Eskom	Specification	Procurement Quality Engineering

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Compiled by	Functional Responsibility	Authorized by
S Brown	**PS Xotyeni**	**BM Culligan**
Senior Advisor Procurement Quality Engineering	**Manager Procurement Quality Engineering**	**Senior Manager Nuclear Commercial**
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Content

Page

1. Introduction

This specification provides the Eskom and South African National Nuclear Regulator's (NNR's) requirements for potential suppliers and sub-suppliers of nuclear Safety Level 1 (L1) products. The specification is included as part of the Eskom request for tender and contract documentation to communicate applicable nuclear quality and safety management requirements to suppliers and sub-suppliers. It is noted that the requirements of RD-0034 apply to suppliers involved in the siting, design, manufacture, construction, commissioning, operation, modification and decommissioning for a nuclear installation in South Africa under the National Nuclear Regulator Act of 1999.

2. Supporting Clauses

2.1 Scope

This specification covers the Eskom, NNR and other relevant management system requirements applicable to suppliers and sub-suppliers of L1 nuclear products for use in a nuclear installation in RSA.

Full details of deviations from this specification shall be submitted to Eskom in writing for clearance prior to design, development, and manufacture or despatch of the product

2.1.1 Purpose

The purpose of this specification is to ensure that suppliers are provided the requirements for nuclear quality and safety management for the provision of Level 1 (L1) nuclear products.

2.1.2 Applicability

This specification applies to all Eskom suppliers/sub-suppliers of L1 nuclear - products.

Note 1: This specification does not relieve the supplier of the legal requirements to comply with RD-0034.

2.1.3 Effective date

01 February 2020

2.2 Normative/Informative References

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

2.2.1 Normative

[1] ISO 9001:2015: Quality Management Systems Requirements

[2] 238-28: Nuclear Division Safety Culture Management

[3] 238-102: Quality Management Requirements for Nuclear Suppliers Level 2

[4] 238-104: Supplier, Management System and Product information

[5] 238-219: Level 1 Supplier Safety Culture Enhancement Programme (SCEP) Requirements

[6] 240-105658000 (QM58): Supplier Quality Management Specification

[7] IAEA Safety Standards GSR Part 2: Leadership and Management for Safety

[8] ASME NQA-1: Quality Assurance Requirements for Nuclear Facility Applications

[9] Occupational Health and Safety Act, Act 85, 1993 and the associated Regulations

[10] Pressure Equipment Regulations No R 734 15 July 2009

[11] RD-0034, revision 0, Quality and Safety Management Requirements for Nuclear Installations

[12] T/AST/049: Licensee's Technical and Engineering Capability

[13] IEEE 467: Standard Quality Assurance Program Requirements for the Design and Manufacture of Class 1E Instrumentation and Electric Equipment for Nuclear Power Generating Stations

[14] ASME N4S.2: Quality Assurance Program Requirements for Nuclear Facilities

2.2.2 Informative

[15] 238-6: Nuclear Division Document and Records Management Requirements

[16] IAEA INSAG 4: Safety Series Safety Culture

[17] IAEA INSAG 13: Management of Operational Safety in Nuclear Power Plants

[18] ISO 9000: Quality Management System – Fundamentals and Vocabulary

[19] ISO 9004: Quality Management Systems – Guidelines for performance improvements

[20] ISO 10005: Quality Management Systems – Guidelines for Quality Plans Standard

[21] ISO 10006: Quality Management System – Guideline for Quality Management in Projects

2.3 Definitions

Eskom uses the following definitions, which may not necessarily conform to definitions adopted elsewhere for national or international use.

2.3.1. **Acceptance Criteria:** Specified limits placed on the performance, results, or other characteristics of an item, process, or service defined in codes, standards, or other requirement documents.

2.3.2. **Assessments:** Measures to demonstrate at a level of confidence commensurate with the requirements of the purchaser and/or other involved parties, that the organization has the ability to supply a product or service in terms of a proposed purchase order, contract and / or in terms of the stated scope of work.

2.3.3. **Audit:** Systematic, independent, and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled.

2.3.4. **Approved Inspection Authority (South African Department of Labour definition):** An organization or person approved by the Chief Inspector, South African Department of Labour, in terms of the Occupational Health and Safety Act 85 of 1993 and appointed by Eskom or the supplier.

2.3.5. **Authorised Inspection Agency (RD 0034 definition):** An organisation that is empowered by the local authority or responsible body to provide inspection personnel and services as required by the regulations, standards and codes.

Note 2: Where ASME codes are invoked, the definition of an Authorized Inspection Agency applies as stipulated in the ASME code.

2.3.6. **Authorised Representative:** An organisation or person appointed by Eskom for the purpose of performing quality assurance or quality control monitoring and/or inspection services.

2.3.7. **Certification:** The act of determining, verifying, and attesting in writing to the qualifications of personnel, processes, procedures, or items in accordance with specified requirements. Gives rise e.g. to Certificates of Analysis, Conformance, etc.

2.3.8. **Class IE.** The safety classification of the electric equipment and systems that are essential to emergency reactor shutdown, containment isolation, reactor core cooling, and containment and reactor heat removal, or are other- wise essential in preventing significant release of radioactive material to the environment.

2.3.9. **Compliance audit:** Performed to determine (by investigation, examination or evaluation of objective evidence) the level to which practice complies with established standards, processes, procedures, instructions, drawings and other applicable documents.

2.3.10. **Component:** A constituent part of the product, or sub-assembly of the product. The product may comprise of multiple individual components.

2.3.11. **Concession:** Contractual agreement between the client and the supplier to use or release a specified quantity of material, components, manufactured / assembly work or stores, in which a defect exists and for which the works Information will be changed so that the defect does not have to be corrected, or the defect can be corrected at a later more suitable date. It shall refer to a specific defect, be time limited, and concession granted shall not mean general acceptance. Sometimes referred to as a Waiver.

2.3.12. **Contract:** Purchase Order, Task Order, Local Purchase Order, Service Level Agreement

2.3.13. **Contract Manager:** This term refers to a person responsible for and fulfilling the role concerned with the contractual aspects of Eskom commercial relationship with the supplier in respect of the specific contract (e.g. a Project Manager).

2.3.14. **Contractor:** A group of people and facilities (company, corporation, firm, enterprise, institution, etc.), with an arrangement of responsibilities, authorities, and relationships.

Note 3: The term Contractor shall cover the terms “sub-supplier”, “supplier” etc.

2.3.15. **Contract Quality Management Plan:** A supplier document specifying which processes, procedures and associated resources of their Quality Management System will be applied

by whom and when to meet the requirements of a specific order, project, product or process to ensure compliance with these, and their own internal requirements. If more than one activity is involved in the project, then an integrated CQMP for the entire project is compiled. This document relates to the management system and controls for the project or contract

2.3.16. **Customer:** As contained in ISO 9000 shall be read as “The Employer” (i.e. Eskom), in contract documentation.

2.3.17. **Defect / Nonconforming Item:** A non-fulfilment of a requirement of the works or, that which cannot be readily determined to meet the requirements (e.g., missing material certification) specified in purchasing documents, drawings, specifications, or other approved product descriptions.

2.3.18. **Document Review:** A review of the documented information developed by a supplier to ensure that the relevant activity has been performed satisfactorily and that contractual requirements have been met.

2.3.19. **Equipment:** An all-inclusive term used in place of any of the following: Appurtenances, assemblies, components, instrumentation and control devices (including software), supporting structures, subassemblies, and subsystems. A synonym is the use of the term SSC (refer below).

2.3.20. **Fundamental Safety Functions**: The Fundamental Safety Functions to be ensured for a nuclear reactor are defined as:

- Reactivity Control
- Heat Removal
- Confinement of Radioactivity / Radioactive Material

2.3.21. **Hold Point:** An activity on a QCP, beyond which work shall not proceed without the signed approval of Eskom or its Authorised Representative, AIA or the NNR, whichever is applicable.

2.3.22. **Inspection:** Examination, measurement testing or gauging to verify whether an item or activity conforms to specified requirements. Inspections are performed at hold and witness points during manufacturing, construction, maintenance, testing and final acceptance to verify the conformance of SSC’s to code and / or specification and maintenance activities.

2.3.23. **Integrated Management System:** A single coherent management system in which all the organisational processes are integrated to enable the organisation’s goals strategies, plans and objectives to be achieved. The Integrated Management System shall integrate Quality Management and Safety Management and shall consider Safety Culture aspects.

2.3.24. **Intelligent Customer:** The capability of the organization to have a clear understanding and knowledge of the product or service being supplied. (Refer to the UK Nuclear Safety Directorate document: Technical Assessment Guide Principles for the assessment of a Licensee’s “Intelligent Customer Capability” – Licensee’s Technical and Engineering Capability T/AST/049).

2.3.25. **Intervention points:** Intervention points are those control points indicated by the various controlling bodies concerned with the implementation of a specific QCP. These can be in the form of inspection, hold points, surveillances, witnessing, reviews, etc.

2.3.26. **Item:** An all-inclusive term used in place of any of the following: appurtenance, assembly, sub-assembly, component, equipment, material, module, part, structure, product, subsystem, system or unit.

2.3.27. **Life cycle (of a nuclear installation):** Includes all the stages of a nuclear installation where regulatory control related to safety shall be exercised as defined in section 5 of the NNRA, namely:

- Siting,
- Design
- Construction,
- Manufacture of component parts,
- Operation,
- Decontamination or decommissioning of any nuclear installation as defined of the NNRA.

2.3.28. **Manufacturing:** Those actions required to manufacture source material, components, parts and appurtenances. These actions may include forming machining, assembling, welding, brazing, heat treating, examination, testing, inspection, and certification. Manufacturing does not include design and on site construction.

2.3.29. **Measuring and Test Equipment:** Devices (monitoring and measuring resources) or systems used to calibrate measure, gauge, test, or inspect in order to control acquire data to verify conformance to specified requirements.

2.3.30. **Non-conformance:** A deficiency in material, composition, characteristic, performance, documentation, or procedure that renders the quality of an item, component, product or activity unacceptable or indeterminate. The term also covers deficiency in, or deviation from / non-adherence to the requirements of the quality management system, prescribed production processes and / or related documentation such as procedures and instructions.

2.3.31. **Nuclear Operating Unit**: Collective business areas that are involved in all life-cycle phases of the nuclear installations within Eskom

2.3.32. **Objective Evidence:** Data supporting the existence or verity of something. Objective evidence may be obtained through observation, measurement, test or other means.

