefore the example indicates the revision number of a new document after 2 (two) draft revisions:

- 474-1 Document Management Procedure for Governance Documents Rev 1.2 (alternate 1B)

When a document is authorised for the first time will be at the latest revision and version. But the authorised document will only show the Revision number, e.g.

474-1 Document Management Procedure for Governance Documents Rev 1

Any draft revisions made to an approved revision will show the decimal number increased by a value of 1, and commence at the next whole revision and version e.g.

- 474-1 Document Management Procedure for Governance Documents Rev 2.1 (alternate 2A)

b) All drafts shall be clearly marked with a watermark in bold capitals (**DRAFT**) diagonally across all pages.

3.2.6 Version Control

Version Control is used for internal review processes, and will typically be used in cases where a document is checked out by a Compiler for work-in-progress changes/modification to the content, normally managed in the document / drawing development application. Note – A number of version control changes could occur before a Revision Control change is published.

3.2.7 Effective Date

The Functional Responsible Person (Process Owner) shall set an “effective date” for each document created or updated. The effective date of a document is a date after the authorisation date (the date the Authoriser signed the document), from which compliance to the document requirements shall be effective. The effective date means; that from this date all training, artefacts and supporting systems required for compliance to the document requirements shall have been established and implemented.

3.2.8 Document Templates

The applicable Functional Responsible Person per process shall ensure applicable template/forms are established and authorised, which shall be used in the creation of the documents, drawings and records pertaining to the process.

The document, drawing or record Compiler shall use the latest revision of the applicable template/forms.

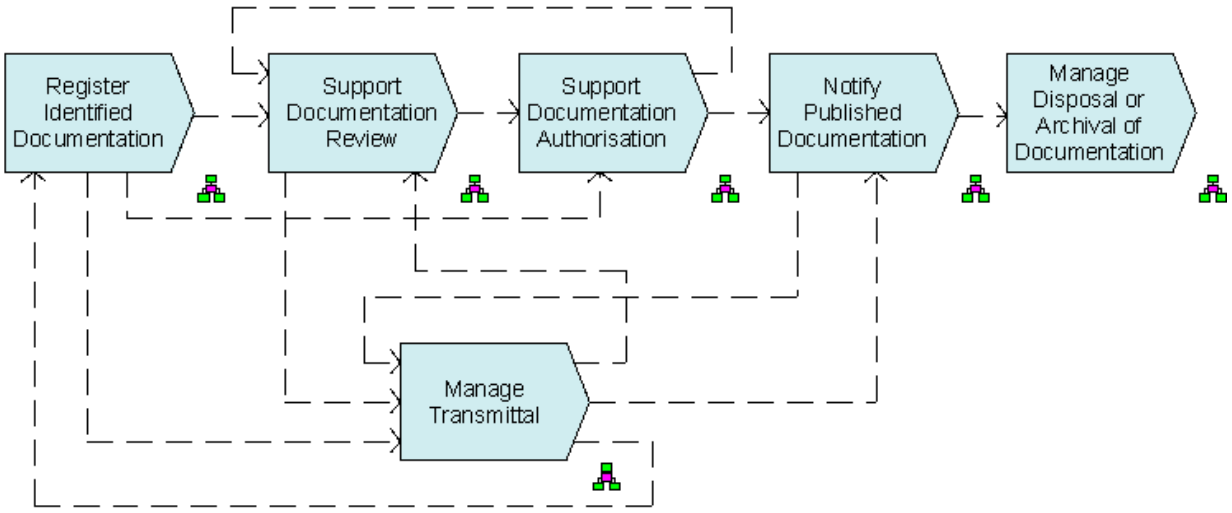
Examples include Eskom Corporate templates:

- policies and directives: [32-2]
- procedures, standards, work instructions, guidelines and specifications: [32-4]
- technical standards and specifications: [32-184]
- terms of references: [32-606]

The Document Controller(s) may be consulted for additional unique document templates which shall also be available on the business Document Management System.

