

 RAND WATER		STRATEGIC ASSET MANAGEMENT QUALITY MANAGEMENT SYSTEM PROCESS	
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1. PURPOSE

The intention of this specification is to specify and describe the minimum quality requirements for all existing and potential contractors and define the quality criteria for the management, monitoring, assessment and auditing of contractors.

Rand Water's position is to partner with contractors who fully demonstrate commitment to the development, implementation, and maintenance of a quality management system (QMS) that conforms to the requirements of ISO 9001 standard.

Rand Water encourages contractors to continually improve their Quality Management System

2. SCOPE

3. APPLICABILITY

This specification shall apply throughout Strategic Asset Management divisions contractors, and sub-contractors and shall form part of all requests for information (RFI)/requests for quotation (RFQ)/ requests for proposal (RFP), including contracts for the procurement of products and services

4. REFERENCES

Document Title	Document No.	Location
Quality Management System -Requirements	ISO 9001	Library /QMO office
Guidelines for quality management in projects	ISO 10006	Library
Guidelines for quality plans	ISO 10005	Library

5. TERMS, DEFINITIONS AND ABBREVIATIONS

5.1 DEFINITIONS

The vocabulary of ISO 9000 and the following definitions apply in the application of this specification.

5.1.1 Component: a constituent part of the product or sub-assembly of the product. The product may comprise multiple individual components

5.1.2 Contract Quality Plan: a document of the contractor's process for delivering the level of quality required by the contract. It is a framework for the contractor's process for delivering quality. Purpose of a CQP is to outline how the results defined in the specifications will be achieved.

5.1.3 Hold Point: a predetermined stage in the quality control plan (QCP) beyond which work/manufacturing shall not proceed without the attendance of, and written authorization of, an Rand Water representative or Rand Water inspection agency, whichever is applicable.

5.1.4 Intervention Points: those control points indicated by the various controlling bodies concerned with the implementation of a specific QCP/ ITP. These can be in the form of inspection, hold points, surveillances, witnesses, reviews and verifications.

5.1.5 Inspection Agency: an organization or person appointed by Rand Water for the purpose of performing quality assurance/ quality control, monitoring, inspection and/ or expediting services.

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

5.1.7 Quality Plan: document specifying which processes, procedures and associated resources will be applied by whom and when, to meet the requirements of a specific project, product, process or contract

5.1.8 **Quality Control Plan:** a document specifying the activities to be inspected throughout the execution of the project, inclusive of test methods, procedures, and acceptance criteria. (This term is equivalent to QIP and ITP.)

5.1.9 **Requirement:** the need or expectation that is stated, generally implied, or obligatory. Requirements are generally specified in the purchase order and/or contract documentation, but may not be limited to these

5.1.10 **Special Process:** is any production or service process which generates products or services which cannot be measured, monitored, or verified prior to delivery and use.

5.1.11 **Contractor:** is a current or potential contractor, vendor, contractor, consultant, or service provider. A contractor may be a natural or legal person and includes any employee acting within the course and scope of his/her employment or any agent or manager acting for, or on behalf of, or in the interests of, the person registered as contractor on the Rand Water contractor database.

5.1.12 **Sub-contractor:** an organization that provides a product/service to the contractor and/or that enters into a subcontract and assumes some of the obligations of the contractor or prime contractor.

5.1.13 **Witness Point:** a predetermined stage in the quality control plan where and inspection activity will take place. Work may proceed, provided Rand Water or its inspection agency has been formally notified and confirmed that inspection is waived.

5.2 ABBREVIATIONS

AIA	
CA	Corrective Action
CQP	Contract Quality Plan
FIDIC	Federation Internationale Des Ingenieurs- Conseils
FMECA	Failure Mode, Effects and Criticality Analysis
HAZOP	Hazard and Operability Study
ISO	International Organization for Standardization
ITP	Inspection and test plan
NC	Nonconformity
NDT	Non Destructive Testing

NEC	New Engineering Contract
PA	Preventive action
PMI	Positive material identification
QCP	Quality control plan
QMR	Quality management representative
QMS	Quality management system
PQP	Project Quality Plan
RFI	Request for information
RFQ	Request for quotation
RFP	Request for proposal
SHEQ	Safety, health, environment, and quality
SETA	Skills Education Training Authorities
WPS	Welding procedure specifications
WQR	Welder's qualification record

6. RESPONSIBILITY AND AUTHORITY

- a) Roles and responsibilities are defined within the text of this specification.
- b) Quality Representative shall audit the application of this specification throughout as per the audit schedule.

7. ACTION / PROCEDURE / METHOD

7.1 CONTRACTOR QUALITY MANAGEMENT SYSTEM REQUIREMENTS

- a) The contractor shall develop, implement and maintain a formal quality management system that conforms to the latest ISO 9001 standard or any applicable standard of quality management system (latest applicable revision) and in accordance with the requirements of this specification.
- b) Such a formal system shall consist of the appropriate documentation such as a quality manual, quality plans, work procedures, work instructions, method statements, work flow documentation, etc., as the case may be. This requirement constitutes the most basic quality management system requirements.