2.3.33. **Procurement Documents:** A set of documents specifying the necessary technical information and data, process and functional requirements, environmental conditions, loads, codes and standards as well as the quality management measures for the products to be purchased. Procurement documents include design specifications.

2.3.34. **Product:** The term “product” in addition to the ISO 9000 definition shall be interpreted as also meaning commodities, items of plant, equipment, material, services, etc. It includes SSCs, material, and services associated with SSCs. It is the result of a material or non-material process including services.

2.3.35. **Products Important to Nuclear Safety:** Products important to nuclear safety are safety classified:

- SSCs whose failure can compromise the Fundamental Safety Functions of a nuclear facility and / or violate the dose and risk limits defined by regulations. (Safety L1, High Importance);
- SSC that provide or support safety functions to ensure nuclear safety in terms of the Fundamental Safety Functions (Safety L2, Important)

2.3.36. **Qualified:** An approved person, item, procedure or process that has been demonstrated to meet the specified requirements for its intended purpose.

2.3.37. **Quality Control Plan (QCP):** A document specifying the work or production activities to be inspected throughout the execution of the project inclusive of test methods, procedures and acceptance criteria. (This term is equivalent to QIP or ITP). Eskom will indicate on the QCP their quality inspection Hold and Witness Points. In turn, the QCP will also be submitted to the NNR (as applicable) for their review and acceptance and identification of their Hold and Witness Points.

Note 4: The QCP is sometimes referred to as the Quality Inspection Plan (QIP) or Inspection and Test Plan (ITP).

2.3.38. **Quality Assurance Data Package (QADP):** An indexed file containing all applicable records, documentation, certificates, and other data applicable to the works or product.

2.3.39. **Quality Management System:** A management system to direct and control an organisation with regard to quality.

2.3.40. **Refurbishment:** Restoration to a sustainable usable state or as near as possible to new state (within agreed limits).

2.3.41. **Regulatory Body:** A person or persons representing a statutory body as required by law.

2.3.42. **Reject / Scrap:** A disposition used when an item is unsuitable for its intended use and/or is economically unfeasible to repair or rework. The item is discarded, scrapped, or downgraded for other uses or is returned to the supplier (if applicable) and is replaced with an item that fully complies with requirements.

2.3.43. **Repair:** The process of restoring a nonconforming characteristic to a condition so that the capability of an item to function reliably and safely is unimpaired, even though that item still does not conform to the original requirement. Repair dispositions require the Eskom Engineer's approval.

2.3.44. **Requirement:** The need or expectation that is stated, generally implied or obligatory. Requirements are generally specified in the purchase order and / or contract administration, but may not be limited thereto.

2.3.45. **Resources:** "Resources" includes personnel, infrastructure, the working environment, information and knowledge, and suppliers, as well as material and finance.

2.3.46. **Rework:** The process by which an item is made to conform to original requirements by completion or correction.

2.3.47. **Safety Culture:** Characteristics and attitudes of organisations and individuals, which ensure that, as an overriding priority, nuclear safety issues receive the attention warranted by their significance.

2.3.48. **Safety Culture Enhancement Programme:** Is the framework for the implementation of the Safety Culture assessment and improvement initiatives within an organization.

2.3.49. **Safety Functions:** Specific SSC functions that shall be accomplished for nuclear safety at SSC level to support the achievement of a Fundamental Safety Function.

2.3.50. **Safety Level 1 (L1):** Relates to management system requirements applicable to products of high importance to nuclear safety. These requirements are defined in this specification. Suppliers of L1 product shall have an Integrated Management System (IMS) that includes a Quality Management System (QMS) that is appropriate for the scope of work, and a Safety Management System (SMS) that considers applicable Nuclear Safety Culture aspects.

2.3.51. **Safety Level 2 (L2):** Relates to quality requirements applicable to products of importance to nuclear safety. Suppliers of nuclear safety level 2 (L2) products and services shall have an implemented Quality Management System (QMS) that is appropriate for the scope of work and considers applicable Nuclear Quality Assurance requirements.

2.3.52. **Safety Level 3 (L3):** Relates to quality requirements applicable to products and services of no importance to nuclear safety. Suppliers of L3 products and services shall have implemented Quality Assurance measures that are appropriate for the scope of work and are compliant to ISO 9001 or equivalent standard.

2.3.53. **Safety Management System:** The Safety Management System comprises those arrangements made by the organization for the management of safety in order to promote a strong safety culture and achieve good safety performance.

2.3.54. **Senior Management:** The person who, or group of people which directs, controls and assesses an organisation at the highest level. Senior Management is also referred to as Top Management.

2.3.55. **Special Process:** A process, the results of which are highly dependent on the control of the process or the skills of the operators, or both, and in which the specified quality cannot be readily determined by inspection or test of the product.

2.3.56. **Sub-supplier:** An organisation that provides a product to the supplier and or that enters into a contract with and assumes some of the obligations of the supplier.

2.3.57. **Supplier:** A supplier is a registered organisation that supplies, or intends to supply a product and or service to Eskom (whether directly, or indirectly). A supplier may be a company, corporation, firm, enterprise or institution, or part thereof, whether incorporated or not, public or private, that has its own functions and administration. A supplier may also

operate/trade (but is not limited to) as a manufacturer, agent/distributor, consultant, joint venture, contractor, etc.

2.3.58. **Testing:** An element of verification for the determination of the capability of an item or SSC to meet specified requirements by subjecting the item / SSC to a set of physical, chemical, environmental, accidental or operating conditions.

2.3.59. **Third Party Organisation:** Is used in the context of a third party inspector or auditor that is neither client nor supplier.

2.3.60. **Use-as-is:** A disposition permitted for a nonconforming item when it can be established that the item is satisfactory for its intended use. Use-As-Is dispositions require Eskom's approval.

2.3.61. **Witness point:** Predetermined stages or activities on a QCP beyond which work may proceed provided the Employer (Eskom) or the AIA or its Authorised Representative, or the NNR has been timeously notified as required.

2.3.62. **2.3.61 Works:** All deliverables expected from the supplier as per the scope of the work specified in the request for tender and contractual documentation between Eskom and the supplier.

2.4 Abbreviations

Abbreviation	Explanation
AIA	Authorised Inspection Agency or Approved Inspection Authority depending on context
ASME	The American Society of Mechanical Engineers
CQMP	Contract Quality Management Plan
CV	Curriculum Vitae
FIDIC	Fédération Internationale des Ingénieurs de Conseils
H& WP	Hold and witness points
IAEA	International Atomic Energy Agency
IEEE	The Institute of Electrical and Electronics Engineers
IMS	Integrated Management System
INSAG	International Nuclear Safety Advisory Group
INPO	Institute for Nuclear Plant Operations
ISO	International Organisation for Standardisation
ITP	Inspection and Test Plan
L1	Safety Level 1
L 2	Safety Level 2
L 3	Safety Level 3
NEC	New Engineering Contract

Abbreviation	Explanation
NNR	National Nuclear Regulator
NNRA	National Nuclear Regulator Act 47 of 1999
NOU	Nuclear Operating Unit
OEM	Original Equipment Manufacturer
OHSA	Occupational Health and Safety Act 85 of 1993
PER	Pressure Equipment Regulations
QC	Quality Control
QCP	Quality Control Plan (QCP: Quality Control Plan or Inspection and Test Plan)
QM	Quality Management
QMS	Quality Management System
RD	Regulatory Document
RSA	Republic of South Africa
SABS	South African Bureau of Standards
SANS	South African National Standard
SC	Safety Culture
SCEP	Safety Culture Enhancement Programme
SSC	Structures, Systems and Components (include items and equipment)
SMS	Safety Management System
WANO	World Association of Nuclear Operators

2.5 Roles and Responsibilities

Roles and responsibilities are defined in the text of the specification.

2.6 Process for Monitoring

The implementation of this document will be monitored through periodic compliance reviews by Nuclear Commercial. The intention of these reviews is to ensure compliance with the NNR and Eskom nuclear quality and safety management requirements and assist with the correction of non-compliant practices.

The Nuclear Quality Assurance Department will also conduct periodic audits to ensure compliance with the IMS.

2.7 Related/Supporting Documents

[1] 238-102: Quality Management Requirements for Nuclear Suppliers Level 2

[2] 238-103: Supplier Quality General Requirements

[3] 238-104: Supplier, Management System and Product information

[4] 238-219: Level 1 Safety Culture Enhancement Programme (SCEP) requirements.

3. Management System Requirements

3.1 General requirements

3.1.1. The supplier shall ensure for its own organization and for all sub-suppliers of products of high importance to nuclear safety that an Integrated Management System, that combines the requirements of a Quality Management with Safety Management and considers Nuclear Safety Culture aspects, is implemented and meets the requirements of this specification.

3.1.2. If the supplier intends to introduce or accept different management standards to those specified in this specification, a clear structure or framework shall be provided in the Management Manual to indicate the intended use of the standards as well as their compliance with the requirements of this specification. In such a case, the Management Manual shall be submitted to Eskom for acceptance prior to implementation.

3.1.3. The supplier shall develop documents describing their management system. The set of documents shall include a management system manual supported by additional documents describing the management policy, priorities, objectives and processes.

3.1.4. The supplier shall determine and provide the resources needed to carry out the activities of the organization, and shall establish, implement, assess and continually improve the management system.

3.1.5. Acceptable communication processes shall be introduced and maintained to ensure the understanding and the implementation of this specification requirement into the supplier / sub-supplier management systems.

3.1.6. The supplier's quality management system shall carry a valid ISO 9001 certification (or equivalent) from an accredited certification body.

3.1.7. Where there is collaboration between the different organizations involved in the performance of design, manufacturing and / or construction tasks, responsibilities and tasks shall be defined and documented. The supplier shall ensure that interfaces between these organizations are clearly specified and described.

3.1.8. The supplier shall inform Eskom in writing of any proposed changes to the management system, infrastructure, staff or resources that will affect the nuclear quality and safety of the product or service prior to the implementation of these changes.

3.1.9. An electronic version of 238-104, Supplier, Management System and Product Information that will be obtained from Eskom shall be completed by the supplier responding to an Eskom invitation to submit:

- Information,
- A proposal, and
- A tender.

3.2 Planning and Management Processes

3.2.1. All processes needed to achieve the nuclear quality and safety goals of the supplier shall be identified, and their development shall be planned, implemented, assessed and continually improved.

3.2.2. The interaction of the processes needed to achieve the nuclear quality and safety goals of the supplier shall be described and documented. The interaction between different groups of the organization involved in a single process needs to be ensured through effective communication and clear assignment of responsibilities.