3.2.9 Document and record management process

The following figure sets out the process framework for managing document and record/s inter alia registration, support review and authorisation, publication and notification, archive and disposal, as published within the process control manual “Document and Record Management” in EHPUM framework and ARIS application.



L4 Manage Documents and Records
Status: In process
Released on: Mar 15, 2012
Release: V 2.1

Figure 1 : Document and Record Management Process

3.2.10 Document & Record Registration

3.2.10.1 Registration

The Document Compiler shall complete and submit the 240-53114081 Document and Record Registration Form [16]to the Document Controller for registration of a new document or record. The metadata required includes:

- Proposed document Title
- Proposed document Type
- Document Compiler
- Functional Responsible Person
- Document or drawing Authoriser/Approver
- Area of Applicability
- Disclosure Classification
- Planned completion date
- Supplier name

The metadata shall be used to perform a document request review by the Document Controller to validate possible duplication of documents, after which a Unique Identifier shall be generated and submitted to the Compiler.

The Document Controllers shall manage a 6 month document development period, after which a reminder will be sent to the Document Compiler to establish the status of the document development. This could result in an extended development period or reassignment of the Unique Identifier number, for those documents that the Compiler has confirmed will no longer be developed.

The Document Compiler shall submit all draft revisions of the document to the Document Controller for record keeping on the EDMS, this is particularly important after each voting process in which comments have been applied to the draft document. After the final draft revision has been compiled and received by the Document Controller, the document will enter the document review process step (3.2.11).

3.2.10.2 Update a Document

The default review cycle for governance documents is 3 years and for technical documentation is lifetime, but the document Compiler and Functional Responsible Person may set an alternative review cycle, i.e. where documents contain strategic detail that could be affected by changes in the organisation, in which case an annual review cycle is recommended.

All documents shall be reviewed and or updated before the assigned document review cycle expiries or when changes have been identified.

The document review cycle process may commence either via the Document Controller issuing a notice to the document Complier to conduct the review or by the document Compiler initiating a review (normally due to identified changes) by the submission of a revised 240-53114081 Document and Record Registration Form [16].

The document Compiler shall submit all draft revisions of the document to the Document Controller for record keeping on the EDMS, this is particularly important after each voting process in which comments have been applied to the draft document. After the final draft revision has been compiled and received by the Document Controller, the document will enter the document review process step (3.2.11)

3.2.10.3 Retrieve a Document

Documents published on the applicable EDMS, depending on access and security levels assigned, may be viewed directly by all employees by accessing the business domain documentation taxonomy within the EDMS. The metadata search functionality can also be utilised to retrieve the document. Document users may also request the business domain document centre for the required documents. The identified documents shall be provided in soft copy (electronic protected PDF Format) or an EDMS link to the protected document. See preservation standard 240-4417997: Documentation Preservation Standard [14].

The latest revision of the business domain Master Document Index of all documents and records, maybe obtained from the applicable Document Controller, if required.

3.2.11 Support of Document & Record Review and Authorisation

During the Document Review process, the responsible Document Compiler shall ensure that;

- a broad spectrum of subject matter expert reviewers (Comments Reviewers and Acceptance Reviewers) are involved in reviewing the document – this list should be verified by the Functional Responsible Person prior to the actual review,
- the document maybe marked as a **DRAFT** document on all pages whilst under review, and
- the document under review is revised and finalised within the revision time frame.

