QUALITY MANAGEMENT PLAN

For:	Transnet Port Terminals (TPT), Saldanha
Project Name:	FEL3 - Saldanha Bulk Terminal Equipment Refit: Stacker Reclaimers, Ship Loaders and Tippler 2. (Phase-4: Stacker Reclaimer 3)
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1. EXECUTIVE SUMMARY

This Quality Management Plan (QMP) has been compiled to detail the aspects of the project quality management system to be applied within the FEL4 phase of the equipment refit (Phase-4); Stacker Reclaimer 3, at the Bulk Terminal Saldanha. In addition it describes the methods to be utilised to ensure quality assurance and control of the identified activities as stated in the project execution plan (PEP), to ensure that the products and services meet Transnet Port Terminal's (TPT) requirements.

This QMP defines the overall quality management strategy that will support the project execution strategy as defined by the TPT Project Team. The following key aspects of the Quality Management Plan (QMP) pertaining to this project should be noted:

- TPT Project Manager will be responsible for managing all aspects of quality related to the execution of the works
- TPT Project Manager will provide the overall quality methodology in line with the required TPT standards
- TPT Project Manager will provide quality management resources to manage, and control and oversee the quality of all TPT appointed sub-consultants, suppliers and contractors
- TPT Project Manager will ensure that the correct documentation, the required QM System and Procedures, for the execution of the project, will be used and managed by those appointed. In addition, review and confirm the acceptability of suppliers and contractor's Technical Method Statements (TMS), quality control plans (QCPs) and related documents for execution of the work.

TPT Project QM will report on the quality performance of all project appointed consultants, suppliers and contractors.

2. ABBREVIATIONS AND DEFINITIONS

Term	Acronym	Definition
Authorised inspection agency	AIA	Authorised inspection agency accredited by the relevant authority to conduct independent inspections of specific works
Corrective action	CA	Action taken to eliminate the causes of an existing nonconformity, defect or undesirable situation to prevent recurrence
Contractor Documentation Schedule	CDS	A schedule of documents to be submitted by the Contractor at the indicated timelines.
Contractor Documentation Register	CDR	A list of documentation that the Contractor is to submit in accordance with the Contract. The Contractor is to use the Contractor Documentation Schedule (CDS) as the basis for developing the Contractor Documentation Register (CDR).
Critical goods and services	_	Goods and services that could have a significant adverse effect on safety, sustainability or productivity should they fail to operate as required

Concession	_	Agreement between the contractor and TPT or the engineer to use a part of the works that is not in accordance with the original acceptance criteria of the works information
Term	**Acronym**	**Definition**
Data pack	DP	A compilation of manufacturing data, certification, inspection and testing records prepared by the supplier or contractor to verify compliance with the contractual requirements
Design change notice	DCN	A document used by the supplier or contractor to formally clarify and obtain approval for design changes prior to or during manufacturing before implementation of the change
Engineering Construction Management	ECM	A company contracted to provide engineering and construction management services
Front End Loading	FEL	A project management methodology that ensures organized and progressively detailed project definition and execution development
Field engineering query	FEQ	A document used by the contractor to formally clarify and obtain approval for construction related design queries prior to implementation
Failure Mode Effect's Analysis	FMEA	A failure modes and effects analysis is an inductive failure analysis used in product development, systems engineering, reliability engineering and operations management for analysis of failure modes within a system for classification by the severity and likelihood of the failures
Lost time injury	LTI	A lost time injury (LTI) is an injury sustained by an employee that will ultimately lead to the loss of productive work time in the form of worker delays or absenteeism. An injury is considered a lost time injury only when the worker is unable to perform the regular duties of the job, takes time off for recovery, or is assigned modified work duties for the recovery period.
Transnet National Ports Authority	TNPA	Refers to TNPA, the Owner on behalf of whom the project is being undertaken
Hazard and operability study	HAZOP	A detailed hazard and operability problem identification process, carried out by a team. HAZOP deals with the identification of potential deviations from the design intent, examination of their possible causes and assessment of their consequences
Non-conformance report	NCR	A document used for recording, system, process or product related non-fulfilment of a requirement related to the intended or specified use
Major goods and services	_	Goods and services which could have a material impact on cost and/or schedule owing to potential rework issues, should they fail to comply with requirements on time
TPT Project Team	_	The Project Management Team that is responsible for overseeing the activities of the suppliers and contractors on the project