3.2.3. The supplier's management shall ensure the effectiveness of the implementation and the control of the processes affecting nuclear quality and safety of the products and services.

3.2.4. The review, validity and effectiveness of the processes shall be evaluated periodically

3.2.5. For each process, a responsible person (process owner) shall be determined and documented.

3.2.6. The supplier shall provide a description of the processes and supporting information that reflects how work is prepared, reviewed, carried out, recorded, assessed and improved.

3.3 Safety Management System

The following fundamental aspects shall be considered for the implementation of an IMS:

- Nuclear safety has to be the primary objective of the IMS overriding all other demands,
- An effective SMS has to be integrated into the framework of existing management systems to ensure that the organisation and the individuals achieve high standards of nuclear safety,
- The SMS has to ensure compliance with all the processes important to nuclear safety
- The effectiveness of implementing and improving the SMS has to be assessed routinely. The guidance provided in documents such as IAEA INSAG-13, including the sets of questions (safety management indicators), should be used as a basis for the assessment.

3.4 Nuclear Safety Culture

3.4.1. The senior management of the supplier organization shall define, document and implement a safety policy, which demonstrates the organisation's commitment to high safety and quality performance to a strong safety culture. The policy shall be supported by the definition of accepted standards / guides and targets.

3.4.2. The supplier shall develop and introduce a Safety Culture Enhancement Programme (SCEP) which shall provide the framework for implementation of the aspects of safety culture within the supplier's organisation.

3.4.3. A safety culture plan shall be developed and implemented by the supplier to document the specific activities that will be carried out under the SCEP.

3.4.4. The safety culture plan shall be developed in consultation with, and communicated to, staff at all levels of the organisation. This plan shall be regularly reviewed and updated.

3.4.5. The SCEP shall be based on appropriate international standards and guidance e.g. IAEA, INPO/WANO and should consider the aspects as defined in RD-0034, section 6.2 and 238-219. The SCEP can be included as part of other quality management or safety management documents.

3.4.6. The supplier is responsible to ensure that the safety culture within its Level 1 sub-suppliers is monitored. The type and frequency of monitoring of safety culture within these supplier organisations shall be commensurate with the schedule for design, manufacturing and delivery or construction of products with high importance to nuclear safety.

3.4.7. An appropriate level of Safety Culture shall be adopted within each supplier. The supplier shall be required to provide evidence of the development and implementation of a Safety Culture Programme and demonstrate the attainment of an appropriate level of safety culture in the supplier organisation. The International Nuclear industry via WANO has packaged the framework for Nuclear Safety Culture (NSC) into three categories that are similar to the three categories of safety culture in International Nuclear Safety Advisory Group (INSAG)-4, Safety Culture. The following categories, primary traits and attributes are important to reach an appropriate healthy and strong Nuclear Safety Culture:

- **Individual Commitment to Safety**
  - Personal accountability
  - Questioning attitude
  - Safety communication
- **Management Commitment to Safety**
  - Leadership Accountability
  - Decision making
  - Respectful work environment
- **Management Systems**
  - Continuous learning
  - Problem identification and resolution
  - Environment for raising concerns
  - Work processes.

3.5 Document Management

3.5.1. The supplier shall establish and implement a documented procedure to control the generation and management of all documents required for the IMS.

3.5.2. Control measures shall be established within the supplier organisation to ensure that all documents are complete. The relevant nuclear quality, safety and licensing requirements that are pertinent to the subject matter shall be considered before release.

3.5.3. All individuals involved in preparing, revising, reviewing or approving documents shall be specifically assigned for this work, shall be competent to carry it out and shall be given access to appropriate information on which to base their input or decisions.

3.5.4. The supplier is responsible to ensure that all documents are unambiguously marked for identification. The identification code shall also contain reference to the revision status of the document. Documents of external origin shall also be identified and their distribution controlled. The identification code shall allow an unambiguous coordination between areas, parts, items etc. and the respective documents throughout implementation during the planning, design and development, procurement manufacturing, assembly, construction, operation and maintenance phases.

3.5.5. The supplier shall ensure that procedures, specifications, instructions or drawings include quantitative and / or qualitative acceptance criteria where appropriate.

3.5.6. Personnel involved shall be informed of any revisions of procedures, specifications, instructions or drawings without delay. The supplier shall ensure that the use of incorrect or invalid documents is prevented within their own organisation and that the tasks are performed only in accordance with valid documents.

3.5.7. The supplier shall ensure that revisions to documents are reviewed and authorized in a controlled way based on written procedures. All latest revised parts of the documents shall be clearly identified. The reasons for the revisions shall be presented to the organizations involved in the document review.

3.6 Records Management

3.6.1 General Requirements

3.6.1.1 The supplier shall prepare and submit an index of their management system records generated during contract or project scope of work execution for review and acceptance to Eskom and/or his/her authority, prior to the commencement of work. The supplier shall indicate the retention period and location of each record type.

3.6.1.2 The supplier shall ensure that all records are identifiable to the plant, material, and/or activities to which they pertain and are collated, indexed, and securely stored in such a manner that they are readily retrievable.

3.6.1.3 Records created or received shall furnish evidence in a media fit for its purpose, which is readable, complete and identifiable.

3.6.1.4 Management system records shall be authenticated by authorised personnel before it is submitted for appraisal.

3.6.1.5 The supplier shall ensure that records are retained to furnish evidence of activities affecting quality and safety. These records shall be readable, complete, identifiable, classified, stored and easily retrievable.

3.6.1.6 The supplier shall retain all quality and safety records after the completion of the works or until such time as the Defects Notification Period has lapsed, where after all records as contractually agreed are handed over to Eskom.

3.6.1.7 The supplier shall not destroy or discard quality and safety records generated by the works without the written approval of Eskom.

3.6.2 Record Storage Requirements

3.6.2.1 The supplier shall meet the record storage requirements by duplicating storage facilities in separate locations or:

3.6.2.1.1 Storing electronic media in secure storage by providing fireproof and waterproof storage in one location and;

3.6.2.1.2 Implementing appropriate administrative controls to limit access and prevent loss of, or damage to, records, clearly indicating the address of the storage location(s) in the index.

3.6.2.2 Records shall at all times be protected against unauthorized access and tampering to protect their authenticity and reliability.

Note 5: Intermediate storage facilities within the company shall provide sufficient protection against fire, flooding, insects, and rodents until it is transferred to an archive facility.

3.6.3 Quality Assurance Document Package (QADP)

3.6.3.1 Management system records required for the product and/or service are presented in the form of a QADP. This dossier shall be indexed to show the entire contents.

3.6.3.2 The front page or cover sheet of the QADP shall include the following as applicable:

- The Project name
- Item or activity scope of work title
- Description
- Eskom contract number
- Supplier’s order number
- Sub-supplier’s order number
- The supplier’s review and approval by signature
- The total number of pages (each page shall be sequentially numbered)
- The specific plant and materials to which the QADP applies shall be listed with unique identification numbers.

3.6.3.3 The supplier shall provide, store, and submit the following documentation for products and/or services as applicable:

- Table of contents,
- All required records stipulated by the applicable Code, Standard and regulations,
- Summary of complete design calculations,
- A checklist verifying that technical and management system requirements have been met and that the QADP meets contractual requirements,
- Completed original QCP, including printed name and date of signature,
- All inspection and test records, "supplier's application for Eskom inspection of the works/part of the work", and material certificates required by the QCP,
- All associated non-conformance reports, concessions and defect reports,
- All additional documents required by the scope of the works and by the supplier's QCPs,
- Eskom or its Authorised Representative's inspection release form(s),
- An index of the supplier's unpriced purchase order numbers (for quality-critical items) and a description of plant/material purchased, including associated amendments,

3.6.3.4 QADPs shall be submitted to Eskom as required by the contract after completion of the works.

Note 6: Certification required is specific for each batch or lot of material. Submission of technical sales literature or documents of a general nature is not acceptable as certification

3.6.4 Supplier's proprietary records

The supplier shall retain certain management system records considered to be proprietary and will do the following:

- Provide details of all records considered to be proprietary.
- Maintain such records suitably protected against deterioration and/or damage for the period agreed by Eskom
- Give, on request, reasonable access to such records to Eskom.
- Index such records for ready retrieval at all times.
- Maintain such records confidential to Eskom.

3.7 Management System Documentation Submission to Eskom

The following requirements are applicable to all contracts and orders, except where Project Plans and schedules call for a specific documentation submission programme which in the case of conflict would take precedence over certain of the timing requirements below:

3.7.1 Evaluation Phase (documents to be submitted with the tender/quote/proposal):

3.7.1.1 Completed Supplier Management System and Product information (238-104);

3.7.1.2 A CV of the supplier's nuclear safety and quality representative that is responsible to ensure the supplier's IMS is being implemented during the execution of the works;

3.7.1.3 One provisional copy of the CQMP and SCEP (including a signed safety and quality policy);

3.7.1.4 Any management system accreditations;

3.7.1.5 ISO 9001 certificate or equivalent;

3.7.1.6 Copies of all formal supplier agreements currently being held in respect of product liability, namely "Manufacturing License", "Agency", "Consortium", "Joint Venture", etc. where applicable;

3.7.1.7 Suppliers covering letter;

3.7.1.8 Latest structure/organogram of the safety and quality function/department, resources, and number of employees employed in the safety and quality department, including an abridged indication of qualifications (the organisational structure to show who the safety and quality departmental/s leader reports to within the tenderer's organisation);

3.7.1.9 Historical information on similar work performed recently:

- Sample contract quality management plan (including a QCP's) from a similar project executed by the tenderer less than two years ago;
- Sample Management Review report reflecting quality performance and measures (report to reflect statistics of at least six months);
- Sample of non-conformance report;
- Sample of corrective action and root cause analysis reports;

3.7.1.10 Management of Suppliers (suppliers and sub-suppliers to the tenderer):

- Copy of process/procedure regarding the assessment, selection, management, and auditing of sub-suppliers and suppliers;
- Copy of the supplier/sub-supplier assessment and audit reports. Eskom reserve the right to contact some of the supplier's current and former customers, to evaluate the supplier's quality systems, manufacturing capability, capacity, client satisfaction and other related aspects.

3.7.2 Tenderer Qualification phase

3.7.2.1 Documents to be presented at the supplier's premises or place of work include, but may not be limited to the following:

- Certification body audit reports when certified;

- The supplier's IMS Manual;
- Supplier's IMS review records;
- Supplier's internal and external quality audit schedule and reports;
- Register of non-conformance (both internal and external);
- Customer complaints;
- Sub-supplier's QCPs.