The Document Review Process shall follow four phases:

- **Comments Review**: The Document Compiler shall submit the draft document to the Document Controller who shall distribute the draft document together with 240-53114078 Comments Voting Form [17] to all identified Comment Reviewer/s (as identified by the Compiler). All returned voting forms shall be captured in the EDMS and returned to the Compiler. The Compiler shall consolidate all comments, clarify issues with Comments Reviewer/s and update the document as required, update the draft revision and return the updated revision to the Document Controller to commence the next phase.
- **Functional Review**: After receipt of the updated draft document, the Document Controller shall distribute the document to the Functional Responsible Person together with a 240-53114078 Comments Voting Form [17]. After review, the completed voting form shall be captured in the EDMS and returned to the Compiler. The Compiler shall consolidate the comments, clarify issues with the Functional Responsible Reviewer and update the document as required and return the updated draft revision to the Document Controller.
- **Acceptance Review**: After receipt of the updated draft document, the Document Controller shall distribute the document to the Acceptance Reviewer/s together with 240-53114078 Comments Voting Form [17]. After review, the received voting forms shall be captured in the EDMS and returned to the Compiler. The Compiler shall consolidate all comments, clarify issues with Acceptance Reviewer/s and update the document as required and return the updated draft revision to the Document Controller.
- **Authoriser Review**: After receipt of the updated draft document, the Document Controller shall distribute the document to the Document Authoriser with 240-53114078 Comments Voting Form [17]. After review, the received voting form shall be captured in the EDMS and returned to the Compiler. The Compiler shall consolidate the comments, clarify issues with the Document Authoriser and update the document as required and return the updated draft revision to the Document Controller. The document will then enter the Document Authorisation Process step (3.2.11.1).

3.2.11.1 Authorise a Document

After the document under review has passed through all applicable review phases, the Document Controller shall facilitate the administration of the Document Authorisation (sign-off) Process. The Document Controller shall request / obtain signatures from the Document Compiler, Functional Responsible Person as well as the Document Authoriser on the final version of the document. Note for Governance documents additional reviews and resolutions are required, see described above.

After all signatures have been obtained, the document is now fully authorised (i.e. a record) and shall be published in accordance to the Document Publishing Process (3.2.12).

3.2.12 Document & Record Publication & Notification

The Document Controller shall publish the authorised document, according to the users identified by the Compiler i.e. a distribution list, including Compiler, Reviewer/s (comments and acceptance), the Functional Responsible Person and the Document Authoriser to whom a copy of the Authorised documents shall be sent.

The Document Controller shall administrate, with the detail inputs from the Functional Responsible Person, the issue of a notice / bulletin / e-mail communication announcing the authorised document and setting out the intention of the document, changes / updates, effective date and required actions by the organisation, i.e. read and understand, identify training requirements etc.

3.2.12.1 Issue of “Controlled Hard Copy” documents

The document compiler/functional responsible person shall identify to the Document Controller those documents that are to be issued as “controlled hard copy” documents, and identify the “controlled copy holder” by name, organisation and location.

“Controlled hard copy” documents shall only be issued on instruction from the Compiler or Functional Responsible person for the process.

The Master Document Index shall maintain record of those documents for which “controlled hard copies” have been issued, including the name of the holder, date of issue, revision number, organisation and location.

“Controlled hard copy” documents shall be sent to the holder via transmittal sheet, with signed receipt, being returned to the Document Controller for record purposes. All revised “controlled copies” shall be returned by the holder to the Document Controller (at the time the revised document is delivered) via transmittal sheet.

3.2.13 Document & Record Archiving and Disposal

3.2.13.1 Receipt control of Record

On receipt of a record (native format or approved preservation format) for capturing the Document Controller, subject to the direction of the Document Manager, shall capture the record within the business domain Document Management System taxonomy and update the 240-44047082 Master Document Register/ Index [19] or application system (e.g. SPE) document index report. Note: A document that is authorised (i.e. with signatures and date) becomes a record.

The Document Controllers shall check that the minimum unique identification information is provided by the Record Compiler.

The Record Complier shall ensure that any record submitted is legible and provided in a format that will preserve the integrity of the record or in a format that can be converted into a format to preserve the

integrity of the record, typically PDF or similar, see 36-943: Engineering Drawing Office and Engineering Documentation Standard [5].

Document Controllers shall, on receipt of a record not in a format to preserve the integrity, apply applicable conversions to ensure preservation.

Records already created shall not be modified or altered in anyway. Should such an occurrence arise a new record shall be generated, capturing the modifications or alterations.