Procurement plan	-	A plan that describes in detail the contracting strategies to be employed to deliver the project to completion
Owners Requirement Specification	ORS	A document for the operation division to provide the project team with information relevant the execution of the project that only the operation division, due to an intimate knowledge of the facility or plant, may know.
Project quality plan	PQP	The internal document that defines the quality activities as planned evaluation of the adherence to the project's standards, processes and procedures as well as specific quality assurance measures related to each activity
Project execution plan	PEP	A document setting out the specific strategies, plans, systems and tools that will be used in the execution of the project in order to meet the project objectives for schedule, cost and quality
Quality	-	The degree to which a set of inherent characteristics fulfils requirements
Term	**Acronym**	**Definition**
Quality Assurance	QA	All those planned and systematic actions necessary to provide adequate confidence that a product or service will satisfy given requirements for quality
Quality Control	QC	The operational techniques and activities that are used to fulfil requirements of quality
Quality Control Plan	QCP	A document outlining specific manufacturing/construction inspection and testing requirements, including responsibilities, test acceptance criteria, nomination of witness and hold points
Quality management plan	QMP	A document setting out the specific quality practices, resources and sequence of activities relevant to a particular product, service, contract or project
Quality Management System	QMS	The organisational structure, responsibilities, procedures, processes and resources for implementing quality Management
Technical Method Statements	TMS	Detail method statement supplied by OEM/Principal Contractor for execution of individual scope items.
Responsible, Accountable, Consulted and Informed	RACI	A RACI chart is a matrix of all the activities or decision making authorities undertaken in an organisation set against all the people or roles. At each intersection of activity and role it is possible to assign somebody responsible, accountable, consulted or informed for that activity or decision.
Specification	Spec	The document that prescribes the requirements with which the product or service has to conform
Suppliers or contractors	_	TPT contracted suppliers, contractors, sub-consultants or any person real or juristic that supplies, fabricates, manufactures, installs, constructs or otherwise contributes material, plant or services to TPT in furtherance of the contract, the term contractor

		has the same meaning as applied to the term sub-supplier or sub-contractor
Works	_	All deliverables expected from the supplier or contractor as per the scope of works requirements specified in the contract between TPT and the supplier or contractor
Work package	_	A work package is a project deliverable constituted by the set of measurable work elements required to complete a unique activity or process in a specific time frame.

3. PROJECT SCOPE

The scope of a major refurbishment in relation to Stacker Reclaimer 3 can be categorized into four aspects, namely:

- Mechanical - includes components or systems such as the open gear systems, gearboxes, hydraulic systems, and rotating and moving parts (e.g. trunnions, car-clamps);
- Structural - includes wear liners, supporting structures (if required) and areas of possible structural damage (cracking deformation wear). Additionally, includes maintenance detection (e.g. non-destructive testing for fatigue fracturing) of areas where access to certain structures that is not normally possible while equipment is in service;
- Electrical, control and instrumentation - includes panels and drives that are approaching the end of their useful life or have become obsolete or, where newer technologies can be incorporated.

The high-level deliverables of the FEL4 execution (Phase 4 refit –SR3) includes:

1. Procure long lead items
2. Execute agreed volume mitigation plan
3. Procurement and contract award
4. Manage execution of the work & ensure adherence to Transnet's standards & procedures
5. Test, commission and certify completion of the works
6. Draw up project close-out documentation

For further detail regarding the Scope of Work refer to the Owner Requirements Specification (Z.5200160-ORS).

4. PURPOSE OF THE QUALITY MANAGEMENT PLAN

The purpose of this QMP is to detail the project quality management system arrangement to be applied during execution FEL4 phase of the equipment refit Phase-4, Stacker Reclaimer 3, at the Bulk Terminal Saldanha as follows:

- Define the quality management system approach
- Outline the project quality objectives
- Define the project quality management processes and procedures
- Outline the QMP deliverables and serve as an appendix to the PEP

- Define quality roles and responsibilities (RACI)
- Ensure that the necessary monitoring and control activities are planned, for timely execution by relevant parties as a proactive approach.

5. PROJECT QUALITY REQUIREMENTS

5.1 Execution Strategy

TPT Project Team will adopt an engineering and construction management (ECM) approach, as the single managing contractor. In general, when and if required engineering supply contractors will be procured, appointed and managed by TPT Project Manager.

The suppliers or contractors' contracts will be directly with Transnet Port Terminals, under control of the TPT Project Manager through an ECM contractor, responsible for onsite construction management.