3.7.2.2 The evaluation and acceptance of a supplier's and respective sub-supplier's management system capabilities shall be based upon submissions made in respect of the above mentioned information, together with an on-location verification / assessment as deemed necessary.

3.7.3 Documents to be submitted after the contract start date:

3.7.3.1 The supplier shall submit the following management system documents within thirty days after the contract start date, for acceptance by Eskom, prior to the commencement of work;

- One copy of the CQMP, which indicates how the supplier will execute works for the contract
- One copy of the QCP, to be accepted prior to the commencement of any work
- Method statements for works (describing how work will be conducted) to be accepted prior to the commencement of any work.

Note 7: These plans shall comply with the content required by this specification.

3.7.4 Documents to be submitted during the execution of the contract:

The following management system documents shall be prepared and maintained for the duration of the contract and shall be submitted to Eskom or the Authorised Inspection Agency or Approved Inspection Authority upon request as applicable:

- Supplier's QC records, (e.g. dimensional reports, NDE reports, etc.);
- Material certificates as required;
- Eskom accepted concessions / production permits – as applicable;
- Supplier's certificates of conformance;
- Type test certificates;
- Supplier's test certificates as required by the applicable technical specification(s);
- Supplier's application for inspection of the works / part of the works;
- Non-conformance reports raised by the supplier;
- Copies of proposed corrective and preventive action reports;

- One unpriced copy of purchase orders and suborders, marked on the front page with project name and contract/order number (for quality-critical items as agreed with by Eskom);
- All forms as may be required by the specific conditions of contract;
- Any outstanding QCPs for ongoing work;
- QADPs and other applicable records.

3.7.5 Documents to be submitted for acceptance by Eskom during the execution of the contract:

- Proposed QADP Index;
- QADPs and other applicable records;
- Copies of All Non-conformance Reports applicable to the Project;
- Copies of all Corrective and Preventive Action Requests;
- Copies of all un-priced purchase orders, the project name and contract / order number shall be noted on the front page;
- QCPs for ongoing work;
- Applications for defect acceptance (concessions) deviations with supporting documents and records when applicable.

3.7.6 Documents to be submitted upon completion of the Contract / Order

Management system documents to be submitted to Eskom on completion of the contract or on completion of each purchase order, which shall accompany every shipment of product to its specified delivery destination(s) and shall be in the form of a QADP as stated in 3.6.3 above.

3.8 Management responsibility

3.8.1 Management commitment

3.8.1.1 The supplier shall ensure that the management systems are established, implemented, assessed and continually improved and shall demonstrate its commitment to do so.

3.8.1.2 The commitment of senior management of the supplier in terms of the nuclear quality and safety of the products and/or services shall be clearly defined, documented and communicated to the staff.

3.8.2 Management priorities, policy and system planning

3.8.2.1. The senior management of the supplier shall ensure that goals, strategies plans and objectives defined for the management systems are achieved. This process shall be defined in procedures.

3.8.2.2. The supplier shall determine and classify the products, services, activities and processes of their organisations in terms of the potential impact on the quality and nuclear safety (Safety Level 1, 2 and 3) and shall manage these processes accordingly.

3.8.2.3. Specific safety goals shall be developed based on the classification of the products, services, activities and/or processes.

3.8.2.4. Each stage of the products, services and/or project life cycle shall be preceded by monitoring and a pre-assessment to identify the impact of the life cycle specific processes on the nuclear quality and safety and to initiate corrective actions and root cause analysis if required.

3.8.2.5. A management review process shall be established to ensure that an evaluation of the efficiency and effectiveness of the integrated management system including CQMP with respect to the requirements of this specification is done and documented.

3.8.3 Management responsibility, authority and communication

3.8.3.1. The management structures, responsibilities and accountabilities for the management system shall be clearly defined by the senior management of the supplier. The overall responsibility for the management system shall rest with a member of the organisation's senior management.

3.8.3.2. The organizational structure, functional roles and responsibilities, levels of authority and interactions of departments and persons responsible for managing, performing and assessing work shall be described in the IMS documentation of the organization.

3.8.3.3 The authority and responsibilities of the persons and organizational units performing activities affecting nuclear safety and / or quality shall be clearly established and defined in writing.

3.8.3.4 The nuclear quality and safety management functions shall be independent from operational and line functions. The person(s) assigned to be responsible for the management system shall be suitably qualified and experienced.

3.8.3.5 Person(s) and / or organizations performing nuclear quality and safety management functions shall be in a position to report to management at such a level that the required assurance and oversight function is ensured. The person(s) and / or organizations performing nuclear quality and safety management functions shall therefore have authority and freedom to identify and correct nuclear quality and safety problems or relevant aspects and to prevent repetition. They shall ensure the implementation of corrective action and preventive measures and verify the introduction and effectiveness of such measures.

3.8.3.6 The supplier shall ensure that changes within their own organisation and their Level 1 sub-suppliers, including structure, staffing levels and resources, are evaluated to ensure that they will not adversely affect safety.

3.8.3.7 Organisational changes within the supplier, that could potentially impact nuclear safety, shall be submitted to Eskom for acceptance prior to implementation.

3.8.3.8 Guidelines shall be defined and documented to ensure effective communication and team support allowing individuals to receive the advice, information and support they require, and to provide the necessary feedback wherever it is required.

3.9 Resource Management

3.9.1 Overall Resource Requirement

The supplier shall determine and provide the resources needed to carry out the activities of the supplier, and to establish, implement, assess and continually improve the management system.

3.9.2 Human Resources

3.9.2.1 The supplier shall select their personnel and shall implement training programmes to ensure and maintain required levels of qualification and experience. The supplier shall ensure that all staff has the competence to carry out their tasks safely and effectively.

3.9.2.2 Senior management shall include a systematic process to establish technical and behavioural competence requirements. This process shall consider the following aspects as a minimum:

- Determination of training methods to ensure awareness of the relevance and importance of their activities to the achievement of safety goals;
- Formal assessment of competence of individuals;
- Evaluation of training actions;
- Supervision and monitoring of the individuals until full competence is achieved.

3.9.2.3 Human factors shall be systematically considered and shall include the allocation of functions to humans and technology, the identification and analysis of tasks important to nuclear safety (including human error potential), the design of the work environment, user interface design, training and procedures.

3.10 Process Realization

3.10.1 Quality Planning

3.10.1.1 The supplier shall plan for the required nuclear safety and quality related activities and interfaces within the supplier' IMS in order to demonstrate its ability towards both controlling and meeting specified Eskom requirements.

3.10.1.2. All contracts and sub contracts shall have a documented, implemented and maintained CQMP.

3.10.1.3. All individual products and processes shall have a documented, implemented and maintained QCP with sufficient details to enable Eskom to review and accept the plans.

3.10.1.4. The supplier shall submit the CQMP and QCP's within the time specified in section 3.7 above to Eskom.

3.10.1.5 The CQMPs and QCPs shall:

- Have their scope defined;
- Form part of the supplier's documented IMS, and shall be internally reviewed and formally approved;
- Cover each distinct stage of the work performed / undertaken;
- Upon revision, be subjected to review and approval by all parties responsible, prior to implementation;
- Be reviewed by Eskom or its Authorised Representative for acceptability, and shall allow for the insertion of Eskom-specific requirements;
- Any revisions to these plans shall require similar review and acceptance by Eskom or its Authorised Representative prior to the commencement of work involving an activity by such changes.

3.10.2 Contract Quality Management Plan (CQMP) Requirements

3.10.2.1 The supplier shall ensure that procurement documents clearly and unambiguously require Sub-supplier submission of a CQMP for Supplier and Eskom review.

3.10.2.2 For RD-0034 Level 1 and Level 2 scope of work, the supplier and sub-supplier shall prepare a CQMP in accordance with ISO 10005-Quality Management System Guidelines for Quality Plans. In addition to the elements specified in ISO 10005, the supplier and or sub-supplier's CQMP shall include, as appropriate to the scope of work, the following:

3.10.2.2.1 The contract title, supplier, Eskom, contract number, the contract commencement and completion, dates, the names, signatures, and designations of the persons responsible for approving the plan, and provision for Eskom acceptance with a date (all on the front page);

3.10.2.2.2 An index;

3.10.2.2.3 A description of the works;

3.10.2.2.4 A list of applicable procedures from the management system used to implement the CQMP;

3.10.2.2.5 The various production processes and/or services involved / to be undertaken, and their relationship to one another, e.g. by way of process flow charts;

3.10.2.2.6 Different physical locations where the supplier's work will be performed, the nature and extent thereof, including work performed by sub-suppliers;

3.10.2.2.7 Communication channels between supplier and Eskom in respect of nuclear safety or quality, clarifying requirements and resolving problems that may arise at various interface points;

3.10.2.2.8 The supplier's organisational structure, indicating the existing management hierarchy. The structure shall extend from the policy maker down to the supervisory level, within each of the different production / services facilities /operations. The structure shall clearly

show the lines of responsibility and authority, and shall reflect both the names of the appointed persons, and their respective designations / positions;

3.10.2.2.9 The organisational structure shall show how the project will be managed, which shall include:

- The supplier's IMS management representative who reports to senior management with respect to the performance of the IMS;
- Other key staff members who have responsibility for Engineering, Design, Sales, Purchasing, Installation, Construction, Test & Commissioning, etc.
- Staff members who have responsibility for performing Quality Control (QC), inspection and testing activities, and their relationship within the management structure;
- Staff members responsible for the initiation and approval of corrective and preventive actions, in the event of non-conforming product;
- The person specifically responsible for handling customer complaints, field failures, warranty returns or non-conformance reports relating to goods already delivered, i.e. information receipt, work co-ordination, customer liaison, etc.