3.2.13.2 Storage control of Records

The Document Manager shall facilitate and manage the establishment and maintenance of records, (including authorised policies, procedures, standards, reports, drawings etc) storage facilities, to support all business process activities, to ensure records are stored in such a manner to ensure record authenticity, reliability, integrity and usability

All records created through the execution of the business domain process activities shall be stored electronically within an approved Document Management System.

The Record Complier and Functional Responsible Person shall set the access rights for the record, whether hard copy or electronic versions.

3.2.13.3 Storage of Master Hard-copy Records

The Document Controllers shall before storing any master hard-copy documents, which is not available in an electronic format, a scanned in Portable Document Format (PDF) format copy is to be created and registered on the EDMS. See also 240-4417997: Documentation Preservation Standard [14]

The Document Manager shall ensure that any hard-copy storage facility meets the following requirements for a storage facility –

a) Provisions to prevent damage from harmful conditions (i.e. excessive light, stacking loads, electromagnetic fields, other environmental conditions), as applicable to the type of media being stored,

b) A vault, room, or set of one or more containers with a minimum two-hour fire rating. The design and construction of the storage facility shall be reviewed for adequacy by a person competent in fire protection or be rated and certified by an accredited organization. Should a temporary storage of records (such as records for processing, review, or use) be required, the storage facility or container shall provide a one-hour fire rating.

c) Provision to prevent damage from infestations, moisture, temperature and pressure, and

d) Provision to store hard-copy records in binders, placed in folders, boxes or envelopes for storage in steel file cabinets or on shelving.

The Document Manager shall control all access to the hard-copy storage facilities and prohibit any activity considered detrimental to the records. Access to the processing, storage, and retrieval of records shall be limited to authorized personnel. If records are lost or damaged, steps shall be taken to replace them.

3.2.13.4 Storage of Electronic Records

Storage of electronic records shall be in accordance with Eskom Information Management requirements and storage plan with associated disaster recovery actions.

Lifetime electronic records should be reviewed periodically for legibility. This review should also confirm the accessibility and that the record is retrievable, thus providing assurance that compatible software and hardware systems are available.

3.2.13.5 Record access, Distribution and Retrieval

All personnel (including contracted persons operating under the Business Management System) are responsible to ensure that the distribution of records within or external to the organisation is in accordance with the security and access rights assigned to the respective record.

Active records are available to personnel via the Document Management System subject to the assigned classifications for security and access.

3.2.13.6 Access to original hard-copy Record

Subject to the life-cycle status of the record and the access rights applicable the Document Manager shall establish controls to ensure full traceability of any hard copy record removed from any storage facility irrespective of media, form, and type.

Only the Document Manager and assigned Document Controllers shall retrieve any hard copy record from a storage facility.

No original record may be removed from the document and record storage facility; an applicable copy shall be made and issued, subject to being stamp marked or so labelled as a “Controlled Copy”. The document issue shall be supported by a completed transmittal form, with signature of receipt.

When such records are issued the following information shall be captured in the Document/Record issue Register –

- unique number,
- title,
- date issued,
- to whom the record was issued, and
- return date.

Any person with assigned access may obtain from the Document Management System any electronic record that has been assigned the status of “active”. Records with the status “inactive” may only be retrieved via a Document Controller.

3.2.13.7 Records distributed to external entities

The distribution of records to the Customer, Supplier, Regulator or external Stakeholder shall be in accordance with agreed protocols, as agreed by the Document Manager and the applicable interface manager (Project Manager). See paragraph 3.2.3.1 regarding “Controlled Hard Copy” documents being issued.

The protocols shall include a 240-53114089 Document & Record Transmittal Form [24] issued by the Document Manager that shall certify the records issued, media type, revision and include a facility for the receiving party to confirm receipt of the records as being correct and complete. The records shall be supplied using PDF format or similar on optical disk, other means and media shall be subject to the Document Manager approval.