The project quality management execution strategy as described below is defined to support the stated project execution strategy as detailed in the PEP (Z.5200160-PEP).

5.2 Quality Objectives

The following quality objectives have been defined in the table below:

Quality Objectives	Measures	Responsibility
Project Management		
HSE	No LTIs (Lost Time Injury)	TPT Project Manager
Control Project budget	Budget versus actual expenditure	TPT Project Manager
Maintain Schedule	Planned versus actual progress	TPT Project Manager
Quality Management		
Promote quality management awareness to all affected stakeholders	Induction training Quality performance reporting Quality audits	TPT Quality Manager
Verify sub-consultants, suppliers and sub-contractors' compliance to agreed requirements	Inspection results or reports Supplier or contractor audits per schedule	TPT Quality Manager
Site receipt inspection verification and assurance for usage on the site	In process verification audits non-conformance reporting	TPT Quality Manager

Conduct quality audits	Compliance with project audit schedule Audit finding corrective action and close-outs	TPT Quality Manager
Construction		
To construct, works on time, on budget, within quality requirements which meets the projects needs and expectations	Approved budget versus deviation Approved schedule versus deviation Approved quality specifications and standards	TPT/ECM Construction Manager
Commissioning		
To plan for commissioning and handover successfully, on time, on budget within quality requirements which meets the projects needs and expectations	Approved budget versus deviation Approved schedule versus deviation Approved quality specifications and standards	TPT Project Manager, ECM Construction – and Commissioning Manager

NB: The above Quality Objectives shall be monitored and or updated by the relevant discipline lead and communicated in the project progress meetings.

6. QUALITY ASSUMPTIONS

The following assumptions regarding the project quality management system arrangements have been made:

- The TPT Project Manager will define the overall quality strategy prior to implementation.
- The TPT Project Manager will establish processes and procedures in accordance with Transnet Port Terminals PLP requirements for the project.
- The TPT Project Manager will be responsible for managing the performance of all suppliers and contractors in terms of quality.
- If there are any long lead items that need to be procured they will be managed as defined in the procurement plan and in accordance with the requirements as stated in Quality Requirements for Contractors and Suppliers (Ref: *EEAM-Q-009 Rev01*)
- Various sub-consultants, suppliers and contractors will be adequately staffed to fulfil their quality roles in the relevant disciplines.
- All contracted parties will be fully compliant with the quality requirements placed on them

- The costing for quality control (QC) activities for inspectors are based on the principle of single inspections for relevant hold or witness points and no additional inspections for any rejections.
- There are no known pressure vessels or other equipment requiring full accredited approved inspection authority (AIA) or any special investigation services, thus such services are excluded. Should costs be identified for such activities, a prior approval will be obtained from TPT via the change control process.
- Any rejected work, which needs to be redone will be for the Contractors account. Furthermore, no allowance has been made for special investigation personnel.

7. QUALITY CONSTRAINTS

Typical quality constraints shall be identified and managed during the execution of the project, but typically could be, but not limited to the following:

- Lack of understanding of the Transnet Port Terminals prescribed quality requirements by appointed sub-consultants, suppliers or contractors.
- Suppliers or contractor's capability to meet quality requirements as stipulated under Quality Requirements for Contractors and Suppliers (Ref: *EEAM-Q-009 Rev01*) and Engineering / Enquiry Specification.
- Supplier or contractor schedule performance.
- Shortage or lack of availability of competent personnel.
- Multiple areas being worked on at the same time could pose challenges to manage and control quality.
- Supplier quality surveillance in the event that off shore supplier are contracted.

8. PROJECT QUALITY RISKS

The TPT Quality Manager will participate in project risk workshops scheduled on the project to identify quality risks.

Quality risk will also be identified during:

- Design and HAZOP reviews (If applicable, no new designs applicable)
- Equipment FMEA analysis
- Supplier and contractor capability assessments.

Risk will in addition be identified by analysing trends from NCR's, concessions, inspections, assessment and complaints originating from Transnet Port Terminals. Risk will be analysed, reported, documented and incorporated into the project risk register.

9. QUALITY ORGANISATION

The TPT Project Team will provide adequate and sufficiently knowledgeable QA and QC resources for managing quality, taking into account the number of contractors or suppliers, location and proximity of manufacturing facilities/sites and fabrication or construction schedules.

The proposed quality organisation is as depicted in Appendix A of this document.