3.10.2.2.10 Notification of readiness period that requires attendance by Eskom and / or its Authorised Representative and or NNR shall be specified and mutually agreed;

3.10.2.2.11 An index of the interfacing documents between the supplier and Eskom;

3.10.2.2.12 An index of documents that will be submitted to Eskom during project execution, prior to completion of the works;

3.10.2.2.13 A list of sub-suppliers or sub-contractors to be used, showing scope of work and the relevant nuclear safety levels and quality classifications;

3.10.2.2.14 A list of suppliers and sub-suppliers selected that will be assessed, approved and monitored by the supplier;

3.10.2.2.15 Specific quality monitoring and verification activities to be undertaken on its suppliers and sub-suppliers, including the use of AIAs;

3.10.2.2.16 Items and activities for which QCPs will be prepared;

3.10.2.2.17 All special processes shall be covered by QCP with supporting procedures referenced;

3.10.2.2.18 The management of Welders Qualification Record (WQR), Welding Procedure Specifications (WPS) and Procedures Qualification Records (PQR) that will be used in the performance of Work for Supplier review and acceptance prior to commencing manufacture. Welders shall be qualified to the specified Codes of Construction for the applicable procedures. The requirements for qualification shall be specified by Supplier and welder records shall be maintained by sub-supplier performing the work;

3.10.2.2.19 The special process procedures and other required installation, fabrication or manufacturing procedures (i.e. those required for post weld heat treatment, tube rolling, coatings, etc.) that will be used in the performance of work shall require supplier review and acceptance prior to commencing manufacture. Personnel carrying out special processes (e.g. NDE, welding, coating, heat treatment, etc.) where the results cannot be fully verified by subsequent inspection and test shall be suitably qualified and where applicable registered with statutory bodies as legally required i.e. as radiographic workers to conduct radiography. The requirements for the qualification shall be specified and personnel records shall be maintained;

3.10.2.2.20 The personnel required to perform Special Processes shall be certified competent through a Certificate of Competency in accordance with the company's internal training management and competency control procedures, or an external certification body (e.g. NDT);

3.10.2.2.21 All personnel who perform activities that affect quality and safety shall have their training needs identified and documented. The required training shall be implemented in accordance with the company's training management and competency control procedures;

3.10.2.2.22 Instructions and requirements for equipment and materials storage, preservation, and maintenance, including identification of materials required for preservation and maintenance, are to be provided sufficiently prior to receipt (prior to shipment or earlier) to ensure appropriate resources are available at the time of delivery;

3.10.2.2.23 The interface of sub-suppliers with the supplier management system and applicable documents, procedures, and work instructions (e.g., CQMP, QCP, SCEP, Non-conformance Management, Supplier Qualification, etc.);

3.10.2.2.24 An index of all codes, standards and specifications, for activities or plant or material, applicable to the works;

3.10.2.2.25 Documentary evidence of any particular nuclear certification called for in the technical specification (e.g., ASME “N” stamp, etc.);

3.10.2.2.26 A method statement of how management shall regularly assess the adequacy and effective implementation of the CQMP;

3.10.2.2.27 A method statement of how the CQMP will be periodically audited to verify compliance with requirements;

3.10.2.2.28 A register for the application for the defects acceptance (concessions) to be updated during the contract.

3.10.2.3 The supplier shall maintain the CQMP to reflect the current status of the contract.

3.10.2.4 Eskom shall review this CQMP (inclusive of the QCP’s) before acceptance.

3.10.3 Project Management

3.10.3.1 The supplier shall ensure that all relevant Eskom requirements are considered during the different stages of the project life cycle, including those specified in laws, standards, legal directives, codes and standards as well as the regulatory requirements stated in the scope of work. The design, manufacturing, construction, installation and commissioning processes must therefore include provisions to ensure that these Eskom requirements are fulfilled and that they are correctly introduced in the project documentation.

3.10.3.2 Supplier management shall ensure that acceptable processes for communicating effectively with Eskom have been defined. The supplier shall introduce and maintain such processes to ensure understanding of Eskom requirements, and for their translation into requirements for their project organisation.

3.10.3.3 A project management plan defining the supplier schedule and activities shall be submitted to and agreed with Eskom. In developing the schedule, the tasks of Eskom must also be considered. The project management plan must be reviewed regularly and revised as necessary to reflect any changes considering the status of project as well as the different project stages.

3.10.4 Design and Development

3.10.4.1 The conditions for application of selected codes and standards as prescribed by the authority, which released the code / standard, shall be fulfilled by the organizations involved in the process. Any deviations shall be justified and presented to Eskom and the NNR for acceptance.

3.10.4.2 QA measures shall be defined and shall be compatible with the technical requirements of the selected codes and standards.

3.10.4.3 All SSC important to nuclear safety shall be designed according to the latest or applicable approved standards as at the time of licensing of the nuclear installations and shall be accepted by the relevant South African authorities. If no approved standards are available for a specific application, internationally recognized codes and standards shall be proposed for acceptance. If possible, the SSC should be of a design proven in previous equivalent applications, and shall be consistent with the reliability goals determined for the respective SSC.

3.10.4.4 Where new or innovative designs or features are used, the supplier shall provide the results of the investigations on applicability of the codes and standards to Eskom. It shall be demonstrated that the codes and standards are fully applicable to the SSC. In any other case a revised code, standard and specification shall be developed for review and acceptance by Eskom.

3.10.4.5 Design and development outputs shall contain the information necessary for verification and validation to pre-determined requirements and / or design criteria. The supplier shall ensure that the outputs shall be reviewed against inputs as part of a design review process to provide objective evidence that the requirements / or design criteria have been met.

3.10.4.6 Validation of the output of the design and development processes shall be performed in a controlled manner to ensure that the resulting product is capable of meeting the requirements for the specified use.

3.10.4.7 Design control procedures shall be established to verify or check the adequacy of design and as a basis for the performance of design reviews.

3.10.4.8 The verification or checking process shall be performed by individuals, departments or organizational units other than those who have performed the original design.

3.10.4.9 Procedures shall be established and implemented by suppliers for selecting, and reviewing the suitability of materials, parts equipment and processes that are essential to the safety functions of SSC.

3.10.4.10 Provisions shall be implemented to ensure that quality assurance measures are included in design specifications and that responsibilities are determined to ensure that compliance with these measures is controlled and achieved. The requirements that are essential to quality and to procedural processes shall be specified prior to commencing with the activity to which they relate.

3.10.4.11 Design verification procedures shall be implemented and measures performed if:

- New safety features for nuclear installations are considered that differ significantly from proven technology or that use simplified, inherent, passive, or other innovative means to accomplish their safety functions;
- Design changes occur for components for existing nuclear installations.

3.10.4.12 In case of design changes, the design verification measures shall commensurate with those applied to the original design and shall be performed based on processes agreed with Eskom and the NNR.

3.10.4.13 Design changes shall be controlled as part of a configuration management system. Design changes affecting the safety functions and occurring after the submission of a safety case shall be submitted to and accepted by Eskom and the NNR in accordance with agreed processes.

3.10.4.14 A test programme shall be implemented by the supplier to demonstrate the safe performance of new safety features. It shall be ensured that the safety features will perform as predicted, to provide sufficient data to validate analytical codes, and that the effects of systems interactions are acceptable. The test programme shall include suitable qualification testing of a prototype simulating the most adverse design conditions. The test programme shall be defined in writing and make provision for sign-offs as the test programme conditions are met.

3.11 Procurement

3.11.1 All suppliers of products important to nuclear safety shall have a current quality management system appropriate to the scope of supply and shall submit a product related QM confirmation issued by a certification or conformity assessment organization, which is accepted by Eskom, the NNR and the South African legal framework. The

certificate/confirmation shall contain a statement of the scope of application, which shall be appropriate to the scope of supply, and shall be within its stated period of validity. Accreditation shall be provided by a relevant organization where it is required by the selected codes and standards.

3.11.2 The supplier shall establish a supplier qualification process based on and graded according to an accepted safety and quality classification system of the product to be delivered by the supplier.

3.11.3 Supplier assessments or audits will determine whether a supplier has the applicable elements of a management system in place and if the supplier is capable of providing a product and or service that meets Eskom's stated requirements.

3.11.4 Where a supplier sub-contracts work to another supplier (sub-supplier), the supplier shall ensure that the relevant requirements from this specification are cascaded to the sub-supplier. Eskom requires that when the RD-0034 Level 2 classification is designated to the subcontracted works, the procurement QM requirements shall be in line with appropriate requirements of Eskom QM specification, 238-102.

3.11.5 The supplier shall provide details of the sub-suppliers and their scope of work to Eskom.

3.11.6 Suppliers shall implement procedures to ensure that product specific requirements and any other requirements affecting the achievement of quality are clearly defined.

3.11.7 Suppliers shall ensure that the required reviews, tests and inspections are carried out where procurement documents and / or codes standards require an AIA or an Independent Inspection company to undertake surveillance during the manufacturing and assembly of SC or the construction of structures.

3.11.8 Suppliers shall ensure that procedures are established and implemented to ensure that purchased material, equipment and services, whether purchased directly or through suppliers, conform to the requirements specified in procurement documents. These procedures shall include appropriate provisions for source evaluation and selection. Objective evidence of quality shall be available covering inspections at the supplier and at the supplier's sources for accessory parts and examinations of materials, parts and equipment up to delivery.

3.11.9 In cases involving procurement of services only, such as third party inspection, engineering and consulting services, auditing and installation, repair, overhaul, or maintenance work, the purchaser shall accept the service by means of technical verification of data produced, surveillance or audit of the activity, and/or review of objective evidence for conformance to procurement documents.

3.11.10 In cases where activities that are of importance to nuclear safety are outsourced by the supplier to other suppliers / sub-suppliers, the former (delegating organisation) shall implement oversight measures for these activities to retain intelligent customer capabilities.

3.11.11 The supplier shall ensure that appropriate management system requirements are included in subcontracts (as in the purchase order or contract) placed on their suppliers to ensure compliance with this specification.

3.11.12 The supplier and its sub-suppliers shall ensure that materials, parts and equipment shall not be used until documentary evidence is available confirming that they conform to the procurement documents.

3.11.13 The supplier and its sub-suppliers shall ensure that materials, parts and equipment are inspected before use to identify any damage occurred during transport and to determine whether the delivered products conform to the procurement documents.

3.11.14 The supplier and its sub-suppliers shall ensure that documentary evidence is retained confirming that products conform to the design requirements specified in the procurement documents.

3.11.15 Suppliers shall ensure that procurement documents for material, equipment and services shall include or reference the procedures and / or standards required to be applied by the supplier.

3.11.16 The suppliers shall provide all the documentation and other information as required by the purchasing / procurement documents.

3.11.17 Suppliers shall ensure that the effectiveness of the assessment of the sub-suppliers shall be assessed by the supplier at intervals commensurate with the importance, complexity and quality of the product.

3.11.18 The requirements for the products shall be clearly defined in procurement documents and design specifications for the suppliers. The documentation shall specify the required codes and standards, materials, duties and capacities, operational and environmental parameters, loads, safety margins, settings, design limits, acceptable tolerances as well as QM requirements based on the classification of the product.