The Document Manager shall maintain a Document/Record issue Register of all distributed records to external entities.

3.2.13.8 Archived Record Retrieval

Personnel requiring access to records not available in the "public readable space on the EDMS" due to archiving processes may request such record from a Document Controller providing reason for such record and the record unique identification information. Subject to such person having the required access and security rights the record will be made available; in all cases the Document Manager shall be consulted.

Records shall be retrievable for their respective entire life cycles.

3.2.14 Retention of Records

All records generated shall be assigned a retention classification type which shall set the retention period, namely lifetime or non-permanent. The classification shall consider the regulatory, business (warranty requirements) and stakeholder requirements.

Note – post the decommissioning of a plant the responsible decommissioning Project Manager in conjunction with Engineering shall identify all documentation containing inter alia, intellectual property of the plant, lessons learnt, and plant design related information. These shall be assigned an applicable retention period and archived.

Lifetime records are required to be maintained for the life of the particular item while it is in use, installed in plant or stored for future use.

3.2.14.1 Lifetime Records

Lifetime records are those that meet one or more of the following criteria:

- those that would be of significant value in demonstrating capability for safe operation,
- those that would be of significant value in maintaining, reworking, repairing, replacing, or modifying an item,
- those that would be of significant value in determining the cause of an accident or malfunction of an item, or
- those that provide required baseline data for in-service inspections.

See Appendix D : LIFETIME RECORDS a list of typical lifetime records

3.2.14.2 Non-permanent Records

Non-permanent records are those required to show evidence that an activity was performed in accordance with the applicable requirements, but need not be retained for the life of the item because they do not meet the criteria for lifetime records.

Non-permanent records shall be maintained for the identified retention period.

Class	Non-permanent record classifications		
NP1	Records requiring access for a period of 12 months from date of creation e.g. building access control sheets		
NP3	Records requiring access for a period of 3 years from date of creation e.g. short term contracts approvals/reviews		
NP5	Archived Records requiring access for a period of 5 years from date of creation e.g. general financial records unless longer period specified, routine QA audit reports		
NP10	Archived Records requiring access for a period of 10 years from date of creation e.g. OHS monitoring records unless longer period specified		
NP15	Archived Records requiring access for a period of 15 years from date of creation e.g. closed-out occurrence reports unless longer period specified		

Table 1 : Non-permanent Record Classification

3.3 DISPOSAL OF RECORDS

Record management processes shall be applied to all records, these include changing the status of records from “active” to “inactive”, to “archived” and “identified for disposal”.

The Document Manager shall validate all record status changes subject to confirmation from the respective Functional Responsible person and considering the applicable retention classification assigned.

Records identified for disposal shall only be conducted after:

- the applicable retention period has expired, and
- written confirmation has been obtained from the Functional Responsible person, using 240-53114093 Change document or record status form [25].

The following methods shall be applied for the disposal of documents and records.

a) Hard copies shall be shredded/destroyed in such a manner to prevent reconstruction.

b) Electronic files shall be erased or overwritten to ensure the permanent deletion of the files. The physical destruction of the storage media is a preferable alternative since both the record data and the media are permanently destroyed in the process.

The Document Manager shall issue a destruction certificate recording all documents and records disposed (identification metadata), date and nature of disposal, for record purposes.

3.4 GENERAL BUSINESS DOCUMENTATION

All other documentation not considered Governance or Technical documentation are managed as general business documentation. Such documentation are managed and stored using the Eskom document managed system, either accessed directly or via other front end portal environment.

The documentation shall comply with documentation requirements and metadata requirements as prescribed by the Corporate Document Management requirements. Further, shall follow the normal document and record process, ie registration, support review and authorisation, archive and disposal.

The registration of general business documentation is managed and controlled via local Document Manager and Document Controllers, having the required access on the EDMS.

The documentation controllers shall equally apply their roles and duties in supporting the management of documentation within the EDMS environment.

3.5 CONTROL OF EXTERNAL DOCUMENTS

External documents are managed by the Eskom Information Centre this includes National and International standards, design-codes, books, reports and journals.