10. QUALITY RESPONSIBILITY MATRIX

Entity	Company	Quality Area of Responsibility
TPT Senior Project manager	TPT	Overall accountability to Transnet Port Terminals for quality delivery
		Responsible for ensuring the implementation of the project quality management system by all consultants, suppliers or contractors
TPT Quality manager	TPT & ECM	Responsible for ensuring that TPT's QMS requirements are defined and implemented on the project
		Ensure that quality requirements set out by TPT are incorporated within TPT's Quality Management Plan and are adhered to by TPT Project Management team.
TPT Engineering Manager	TPT	Responsible for quality requirements of TPT are implemented on the project
		Responsible for ensuring the ECM is meeting quality requirements
Construction Managers	PC & ECM	Responsible for site and construction quality management
TPT Procurement Manager	TPT	Responsible for supplier quality management on the project
TPT Site quality QA or QC coordinator/s and controllers	TPT/PC & ECM	Implementation of the site QMS requirements

The costs of the above-mentioned personnel have been allowed for within the project budget. Refer to the Basis of Estimate Z.5200160 for detail.

10.1 Roles and Responsibilities

The TPT Quality Team, as depicted in the Organogram (annexure A), will be appointed for the full duration of the project from set-up to handover and will be responsible, inter alia, for the activities listed below. Members within the TPT Project Team, will report directly to the TPT Senior Project Manager, who assumes overall responsibility for the project.

Review Documents:

1) Review Quality Management Plan.
2) Review and ensure that the Quality Control Procedures (QCP) drawn up by the Contractor/Supplier conforms with and will achieve the customer's specifications and requirements.
3) Review the Scope of Work, the Contract Specifications and appropriate National / International Standards, the drawings and the procedures.
4) Review contracts.
5) Review hot and cold commissioning procedures.
6) Review Method Statements (MST).
7) Review welding procedures, codes, and standards.
8) Review of approved WPS and PQR. Witness of welder qualification test (WQT) and procedure qualification test.
9) Review NDT procedures for suitability.
10) Review welders, NDT personnel qualifications and ensure that they are valid.
11) Review and approve heat treatment procedures and dummy charts.
12) Review pressure test procedures and other fabrication / repair procedures.
13) Review, verify material and consumable certificates.
14) Review; verify that the following procedures have been approved welding, repair, NDT, PWHT, Hardness test, Positive material identification, painting and coating.
15) Review; verify the calibration certificates of equipment and instruments such as welding machines, elcometers, shot blast profile gauges and temperature gauges e.c.t.
16) Review; verify weld maps, weld consumable maps.

Inspections During Construction:

1) Verify permit to work.
2) Ensure that incoming products conforms to the specifications stipulated. Contractors quality control checklist for products fabricated off-site to be reviewed.
3) Ensure that welding procedures and maps are being implemented in line with specifications and that checking and testing of welds conform to requirements.
4) Witness of material inspection, welding defect etc. Monitoring Welding activities as per WPS.
5) Performing daily inspections, including stores monitoring, consumable control etc. maintaining a daily diary, completing checklists and producing weekly summary reports for Quality Control Manager and the Operations Manager.
6) Monitoring materials traceability to ensure the right material is being utilized, Test Certificate Numbers and Company codes are being transferred and correctly recorded
7) Ensure that preheat treatment on material is performed if required.
8) Monitor welder's performance and visually inspect welds for defects.
9) Ensure that post weld heat treatment is performed on equipment if required.

10) Ensure that gauging, measuring equipment and other equipment requiring calibration is within the specifications set by the various standards as applicable.

Review NDT on Welds:

1) NDT inspections as per approved NDT procedures and/or applied specifications.
2) Product control inspections, including NDT inspections to be performed at different stages of the production process.
3) Monitoring of Pre heat, Inter pass temperature and inter pass cleaning as per WPS.
4) Visual inspection of completed welds. Monitoring PWHT, Verification of weld repairs work. Coordinated and communicated with fabrication supervisor, welders and inspection personnel.
5) If there is any NDT required on welds request for it to be communicated.
6) Review all and approve, sign off all NDT reports.