3.11.19 Procurement documents or design specifications produced by suppliers shall be reviewed and accepted by Eskom as part of the technical evaluation to ensure that the requirements for the product are compatible with the content of the Safety Case and associated Safety Analysis Report (SAR).

3.11.20 The supplier shall undertake QA oversight surveillance during the manufacturing and assembly of the SSC or the construction of structures to ensure that the required reviews, tests and inspections as prescribed in the procurement documents are followed.

3.11.21 The supplier shall ensure that their procurement documents for products contain the following minimum requirements, as applicable:

- Intended application and operating conditions;
- Quality characteristics and safety classifications;
- Performance requirements and surveillance of in-process, final and functional tests and inspections;
- Documentation and submission requirements for design and analyses, the manufacturing and assembly of products, including associated tests and inspections;

- Requirements concerning handling, storage, conservation, transportation and packaging;
- Identification coding for documents and for procured items, and;
- Product identification and traceability.

3.12 Sub-tier supplier Qualification

3.12.1 It is the responsibility of the supplier to Eskom, to ensure their sub-tier suppliers are appropriately qualified for the applicable Eskom scope of work.

3.12.2 The supplier shall establish and implement sub-tier supplier qualification process to select sub-tier suppliers, taking into account the applicable nuclear safety and quality classification.

3.12.3 Supplier Capability Assessments and /or audits shall be carried out on all sub-tier suppliers of products classified as Level 1 and Level 2 by the supplier to Eskom.

3.12.4 The supplier will have to demonstrate to Eskom the effective implementation of their sub-tier supplier qualification assessment and audit process.

3.12.5 The supplier shall ensure that its sub-tier supplier qualification process includes an evaluation of the sub-tier supplier's ability to comply with the requirements (compliance audits) and to perform the required tasks (technical process evaluations and or audits).

3.12.6 The criteria for evaluation of a sub-tier supplier shall be based on product related requirements and, as a minimum; the following aspects shall be evaluated:

- Technical equipment;
- Qualification of personnel;
- QMS and Certification;
- Internal and external surveillance;
- References and product related experience.

3.12.7 Eskom and NNR involvement shall be considered during the sub-tier supplier qualification process for products classified as Level 1 or Level 2. Eskom and the NNR will act as independent observers and can introduce their own questions in advance of the audit for consideration to avoid an active role during the audit.

3.12.8 Where Eskom and the NNR have indicated their participation in the supplier and sub-tier supplier qualification process, the supplier shall ensure that the following information – as a minimum, will be made available to Eskom to be submitted to the NNR as applicable:

- The SSC to be delivered or scope of work to be performed;
- The QM documentation, facilities and production processes;
- The contractual agreements and the interface arrangements;

- The product related deliverables already provided by the supplier to Eskom and a list of those scheduled for future delivery.

3.12.9 Eskom and/or the NNR reserve the right to conduct their own audits and inspections and can completely or partly delegate its role in such audits or inspections to other independent inspection authorities / inspectors.

3.12.10 Eskom reserves the right to obtain access to any audit reports performed by the Supplier reflected in the supplier audit programme.

3.12.11 Where a sub-tier supplier's IMS does not meet the specified requirements and an alternative sub-tier supplier is not possible or practical, the supplier to Eskom shall define how the gaps in the sub-tier supplier's IMS will be addressed. The supplier to Eskom will submit the proposal to Eskom for review and acceptance.

3.12.12 The sub-tier supplier qualification records shall be reviewed and accepted by Eskom before a contract is awarded by the supplier.

3.12.13 All suppliers and sub-suppliers involved in design, manufacturing, construction, operation and decommissioning shall be registered in an up to date list (database) of approved suppliers, and their qualification / certification shall be traceable. This list shall include at least the following information:

- Product to be delivered;
- Supplier of the product and sub-supplier of components;
- Safety and quality classification of the SSC;
- Selected codes and standards;
- Status of qualification / certification

3.12.14 The suppliers will present the results of the supplier selection process and the status of qualification to Eskom in the form of an Approved Suppliers List (ASL).

3.12.15 The list shall be submitted to Eskom, for subsequent submission to the NNR, in accordance with agreed processes and shall be available in general for Eskom and NNR inspection, review and audit.

3.12.16 The supplier shall assess the effectiveness of their qualification on the sub-suppliers, at intervals that commensurate with the importance, complexity and quality of the product supplied.

3.12.17 The L1 sub-tier supplier to be audited by the L1 supplier shall submit the following documents (SC aspects of the CQMP) to Eskom, as applicable:

- Structure of the organisation including internal and external interfaces (Organisational structure with indication of responsibilities including SM/SC);
- Definition of the management, business and support processes;

- Manuals, procedures, plans and management review status reports of the introduced integration aspects relevant to QM, SM and SC that was applied into the IMS system;
- Philosophy and status reports of the SC introduction and enhancement process;
- Specifications for QM and SM/SC introduction at suppliers;
- Supporting applicable SM/SC related documents, commitments, guidance, procedures, plans;
- Documentation of the internal and external review and improvement process of SM/SC and surveillance measures (if available).

3.13 Production and Service Provision

3.13.1 General Requirements

3.13.1.1 Production and service provision programmes shall be established to ensure compliance with relevant requirements during manufacturing, construction and commissioning activities. Procedures shall be used in these programmes and shall incorporate the requirements and acceptance criteria contained in the applicable design documents and specifications.

3.13.1.2 Special processes including welding, heat treatment, inspection and non-destructive testing shall be documented and controlled at supplier level. All specials processes shall be performed by qualified personnel using qualified procedures in accordance with applicable codes, standards, specifications or any other specific requirements or criteria.

3.13.1.3 Procedures shall be established for the identification and control of materials, parts and components, including partly fabricated assemblies of nuclear safety important SSC at supplier level. These procedures shall ensure the identification of the items, either on the items or on records traceable to the item, throughout manufacturing, construction, installation and use of the item.

3.13.1.4 The supplier shall ensure that the identification and control of procedures available are designed to prevent the inadvertent use of non-conforming or defective material, parts and / or components.

3.13.1.5 A Configuration management system shall be established at the supplier to indicate by the use of markings such as stamps, tags, labels, route cards or other suitable means the status of inspections and tests performed upon individual items. Respective procedures shall specify the identification of items which have satisfactorily passed required inspections and tests and the release process of those items.

3.13.1.6 The supplier shall have procedures to ensure that the SSC's are installed in the correct location (e.g. by the application of an installation marking system) and to prevent their incorrect use in terms of qualification

3.13.2 Inspection and Testing

3.13.2.1 A programme of inspection activities affecting nuclear safety and quality shall be established and executed by the supplier performing the activity to verify conformances to the relevant documented procedures, instructions and drawings.

3.13.2.2 In-process inspections of processed material items or products shall be performed for each work step at the supplier where it is necessary to ensure quality. Where direct inspection of processed material, items or products is impossible or disadvantageous, statistical process control and / or indirect controls shall be provided by monitoring processing equipment and personnel.

3.13.2.3 Inspections shall be performed at the supplier during manufacturing and qualification of product by qualified organizations and individuals, other than those who performed the activity being inspected.

3.13.2.4 Mandatory hold and / or witness points, beyond which work shall not proceed without the consent of Eskom, the NNR or another authority as required by the applied standards and / or design specifications, shall be specified in documents. Tests and inspections shall be performed at specified hold points during, and at completion of manufacturing, assembly and construction. The production and inspection steps shall be coordinated (e.g. by using an inspection sequence plan or quality plan) such that the tests and inspections are performed at a stage when the required quality characteristics can still be verified without restriction. The supplier shall define and submit the process for identification of Hold and Witness Points to Eskom for acceptance prior to the commencement of the activity.

3.13.2.5 Qualification and test programmes shall be established by the supplier to ensure the execution of all testing required to demonstrate that SSC will perform their functions satisfactorily. Procedures shall be used in the test programme and shall incorporate the requirements and acceptance criteria contained in the applicable design documents.

3.13.2.6 Qualification and test procedures of the supplier shall include provisions for assuring that all prerequisites for the given test have been met, that adequate test instrumentation is available and was used and that the test was performed under testing conditions.

3.13.2.7 The qualification, test and inspection results shall be documented, evaluated and accepted by Eskom or another authority as required by the applied standards and / or design specifications to provide assurance that test requirements have been satisfied.

3.13.2.8 The supplier shall define the specific inspection and test requirements applicable to the respective sub-supplier's scope of work / supply, and ensure that the inspection and test programme of their sub-supplier(s) meet Eskom's requirements.

3.13.2.9 The supplier's inspection program shall establish inspections (including surveillance of processes), to verify conformance to specified requirements:

- At the source of supplier materials or products,
- In process during fabrication and construction at a supplier's facility or Eskom site,
- For final acceptance of fabricated and / or installed items during construction,

- Upon receipt of the product and during installation, testing and commissioning activities.

3.13.2.10 The supplier's inspection program shall establish requirements for planning inspections where inspection hold points are to be applied, determining applicable acceptance criteria, and the frequency of inspection to be applied, and identification of special tools needed to perform the inspection.

3.13.2.11 Inspection planning is performed by personnel qualified in the discipline related to the inspection and includes qualified inspectors or engineers. The supplier shall ensure that all work associated with product destined for Eskom has been fully inspected, tested in accordance with the specified technical requirements, and formally accepted on completion of manufacture, or transportation, or installation and or commissioning, in accordance with the commercial documentation.

3.13.2.12 The supplier shall assess all inspection / test results obtained to determine absolute compliance with all Eskom's specified requirements. A certificate of conformance shall be completed and issued, and shall accompany every batch of product upon consignment.

3.13.2.13 Eskom reserves the right to appoint resident quality inspectors that can be based at the supplier or Sub-supplier's premises and on site where the work is being performed

3.13.2.14 The supplier shall ensure that they have the resources, tools, process and systems to carry out any quality assurance activities, inspections and test that they are responsible for.

3.13.2.15 The supplier shall notify Eskom timeously, on dates and logistic arrangements for inspections and other quality assurance activities as specified in contract conditions or scope of work.

3.13.2.16 The supplier will ensure that any sampling works, whether own or subcontracted, shall have sampling and testing plans, and correct sampling techniques shall be defined and applied.

3.13.2.17 The supplier shall demonstrate that the purchased product conforms to the design specification, and that the relevant QA measures were implemented.

3.13.2.18 The supplier's commissioning programme shall consider specific verification requirements for first of a kind SSC.

3.13.2.19 The supplier shall implement the test and commissioning process that is structured so as to provide a progressive integration both in terms of the hierarchy of the SSC (bottom up approach, starting with parts and single components) as well as in terms of power/loads (bottom up approach starting with minor loads) for SSC.