Management System documents of external origin shall be recorded in the respective Division/Department's register, using 240-44047082 Master Document Register/ Index [19].

3.6 RECORDS

The following records are generated through implementation of this procedure and are controlled in accordance with this procedure.

Number	Description
1	Registration of Document and Record
2	Comments / Review / Voting Form
3	Master Document Index
4	Document / Record Transmittal Form
5	Appointment of Document Manager
6	Appointment of Document Controller
7	Change document or record request

Table 2: Records

4. AUTHORISATION

This document has been seen and accepted by:

Name	Designation
D Odendaal	General Manager: Plant Engineering
P Moyo	General Manager: Power Delivery (Acting)
F Sithole	General Manager: Project Engineering Management (Acting)
R Stephen	General Manager: Master Specialist Technology
DD Bhimma	Senior Manager: Production Engineering Integration - Coal
L Fernandez	Senior Manager: Systems Integration B2B Engineering Processes / Systems Lead

5. REVISIONS

Date	Rev.	Compiler	Remarks
October 2012	0	AD Martin	Superseded Procedure 474-58
November 2012	1	AD Martin	Final Authorised Document

6. DEVELOPMENT TEAM

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

- Felix Bosch
- Riekie Swanepoel
- Johan Scholtz
- Leon Fourie
- Sani Dlamini
- Lorna Ndlela

7. ACKNOWLEDGEMENTS

To all who made comments in the development of this document.

APPENDIX A: DOCUMENT & RECORD INFORMATION ATTRIBUTES

A.1 ATTRIBUTES FIELDS (METADATA)

Includes -

a. Unique Identifier
b. Alternative identifier/reference
c. Document name or title,
d. Description or abstract,
e. Document Type (classification) {reference [2]}
f. Date of creation,
g. Document status
h. Controlled Copy Status
i. Date Published
j. Compiler name
k. Approver (Functional Responsible Person)
l. Authoriser
m. Date and time of Transmittal (communicated or received),
n. Transmittal Sender name, (with affiliation)
o. Transmittal Recipient name (with affiliation),
p. Disclosure Classification
q. Hard-copy physical storage details,
r. Owning Group,
s. Links to referenced documents and records,
t. Application mastering document or record,
u. The format of the documentation, i.e. .doc, .jpg, .pdf, .sha, .spe, .dgn, etc.,
v. Retention period, and
w. Other structural and contextual information useful for management purposes.

APPENDIX B: GOVERNANCE DOCUMENT STRUCTURES

	Developed by	Approved by	Resolution Approved	Resolution recommend/ratified	Policy & Procedure Committee and CARAT Committee	Authorised By
Policy	Top Man Rep	Top Management Lead		Eskom Exec Committee (Exco) recommended by Technical Governance Committee	Supported by	Executive (accountable Exec Director)
Directive	Top Man Rep	Top Management Lead		Divisional Exec Committee (DivExco) if required, recommend/ratified by Technical Governance Committee		Executive (accountable Div Exec Director)
Manual	COE	COE Engineering Practioner /SME	Relevant Technical Gov Committee ie SCOT or EPGB			Accountable Domain Manager
Procedure	COE	COE Engineering Practioner /SME	Relevant Technical Gov Committee ie SCOT or EPGB		Accepted by	Accountable Domain Manager
Standard	COE	COE Engineering Practioner /SME	Relevant Technical Gov Committee ie SCOT or EPGB			Accountable Domain Manager
Work Instruction	COE	COE Lead	*			Accountable Domain Manager
Guideline	COE	COE Lead	*			Accountable Domain Manager

“COE” means Centre of Excellence.

The “Developed by” identifies the person from the centre of excellence who compiled the document known as the Compiler.

The “Approved By” identifies the person who by virtue of competence approves the technical correctness and accuracy of the document contents, sometimes known as the Functional Responsible Person.