Corrosion Protection Shot Blast:

1) Ensure that the shot blast is clean.
2) Ensure that the shot blast profiles are correct before painting commences.
3) Ensure that equipment must be painted within 8 hours after shot blast is completed.
4) Review Corrosion protection Procedures

Corrosion Protection: Painting

1) Use paint thickness meters to test that the contractor has applied the 1st primer to the correct thickness according to Transnet's specifications.
2) Use paint thickness meters to test that the contractor has applied the 2nd primer to the correct thickness according to Transnet's specifications.
3) Use a paint thickness meters to test that the contractor has applied the final coat of paint correctly without any defects and ensure that it is the correct thickness according to Transnet's specifications.
4) Perform cross hatch sectional tests on paint work to ensure that the paint has adhered to the material.
5) Ensure that the equipment is painted the correct color according Transnet's specifications.
6) Ensure that there is insulation between dissimilar materials such as stainless steel and carbon steel.
7) Ensure that there is no corrosion on the equipment.

Inspections:

1) Inspect that all components are installed correctly.
2) Verify name plates are installed on equipment if needed and that they are applicable.
3) Verify As-built drawings.
4) Verify the concessions request, site query e.c.t.
5) Compile inspection reports.

6) Witness that all test that need to be performed on the equipment are done.
7) Perform all inspection checks on check list.
8) Perform inspections on received components and spares to see that there is no damage on components.
9) Ensure that all electrical work/components are installed correctly.
10) Ensure that there are no loose bolts and nuts on equipment's.
11) Ensure that the equipment is safe to use.
12) Ensure that all Transnet's decals, reflective tape and work loading signs are installed on the equipment.
13) Ensure that all required tools and spares are handed over to the port.

Inspection Reports:

1) Inspect construction work, and witness tests as required and sign the relevant Test / Inspection / Records.
2) Promote quality improvement and to highlight deficiencies which may be outside the scope of work e.g.: preservation and protection of materials and equipment, unprotected items in an external environment.
3) To carry out welding inspections, witnessing and releases when required.
4) To carry out any other inspection duties as requested by, and agreed with the Quality Control Manager.
5) Verify painting and coating inspection reports.
6) Issue NCR, s if any procedures weren't followed during the fabrication of equipment.
1) Ensure closure of all NCR's before the equipment is handed over.
2) Perform final commissioning on the equipment and ensure generation of a punch list.
3) Ensure category 1 and 2 punch items are closed before the equipment is handed over for its endurance test.
4) Ensure that the equipment completes its 40 hour endurance test according to Transnet's specifications.
5) Ensure that all category 3 punch items are completed before the final hand over is completed.

Improving Quality:

1) Conduct periodic and systematic inspections audits, based on audit observations such as non-conformance, any other quality related issues, take preventive actions and avoid such things occurring in the future.
2) Conduct quality related meetings with inspectors, other department members, and look for ideas to improve quality or any quality related concerns they have in their job, take necessary preventive actions.
3) Any complaints from clients or feedback from clients, take necessary preventive actions.
4) Technical information related to quality; circulate to all concern department members.

Hand Over Documents

1) Verify that all hand over documents are complete, correct and signed off.
2) Review and ensure that all data books are handed to the terminal including parts lists and operational manuals.
3) Ensure that the personnel using the equipment are properly trained.

11. REFERENCES AND STANDARDS

The following references and standards are applicable to the project:

Standard Number	Description
ISO 9001:2015	Quality Management Systems - Requirements
ISO 10005:2018	Quality Management – Guidelines for Quality Plans
ISO 17025:2017	Competence of Testing and Calibration Laboratories
ISO 9000:2015	Quality Management Systems -Fundamentals and Vocabulary
Z.5200160 - ORS	ORS – Owner Requirements Specification
Z.5200160 - PEP	Project Execution Plan
EEAM-Q-009 Rev01	Quality Requirements for Contractors and Suppliers
Various as listed under item 13.3 of this document.	Transnet Port Terminals - Quality Procedures

12. INTERFACE MANAGEMENT AND INTEGRATION

The PEP shall adequately address the integration levels of all affected functions with Transnet Port Terminals and other stakeholders including:

12.1 Lines of Communications

The lines of Communication between the TPT Project Team and external stakeholders (contractors, sub-consultants, public etc.) shall be defined in the Communication Management Plan.

12.2 Project Change Management

The PEP shall adequately address how all technical changes on the project are going to be managed, this includes but not limited to:

- Project changes notices (PCN)
- Project Managers Instruction (PMI)

- Design changes
- Field engineering queries (FEQ)
- Document changes
- Concession leading to a change as applicable
- Deviations.