3.13.2.20 The supplier shall implement processes and procedures to ensure that the SSC is installed at the correct location (e.g. by the application of an installation marking system) and to prevent the incorrect use in terms of qualification.

3.14 Control of Monitoring and Measuring Devices

3.14.1 The supplier shall ensure that procedures are established to ensure that tools, gauges, instruments and other measuring and testing devices used in activities affecting quality are properly controlled, calibrated and adjusted at specified periods to maintain specified measuring accuracy.

3.14.2 The supplier shall ensure that instruction documents relating to the inspection, measuring and testing equipment shall specify when, how and by whom the necessary controls and calibrations shall be performed, repeated and documented

3.15 Quality Control Plan (QCP)

3.15.1 The supplier shall develop and implement processes and procedures which effectively monitor, verify and document quality of scope of work deliverables. Supplier shall ensure that sub-supplier QCP/ITP's are prepared at a level of detail sufficient to address all quality control related activities in chronological order, from contract review through materials verification, manufacturing, fabrication, assembly, final testing, documentation, and certification. In addition, supplier shall ensure compliance with the following requirements:

- All stages of manufacture, fabrication, assembly, packaging, shipment / transportation, installation, construction and erection works, pre-commissioning and commissioning tests shall be controlled by a supplier QCP/ITP that clearly and unambiguously identifies the inspection to be performed and special attention to controls related to critical products and services;
- All sub-supplier QCP/ITP activity shall be performed using an Eskom accepted supplier QCP/ITP;
- The supplier shall not commence with work before Eskom or its Authorised Representative and or the AIA or NNR has accepted the QCPs;
- QCP/ITP and all documents included with, referred to or incorporated by reference in the QCP/ITP shall be submitted for review and comment by supplier and by Eskom. All Supplier and Eskom comments shall be resolved prior commencing work;
- All applicable codes, standards, and relevant acceptance criteria documents are available at the work location, and that Eskom representatives on site shall have on-going access to this information. Workplace documentation shall be available in English and in any workforce appropriate language.

3.15.2 Where activities subject to inspection and test procedures are to be undertaken by a sub-supplier, the QCP/ITP shall make reference to this fact and shall include descriptive details of sub-supplier's involvement. A separate QCP/ITP shall be required for each sub-supplier scope of work.

3.15.3 The supplier shall be ultimately responsible for the development and proper implementation of all sub-supplier QCP/ITPs, including those reviewed or developed by sub-suppliers.

3.15.4 Eskom reserves the right to select witness and hold points within all developed sub-supplier QCP/ITPs for Eskom oversight of selected functions and to perform surveillance or audits of the work.

3.15.5 QCP and/or ITP shall contain the following information as applicable:

- Eskom contract number and title;
- The Suppliers order number;
- Identification of the area of works/contract;
- QCP/ ITP unique number;
- A list of the sequence of operations, including inspection and tests;
- The identification of the specification, drawing number, or procedure for each operation, with reference to the relevant criticality risk rating;
- The acceptance criteria with reference to the technical specification, in-house, national, or international standard, with the relevant clause number for each operation;
- The inspection and test activities that the Supplier has nominated for his hold and witness points;
- Provision for the inclusion of hold and witness points nominated by Eskom and NNR;
- Provision for hold, and witness point acceptance by date, and signature for all parties having intervention in the plan;
- Inspection and test records to be generated by the Supplier for each operation and an indication of records to be provided to Eskom (as applicable).

3.15.6 The supplier shall require sub-suppliers to submit QCP/ITPs and associated documentation applicable to sub-supplier scope of work. Any changes made to the QCP/ITP after submission must be resubmitted to Eskom for review and acceptance prior to the commencement of the activity. The supplier shall ensure that all sub-supplier QCP/ITPs are in compliance with Eskom specifications including but not limited to the following requirements:

Clear and unambiguous description of the equipment and location(s) at which each activity will take place, including facility location(s);

- Details of reference documents, procedures or method statements to be utilised in performance of the activity, including specific reference to actual sections and pages of procedures, standards, instructions, specifications, etc.;
- Definition of acceptance criteria;

- Listing of certifying or verifying documents generated to provide evidence of compliance with specified requirements;
- Identification of supplier, sub-supplier (where applicable) third party/ Approved Inspection Authority (AIA), and Eskom inspection activities defined in terms of Witness, Hold, Inspection, Test and Document Review points and provision for sign off of each of the abovementioned parties for each intervention point;
- All applicable test procedures;
- Acceptance criteria for each inspection or test in alignment with specified tolerances;
- A section for signed acceptance of the QC/ITP by the supplier, sub-supplier (where applicable), and Eskom prior to commencement of work;
- Inspection or testing witness and hold points including but not limited to Factory Acceptance Test and QADP acceptance test, witness and hold points;
- Methods of documenting failures, deficiencies and reporting.

3.15.7 Eskom reserves the right to appoint resident quality inspectors that can be based at the supplier or Sub-supplier's premises and on site where the work is being performed.

3.15.8 Eskom may appoint any organization it prefers to perform Quality Assurance and Quality Control activities, either in the capacity as an AIA or Inspection Agency, on the works contracted to the supplier, and the supplier or his Sub-suppliers may not object, prevent, hinder, undermine, circumvent, question, discredit or in any way make it impossible for such organization to carry out its work on behalf of Eskom.

3.16 Hold or Witness points

3.16.1 All QC activities to be applied - where applicable, each activity shall be clearly marked regarding whether any type of inspection or intervention is to be performed or not.

3.16.2 The type of inspection or intervention point shall be indicated e.g. hold, witness, or surveillance point.

3.16.3 Eskom or its Authorised Representative and or the AIA and or the NNR interventions nominated, i.e. inspection, hold and witness points.

3.16.4 An indication to be made on whether an inspection or intervention point is a statutory requirement or not (indicate only if statutory, with reference to controlling statutes/regulation).

3.16.5 The applicable inspection or intervention method and or the type/name of test to be performed at each respective inspection point are to be clearly stated.

3.16.6 The applicable document (e.g. procedure, standard) which specifies and controls the relevant inspection or intervention method or type of test to be carried out is to be referenced, submitted and where required, explained to Eskom.

3.16.7 Relevant acceptance criteria for each QC activity, with reference to the applicable procedure, drawing, specification, parameter, etc. (The criteria/standards (e.g. readings) to be obtained through the test or inspection method/type to confirm whether the required conditions have been achieved shall be clearly spelled out).

3.16.8 The party(s) which will carry out or participate in the inspection or intervention shall sign off the intervention point on the QCPs if the intervention point status is deemed to be complete

3.17 Notification of Intervention Points

3.17.1 Hold and witness points that require attendance by Eskom, or its Authorised Representative and or the AIA and or the NNR the supplier shall give notification of readiness as specified in the relevant CQMP.

3.17.2 The supplier shall provide timely notification to Eskom of changes to any agreed-upon request for inspection

3.17.3 The notification for hold and witness points shall include the following:

- Order or contract number;
- Items involved;
- QCP operation number;
- Location of operation;
- Time and date of operation;
- Contact person's name and telephone number.

3.17.4 The supplier shall provide the advanced notification as follows:

- Off shore inspections require a minimum of 15 working days notification. The Supplier shall confirm the inspection date one calendar week prior to inspections and testing when such requirement has been designated as an Eskom witness and/or hold points.
- Off-site local inspections (in country) require a minimum of 72 hours notification.
- On-site inspection notifications shall be coordinated with the on-site quality department.

Note 8: The above will also depend on the conditions of contract, where such conditions may supersede these requirements.

3.18 Approved Inspection Authority (OHSA Equipment Only)

3.18.1 The final selection of the AIA is subject to Eskom approval, which approval will be subject to the provision of a valid certificate issued by the Chief Inspector.

3.18.2 The Supplier shall comply with the Pressure Equipment Regulations (PER) under the South African Occupational Health and Safety Act 85 of 1993, during the design, manufacture,

construction, erection, commissioning, maintenance, repair, testing and certification of Pressure Equipment.

3.18.3 Where applicable, provision shall be made for the appointment of an Approved Inspection Authority, as required and defined in the PER, during the design, manufacture, construction, erection, commissioning, maintenance, repair, testing and certification of Pressure Equipment. Only an organization holding an approval certificate from the Chief Inspector may perform the duties of an Approved Inspection Authority.

3.18.4 The Approved Inspection Authority shall perform these duties when required either in accordance with the provisions of the Occupational Health and Safety Act 85 of 1993 or the scope of the works. The supplier shall submit any information and documents requested by Eskom or the appointed Approved Inspection Authority.

3.18.5 When required the Supplier shall make provision in QCPs for the Approved Inspection Authority to designate intervention points and acceptance of the QCPs. The scope of the Approved Inspection Authority's involvement shall be agreed with Eskom and be documented.

3.18.6 The Approved Inspection Authority shall perform such quality activities as required by the accepted QCPs during refurbishment, manufacturing, construction, erection, installation, commissioning, maintenance or repair, testing and certification of Pressure Equipment.

Such activities may include, but are not limited to the following:

- Review of designs and calculations;
- Review of manufacturing processes;
- Witnessing of inspections and tests, and verifications;
- Monitoring of the supplier's quality function, including sub-suppliers;
- Sampling checks against the supplier's records;
- Record verification.

3.18.7 An index of QADP content shall be established and agreed between Eskom and the supplier before commencement of works.

3.18.8 The supplier shall complete and submit a QADP to Eskom for the Pressure Equipment containing a certificate issued by the equipment manufacturer and containing a verification signature by the Approved Inspection Authority, which certifies that the pressure equipment is designed and manufactured in accordance with the applicable health and safety standard.

3.18.9 The documentation and records required by the applicable health and safety standard shall be included in the content of the data package.

3.18.10 Imported pressure equipment stamped by an ASME authorised manufacturer in compliance with the full ASME Code of Construction shall be deemed to meet the requirements of the PER.

3.19 Handling, Packaging Activities and Transport

3.19.1 The supplier shall establish and implement measures for the packaging, shipping, receiving, storage and handling of specified items to be incorporated in the nuclear power plant, and for the inspection, testing, and documentation to verify conformance to requirements as specified in the applicable technical specification, to comply with ASME NQA-1: Part II Sub-Part 2.2, QA requirements for Packaging, Shipping, Receiving, Storage and handling of Items for Nuclear Power Plants.

3.19.2 Packing, loading, and securing to prevent damage shall be done under supervision. Bad roads, distance, and weather shall be taken into consideration to prevent damage.