7.2 QUALITY MANAGEMENT PLAN

7.2.1 The contractor shall develop and implement processes and procedures that efficiently and effectively manages the quality of the deliverables.

7.2.2 The contractor shall submit the Quality Management Plan within **14 days** after the contract date, prior to the commencement of work, for acceptance by Rand Water

7.2.3 The minimum requirements for a quality management plan (Quality File)

- a) The resources (Organogram, CV and competency certificates)
- b) The communication channels, (Communications channels should include contact person and contact details)
- c) Applicable documents and records to be generated.
- d) List of documents and records that will be used and submitted during the execution of the project.
- e) Management Authority and Responsibility
- f) Method statement and / or procedure per activity
- g) Monitoring & Measurement procedures for activities
- h) The management of records, including material tests, positive material identification (PMI) testing, material certification, etc.
- i) List of testing equipment
- j) The proposals for submission of final documentation, (Data Pack)
- k) List of sub-Contractors and supplier
- l) Quality Control Plan /Inspection and Test Plan (as **per 7.3 Requirements**)

7.3 QUALITY CONTROL PLAN (QCP) / INSPECTION AND TEST PLAN(ITP)

- a) QCP/ ITP shall be reviewed by Rand Water, its inspection authority or agency, and they shall allow for the insertion of Rand Water specific requirements, including hold and witness points prior to the commencement of work.
- b) Subsequent changes to the Rand Water accepted QCP/ ITP shall require Rand Water, its inspection authority or agency's agreement prior to the commencement of work involving an activity affected by such changes.
- c) All sub-contractor QCP/ ITP activity shall be performed using a Rand Water –approved contractor QCP/ ITP.
- d) All applicable codes, standards, and relevant acceptance criteria documents must be available at the work location, and Rand Water representatives on site shall have access to this information.

Workplace documentation shall be available in English and in any workforce appropriate language.

- e) Where activities subject to inspection and test procedures are to be undertaken by a sub-contractor, the QCP/ ITP shall make reference to this fact and shall include descriptive details of the sub-contractor's involvement. A separate QCP/ ITP shall be required for each sub-contractor scope of work
- f) The contractor shall be ultimately accountable and responsible for the development and proper implementation of all sub-contractor QCPs/ ITPs, including those reviewed or developed by sub-contractors.
- g) Rand Water reserves the right to select witness and hold points on QCPs/ ITPs for Rand Water oversight of selected functions and to perform surveillance or audits of the work.
- h) All completed ITPs with the contractor's intervention points will be submitted to Rand Water to fill in its preferred intervention points. Once signed, the ITPs and QCPs become binding.
- i) The ITPs should cover materials certification, fabrication works, in-process inspections, final acceptance tests, packaging and pre- shipment/ transportation, shipping/ transportation inspections where contracted, preservation, site acceptance tests, construction and erection works, and pre commissioning and commissioning tests.
- j) The contractor shall require sub-contractors to submit QCPs/ ITPs and associated documentation applicable to the sub-contractor scope of work.
- k) Any changes made to the QCP after submission must be resubmitted to Rand Water for further review.
- l) The contractor shall ensure that all sub-contractor QCPs/ ITPs are in compliance with the Rand Water Quality Requirements Specifications, including, but not limited to, the following requirements:
- m) Clear and unambiguous description of the equipment and location(s) at which each activity will take place, including facility location(s)
- n) ☐ Identification of quality verification activity and stage
- o) The details of reference documents, procedures, or method statements to be utilized in performance of the activity, including specific reference to actual sections and pages of procedures, standards, instructions, specifications, etc.
- p) Definition of acceptance criteria
- q) Identification of contractor and sub-contractor (where applicable) third-party/approved inspection authority (AIA) and Rand Water inspection activities defined in terms of witness, hold, document

review, and verification monitoring points and provision for sign-off of each of the above-mentioned parties for each intervention point

- r) Qualification requirements for quality control inspectors, including any third-party/AIA inspectors
- s) Listing of all proposed test procedures
- t) Acceptance criteria for each inspection or test in alignment with specified tolerances
- u) A section for signed acceptance of the QC/ITP by the contractor, sub-contractor (where applicable), and Rand Water prior to commencement of work
- v) Inspection or testing witness and hold points, including, but not limited to, factory acceptance test and package acceptance test, witness, and hold points