APPENDIX CMANDATORY ISO 9001 RECORDS

C.1 ISO 9001 RECORDS

In compliance with ISO 9001 requirements see clause 4.2.4, the following mandatory 21 records must be generated and maintained. The business may due the nature of its activities identify and maintain additional records for measurement in achieving set objectives and targets.

Section 5 Management responsibility

5.6.1 Management review minutes

Section 6 Resource management

6.2.2 Records of education, training, skills, evaluations, and experience

Section 7 Product realisation

7.1 Evidence that the realisation processes and product fulfil requirements.

7.2.2 Records of review of customer requirements.

7.3.2 Design and development inputs.

7.3.4 Design and development reviews and any related actions.

7.3.5 Design and development verification and any related actions.

7.3.6 Design and development validation and any related actions.

7.3.7 Design and development changes and any related actions.

7.4.1 Results of supplier evaluations and any actions arising therefrom.

7.5.2 Records to demonstrate the validation of special processes.

7.5.3 Where traceability is required, the unique identification of the product is recorded.

7.5.4 Customer property that is lost, damaged, or otherwise found to be unsuitable.

7.6 a) Basis used for calibration of measuring equipment where no international or national standards exist.

7.6 Validity of the previous measuring results when measuring equipment is found to be out of calibration.

7.6 Results of calibration and verification of measuring equipment.

Section 8 Measurement, analysis, and improvement.

8.2.2 Internal audit results and follow-up actions.

8.2.4 Indication of the person(s) authorising release of product.

8.3 Records of the product non-conformities and any subsequent actions.

8.5.2 Results of corrective action.

8.5.3 Results of preventive action.

C.2 : LIST OF TYPICAL LIFETIME RECORDS

The following is a list of typical lifetime records, nomenclature of these may vary.

a. Design Records
   i. Applicable codes and standards used in design
   ii. Computer programs or corresponding mathematical model
   iii. Design drawings
   iv. Design calculations and record of checks
   v. Approved design change requests
   vi. Design deviations
   vii. Design reports
   viii. Design verification data
   ix. Design specifications and amendments
   x. Safety analysis report
   xi. Stress reports for code items
   xii. Systems descriptions
   xiii. Systems process and instrumentation diagrams
   xiv. Technical analysis, evaluations, and reports

b. Procurement Records
   i. Procurement specification
   ii. Purchaser order (unpriced) including amendments

c. Manufacturing Records
   i. Applicable code data reports
   ii. As-built drawings and records
   iii. Certificate of compliance
   iv. Eddy current examination final results
   v. Electrical control verification test results
   vi. Ferrite test results
   vii. Heat treatment records
   viii. Liquid penetrate examination final results
   ix. Location of weld filler material
   x. Magnetic particle examination final results
   xi. Major defect repair records
   xii. Material properties records
   xiii. Nonconformance reports
   xiv. Performance test procedure and results records
   xv. Pipe and fitting location report

xvi. Pressure test results (hydrostatic or pneumatic)
xvii. Radiograph review records
xviii. Ultrasonic examination final results
xix. Welding procedures

d. Installation Construction Records
i. Receiving and Storage: Nonconformance Reports
ii. Civil
iii. Check-off sheets for tendon installation
iv. Concrete cylinder test reports and charts
v. Concrete design mix reports
vi. Concrete placement records
vii. Inspection reports for channel pressure tests
viii. Material property reports on containment liner and accessories
ix. Material property reports on metal containment shell and accessories
x. Material property reports on reinforcing steel
xi. Material property reports on reinforcing steel splice sleeve material
xii. Material property reports on steel embedments in concrete
xiii. Material property reports on structural steel and bolting
xiv. Material property reports on tendon fabrication material
xv. Pile drive log
xvi. Pile loading test reports
xvii. Procedure for containment vessel pressure proof test and leak rate tests and results
xviii. Reports for periodic tendon inspection
xix. Reports of high strength bolt torque testing
xx. Soil compaction test reports
xxi. Welding
xxii. Ferrite test results
xxiii. Heat treatment records
xxiv. Liquid penetrant test final results
xxv. Material property records
xxvi. Magnetic particle test final results
xxvii. Major weld repair procedures and results
xxviii. Radiograph review records
xxix. Ultrasonic test final results
xxx. Weld location diagrams
xxxi. Weld procedures