3.20 Preservation of Product Quality

The supplier shall provide, in writing, at the time of delivery, any special requirements for safe handling, storage, and protection from environmental degradation, shelf life, and utilisation of the product. There shall be formal written agreement on the commencement and expiry date for the product warranty. Special arrangements shall be contractually agreed where items (such as batteries, which have a limited life) will not be placed in service until sometime after delivery.

3.21 Product Quality Release

3.21.1 A review shall be conducted by the supplier prior to final release of any product/service to Eskom to ensure that all required documentation pertaining to that specific product/service is available to Eskom.

3.21.2 The product quality release documentation review is a mandatory hold point to be performed by Eskom.

3.21.3 No item or equipment covered by this specification may be dispatched to site, unless it has been released by Eskom or Eskom's agency through an Eskom product quality release unless otherwise agreed by Eskom in writing. The supplier shall ensure that one copy of the product quality release is shipped with the equipment to site.

3.21.4 Release of site work:

No item or equipment covered by this specification shall be placed into service unless it has been released by Eskom.

3.22 Measurement, Analysis and Improvement

3.22.1 Monitoring and Measurement of the Management System

3.22.1.1 A comprehensive programme of systematic audits shall be planned and carried out by the supplier to verify compliance with all aspects of their integrated management system and to determine its effectiveness.

3.22.1.2 The management system of sub-contractors / sub-suppliers shall be planned and periodically audited to verify compliance with requirements.

3.22.1.3 Senior management and management at all other levels in the organization shall perform self-assessments to evaluate the effectiveness of the management system processes and to identify areas for improvement.

3.22.1.4 Audits / assessments shall be performed in accordance with documented procedures and by appropriately trained personnel who do not have direct responsibilities in the areas being audited.

3.22.1.5 The audit / assessment results shall be documented and reviewed by the management representative of the organizations responsible for the area audited. Follow-up actions, including the re-audit of deficient areas, shall be taken as appropriate.

3.22.1.6 The nuclear safety performance of the supplier shall be routinely monitored internally in order to ensure that nuclear safety goals are met and to improve the performance of work affecting the nuclear safety goals. Performance indicators shall be developed for the measurement of nuclear safety performance.

3.22.1.7 Auditing and review of the overall nuclear safety performance of the supplier shall provide an independent assessment of the effectiveness of the nuclear safety management system and identify opportunities for improvement.

3.22.1.8 A systematic process for monitoring nuclear safety culture shall be established, using suitable leading and lagging indicators, and qualitative information (for example findings from self-assessments, Eskom and independent reviews).

3.22.2 Control of Non-Conforming Products

3.22.2.1 The supplier shall establish and implement procedures to prevent the use or installation of materials, parts or components, which are not conforming to requirements. These procedures shall define the arrangements for identification, documentation, segregation, disposition and notification to affected organizations. The process for notification, release, approval and control of non-conforming products shall be clearly documented.

3.22.2.2 The supplier rework and repair actions shall be clearly described in documents equivalent to those on which manufacturing of the respective parts was based. These documents shall be reviewed and maintained as records in the same manner as the original documents.

3.22.2.3 Eskom shall be informed of non-conforming products that are important to nuclear safety as soon as such non-conformances are recognized by the supplier. The supplier shall implement the respective processes which must adequately reflect Eskom involvement.

3.22.2.4 All non-conformances that affect form, fit or function as specified by the contract or order, reference standard, technical specifications, Eskom approved drawings, procedures and quality control plans or which affect interchangeability or maintenance, shall be reported to Eskom.

3.22.2.5 The supplier shall evaluate deviations, defects and failures that require recalls associated with substantial safety hazards as soon as practicable and report it to the Eskom designated representative (e.g. project/contract manager).

3.22.2.6 Non-conforming materials, parts, workmanship or documentation shall be rejected by the supplier or Eskom, or Eskom's inspection authority or agency. In exceptional cases, if considered suitable for repair, rework, or if it may be used "as is", non-conforming materials, parts or workmanship, shall be the subject of a concession application. Such application shall be submitted directly to Eskom, or Eskom's inspection authority or agency for acceptance.

3.22.2.7 Concession reports shall be prepared by the supplier in terms of non-conforming materials, parts, workmanship or documentation. These reports shall be submitted to Eskom, or Eskom's inspection authority or agency, for review. These reports shall form part of the data package that is supplied with materials, parts, workmanship or documentation to Eskom.

3.22.2.8 If granted, concessions shall apply during the entire contract or order life and include design, procurement, manufacture assembly, construction erection, and commissioning or guarantee phases of the contract. This shall apply to contracts/orders placed for maintenance and or modification of plant in operation.

3.22.2.9 Where an Eskom appointed inspection authority or agency is involved, reporting shall be from the supplier through the inspection authority or agency to Eskom.

3.22.2.10 Suppliers are not required to report to Eskom those non-conformances that can be made to conform by REWORK by the supplier, providing the REWORK is part of the normal practice during manufacture and where the relevant REWORK procedures have been accepted by Eskom or their appointed inspection authority or agency.

3.22.2.11 If the process of REWORK or REPAIR involves new special processes (i.e. welding, heat treatment, non-destructive examination procedures that have not yet been approved or accepted by Eskom or Eskom's inspection authority or agency) or will have an effect on form, fit or function of other acceptable materials, components, equipment, structures or systems, then such non-conformances shall be reported to Eskom or Eskom's appointed inspection authority or agency before the commencement of the rework or repair.

3.22.2.12 A reportable non-conformance that cannot be REWORKED that the supplier believes could be acceptable "as is", shall be the subject of a concession application.

3.22.2.13 A reportable non-conformance that can only be REPAIRED shall be the subject of a concession application.

3.22.2.14 Material deviations due to non-availability, mechanical properties, chemical composition or similar problems, shall be the subject of a deviation permit before production commences.

Note 9: The Supplier shall not substitute other items for the items requested without specific written approval of Eskom prior to shipment.

Note 10: If the Supplier identifies improvements, changes, or seeks waivers from the requirements of the Contract or Purchase Order, the Supplier shall describe such conditions as a deviation permit and this information shall be transmitted, in writing with justification and a certificate of interchangeability, to the Eskom designated representative.

3.23 Eskom's Non-Conformance Report and Corrective Action Requests

3.23.1 Non-conformance reports raised by Eskom and issued to the supplier shall be investigated by the Supplier, in order to determine the root cause, corrective action, and preventive measures, as required, with implementation time frames.

3.23.2 A formal response shall be prepared in respect of the defined criteria, and submitted to Eskom for its review, evaluation and acceptance, within the period of reply as stated in the contract.

3.23.3 The nature, magnitude, and/or frequency of non-conformance and defect reports raised by Eskom or its appointed inspection authority/agency may form the basis of any action to rescind/ withdraw the Supplier's qualification status.

3.24 Analysis of Data

3.24.1 The supplier shall ensure that the sources of any data used are traceable and shall be validated for the specific application.
3.24.2 Documented records shall be maintained of the source from which the data is taken and the measures introduced for its validation and verification.
3.24.3 Data input shall be part of the controlled process defined for the IMS.

3.25 Improvement

3.25.1 A process for the identification of opportunities for improvement shall be implemented. The supplier shall make arrangements to support the feedback process. Work results shall be reflected and considered within this enhancement process.

3.25.2 The supplier shall establish and implement procedures to ensure that conditions adverse to quality or safety, such as failures, deficiencies, defective material, system deviations and equipment non-conformity, are promptly identified and corrected. Such conditions shall be investigated, causes identified and corrective actions implemented. The effectiveness of the corrective actions implemented shall be monitored.

3.25.3 Supplier management shall clearly define the measures to be adopted to prevent non-conformance of products or unsafe processes.

3.25.4 The supplier shall establish and implement procedures to ensure that significant conditions adverse to quality or safety, are investigated to determine the root cause of the condition and that appropriate corrective actions are introduced to prevent recurrence. The effectiveness of the corrective actions implemented shall be ensured. The identified conditions and corrective actions shall be reported to the appropriate level of management.

3.25.5 Supplier management shall ensure that appropriate corrective actions are identified and introduced. Management's response to process nonconformities shall identify opportunities for improvements.

3.25.6 The supplier shall ensure that systems are in place to continuously improve the supplier's systems and processes. This shall include implementing operating experience and lessons learned from internal and external sources, both within and outside the nuclear industry. A systematic event analysis and corrective action process, which addresses human, organizational factors and technical issues, shall be established.

3.26 Access to Suppliers and Sub-Supplier's Premises, Facilities and Documentation / Information

3.26.1 Eskom, its quality representative, its Authorised Representative or the AIA or the NNR shall be afforded access to all areas of the supplier's and sub-suppliers' premises and facilities, at reasonable times, to conduct quality assessments, audits, surveillance or inspections to verify compliance with agreed and / or contractual requirements.

3.26.2 All quality system documentation, records, reports, etc. (electronic and hard copy) shall be made available for review when requested by Eskom or its Authorised Representative and or the AIA and or the NNR. To ensure that the Works will be conducted in accordance with the contract/ purchase order, the supplier shall make available all information at its disposal, for review by Eskom, or its Authorised Representative and/ or the AIA and/ or the NNR.

3.26.3 The supplier shall provide suitable facilities to Eskom, or its Authorised Representative and or the AIA and or the NNR, and shall supply any assistance necessary for the performance of any audit, surveillance, assessment and / or inspection activities to be conducted by Eskom, or its Authorised Representative and or the AIA and or the NNR.

3.26.4 Eskom shall have the right to participate or request for a technical investigation to be launched and conducted on the Supplier and Sub-supplier's premises or other sites, when risk to Eskom products or service deliverables are identified.

3.26.5 The supplier shall ensure a safe working environment for Eskom, or its Authorised Representative and or the AIA and or the NNR, by informing it of the necessary safety requirements and possible safety hazards.

4. Acceptance

This document has been seen and accepted by:

Name	Designation
Anthea Timotheus	Officer Quality Management
Helga Hall	Senior Advisor- Nuclear Commercial
Luren Chetty	Quality and Configuration Manager-NPM

5. Revisions

Date	Rev.	Compiler	Remarks
January 2021	2	S Brown	Full Review
May 2017	1	PS Xotyeni	Full Review to accommodate Nuclear New Build Programme
November 2010	0	H Zakarian	Original Issue

6. Development Team

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

P Munetsi Senior Advisor: Procurement Quality Engineering
M Edmonds Consultant: Procurement Quality Engineering

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Not applicable.