7.3.1 QCP/ ITP shall contain the following information:

- a) Contract number and title
- b) The contractor's s order number
- c) Identification of the area of works/contract
- d) Description of the work, with components, item number, and activity date
- e) QCP/ITP unique number
- f) The dates on which the activities are due to start and end
- g) A list of the sequence of operations, including inspection and tests
- h) The identification of the specification, drawing number, or procedure for each operation, with reference to the relevant criticality risk rating
- i) The acceptance criteria, with reference to the technical specification, in-house, national, international standard, with the relevant clause number for each operation
- j) The inspection and test activities that the contractor has nominated for its hold and witness points
- k) Provision for the inclusion of hold and witness points nominated by Rand Water and/or its authority/ agency
- l) Provision for hold and witness point acceptance by date and signature for all parties having intervention in the plan
- m) Inspection and test records to be generated by the contractor for each operation and an indication of records to be provided to Rand Water (as applicable)

7.4 DOCUMENT MANAGEMENT

7.4.1 Document Management

- a) The contractor shall ensure that all documents are accessible and readily available
- b) Documents to be managed not limited to the following: Method Statements, Test and inspection plans

7.4.2 Record Management

- a) Documented information needed to be retained by the contractor for the purpose of
- b) providing evidence of result achieved not limited to the following
- c) Calibration of the monitoring and measurement equipment
- d) Evidence of competence of person(s) doing the work (e.g. Welders qualifications)
- e) Designs changes
- f) Records of nonconformities, the actions taken, concessions obtained and the identification of the authority deciding the action in respect of the nonconformity
- g) Results of the evaluation of the performance (Test Results)
- h) Evidence of the implementation of the audit programme and the audit results (Audit Reports)
- i) Evidence of the nature of the nonconformities and any subsequent actions taken
- j) Material Certificate
- k) Construction records
- l) Inspection Reports

All documented information should form part of the data pack to be submitted on project completion

7.5 RESOURCE MANAGEMENT

7.5.1 Provision of resources

- a) The Contractor shall provide the resources needed for the establishment, implementation, maintenance and continual improvement of the quality management plan

7.5.2 Materials, products and services

- a) The contractor shall ensure that all materials (and testing of materials required) that will be used in the manufacture and installation/construction of the products for a specific project, must conform to the specifications and the material certificates must be kept

7.5.3 People

- a) The contractor shall provide at least one competent, full-time Quality Officer per discipline for the duration of the contract
- b) The Quality Officer is responsible for all quality matters on the project.

7.5 4 Equipment

- a) The contractor (i.e. the manufacturer, contractor or contractor as applicable), shall supply all the equipment/instruments required in the Contract documents to perform the specified quality inspection services.
- b) The equipment/instruments shall be calibrated by the SANAS accredited bodies and the calibration certificate shall be kept for the duration of the project.

7.5.5 Training

The contractor shall provide training to personnel who perform activities that affect quality of works

- a) All personnel who perform quality activities 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. All the training certificates shall meet the SETA requirements in terms of having the unit standard completed and the accreditation number of the service providers.
- b) 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 (for example, NDT) through an accredited service provider as per Skills Education Training Authorities (SETA) requirements.
- c) The management of the welder's qualification record (WQR), welding procedure specifications (WPS), and procedures qualification records (PQR) that will be used in the performance of work for contractor 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 the contractor, and welder records shall be maintained by sub-contractors performing the work.)

7.6 MONITORING AND EVALUATION

7.6.1 Inspection and testing and services

- a) The contractors shall conduct the quality inspection, tests, supervision and services and should be carried out in accordance with the specifications and as per the approved QCP (refer 7.3 above)

Where limitations in the specifications comes to the attention of the contractor, he should refer it to the Engineer, who may approve extended tests in writing.

7.6.2 Quality Audits

- a) The contractor shall conduct **internal quality audits** and related quality performance reviews to ensure compliance with performance expectations defined in this specification, in the contractor contract quality plan (CQP), and in any other project scope of work specification
- b) The contractor shall conduct **Independent quality audits** during all phases of the contract, and the contractor shall provide all resources to support these activities.
- c) Quality audits and related quality performance reviews shall be carried out by trained, accredited, and experienced personnel.
- d) Rand Water reserves the right to oversee the contractor's s audit programmes by participating in selected audits as an observer and by assessing the contractor during key work stages.

7.7 MANAGEMENT OF NONCONFORMITIES AND NONCONFORMING OUTPUTS IDENTIFIED BY RAND WATER

- a) Nonconformity reports raised by Rand Water /or its representative and issued against the contractor shall be investigated by the contractor as a matter of urgency in order to determine the root cause, corrective action, and preventive measures, as required, with implementation time frames
- b) The contractor shall provide Rand Water with corrective and preventative action plans within 5 working days.

8. RECORD AND DATA KEEPING

(Define linked processes, procedures and forms relevant to the procedure)

Record Document	Form/Doc Number	Location	Retention Period

Record Document	Form/Doc Number	Location	Retention Period

9. DOCUMENT CHANGE HISTORY

(Document revision control to be utilized to record all reviews and updates of this procedure)

The following table contains the history of this document with a description of each revision.

Date	Previous Revision Number	New Revision Number	Description of Each Revision
Dec 2018	n/a	01	New process
May 2020	1	02	Revised some clauses and approvals