xxxii. Mechanical
xxxiii. Cleaning procedures and results
xxxiv. Code data reports
xxxv. Installed lifting and handling equipment procedures, inspection, and test data
xxxvi. Lubrication procedures
xxxvii. Material properties records
xxxviii. Pipe and fitting location reports and pipe hanger and restraint data
xxxix. Pressure Equipment test results (hydrostatic or pneumatic)
xl. Safety valve response test procedures
xli. Electrical and I & C
xlii. Cables pulling tension data
xliii. Cable separation data
xliv. Cable splicing procedures
xlv. Cable terminating procedures
xlvi. Certified cable test reports
xlvii. Relay test procedures
xlviii. Voltage breakdown test results on liquid insulation
xlix. General
l. As-built drawings and records
li. Final inspection reports and releases
lii. Nonconformance reports
liii. Specifications and drawings
liv. Preoperational and Start-Up Test Records
lv. Automatic emergency power source transfer procedures and results
lvi. Final system adjustment data
lvii. Pressure test results (hydrostatic or pneumatic)
lviii. Initial heatup, hot functional, and cooldown procedures and results
lix. Initial plant loading data
lx. Initial reactor criticality test procedures and results
lxi. Instrument AC system and inverter test procedures and reports
lxii. Main and auxiliary power transformer test procedures and results
lxiii. Off-site power source energizing procedures and test reports
lxiv. On-site emergency power source energizing procedures and test reports
lxv. Plant load ramp change data
lxvi. Plant load step change data
lxvii. Power transmission substation test procedures and results

lxviii. Preoperational test procedures and results

lxix. Primary and secondary auxiliary power test procedures and results

lxx. Reactor protection system tests and results

lxxi. Start-up logs

lxxii. Start-up test procedures and results

lxxiii. Station battery and DC power distribution test procedures and reports

lxxiv. Water chemistry report

e. Operation Records

i. Records and drawing changes identifying facility design modifications made to systems and equipment described in the Final Safety Analysis Report

ii. New and irradiated fuel inventory, fuel transfers, and assembly fuel-depletion history records

iii. Off-site environmental monitoring survey records

iv. Spent fuel shipment records

v. Facility radiation and contamination survey results

vi. Radiation exposure records for individuals entering radiation control areas

vii. Records of gaseous and liquid radioactive material released to the environs

viii. Records of transient or operational cycles for those facility components designed for a limited number of transients or cycles

ix. Training and qualification records for current members of the plant-operating staff

x. In-service inspection records

xi. Records of reviews performed for changes made to procedures or equipment, or reviews of tests and experiments

xii. Meeting minutes of the plant safety committee and company review board

xiii. Surveillance activities, inspections, and calibrations required by the technical specifications records

xiv. Records of Pressure Equipment tests and experiments

xv. Changes made to operating procedures

xvi. Logs of facility operation covering time interval at each power level

xvii. Records and logs of maintenance activities, inspections, repair, and replacement of principal items of structures, systems, and components

xviii. Water chemistry reports

xix. Operational, shift supervisor, and control room logs

xx. Fire protection records

xxi. Nonconformance reports

xxii. Plant equipment operations instructions

xxiii. Security plan and procedures

xxiv. Emergency plan and procedures

xxv. Quality assurance and quality control manuals

xxvi. Records of activities required by the security plan and procedures

xxvii. Records of activities required by the emergency plan and procedures

xxviii. Applicable records noted in other sections of this Appendix for any modifications or new construction applicable to structures, systems, or components

xxix. Evaluation of results of reportable safety concerns as required by regulations

xxx. Annual environmental operating report

xxxi. Annual plant operating plant