13. QUALITY ASSURANCE STRATEGIES

13.1 Project Quality Management Planning

The TPT Project Team will provide the overall management framework within which the project shall be executed. This framework consist of guidelines and standards that provide sub-consultants, suppliers and contractors with the minimum requirements of **'what'** is required for the execution of the works.

The TPT Project Team will provide all its services by following the Transnet Port Terminals PLP project management approach, and shall where necessary implement and/or supplement the guidelines, standards and procedures with project specific management procedures as required.

The TPT Project Team will define the project quality management system by determining the:

- Project quality policy
- The applicable standards, guidelines and procedures
- The quality objectives and responsibilities
- Implement them by means such as quality planning, quality control, quality assurance and quality improvements for execution.

The TPT Project Team shall issue Quality Requirements for Contractors and Suppliers (Ref: *EEAM-Q-009 Rev01*) for suppliers and contractors to understand '**what**' is required for the execution of the work they have been contracted for.

This specification shall form part of the contract between Transnet and the suppliers or contractors.

The appointed sub-consultants, suppliers and contractors shall implement their own procedures on **'how'**, work shall be designed, engineered, manufactured and constructed during execution of their scope.

13.2 Project Quality Assurance

The quality assurance programme shall provide a systematic and cost effective means of ensuring that the TPT Project Team activities meet the required systems, standards, specifications, works information or scope of work, engineering drawings and complies with applicable government acts, regulations, codes and applicable permits as may be used.

13.3 Procedures

The TPT Project Team will ensure that processes or procedures and plans (indicative) for the following activities or processes as detailed in table below are implemented during execution of the project:

Project Management Plans	
Project execution plan	Risk management plan
Safety management plan	Environmental management plan
Communication management plan	Basis of estimate
Engineering Plans and Procedures	
Engineering management plan (N/A)	Engineering drawings procedure (N/A)
Procedures for preparation design criteria (N/A)	Procedure for checking engineering documents (N/A)
Preparation of equipment lists (N/A)	Engineering change control (design changes and field engineering queries) (N/A)
Preparation of an engineering requisition (N/A)	Drawings master mark ups
HAZOP procedure	Engineering design, planning and control (N/A)
Technical tender evaluation procedure	Design review guidelines and checklists (N/A)
Quality Management Procedures, Plans and Specifications	
Quality management requirements specification for suppliers and contractors	Supplier and contractor assessment
Project quality plan and site quality management plan	Quality management reporting
Preparation of project quality documentation	Quality control procedure
Internal auditing	Concession request
Quality management reviews	AIA services
Non-conformance management	iPas suite/iPas DM report manual
Procurement Management Plans, Procedures and Guidelines (To be aligned with the applicable Transnet Port Terminals Processes and Procedures)	
Procurement management plan (procurement strategy)	Contract award

Procurement package plan	Contract claims
Enquiry document preparation	Contract variations
Selection of tenders	Process progress payments
Manage tendering process	Contracts and project close-out
Receiving and opening tenders	Vendor surveillance procedure
Evaluate tenders	Progress monitoring and expediting
Construction Management Plans, Procedures and Guidelines	
Materials management plan	Field finance
Construction management plan	Site quality control
Construction facilities plan	Work package procedure
Site security and access control	Workface planning procedure
Site induction	Construction engineering
Construction planning	Contracts administration
Site organisation	Site materials management procedures
Site meetings	Material management warehousing
Site visit fact finding	Site job bulletins
Site administration	IT procedure
Industrial relations	Site quality manual
Construction administration procedure	Construction close-out
Field human resources	Construction punch listing
Site project controls	Construction access
Commissioning Management	
Commissioning plan	Pre-commissioning scheduling
Commissioning functional guide	Field reports
Commissioning organisation and standards	Facility incident report
Commissioning procedure manual	Temporary alterations log
Commissioning manual for inspection testing and trials	Field correspondence control
Constructability implementation	Conference meeting and trip reports

Construction, pre-commissioning, commissioning and operation interface	Daily log
Component system turnover - construction to pre-commissioning	Pre-commissioning progress reporting
Component system turnover - pre-commissioning to commissioning	DCS field change notice
Scoped drawings and turnover packages	Service representative call out and monitoring
Safety tagging	Equipment maintenance control
Work authorisation	Pre-commissioning technical program
Punch list procedure	Test equipment control

Suppliers or contractors shall plan and implement their own procedures required for the execution of their scope, subject to approval of TPT Project Team.

13.4 Contractor and Supplier Quality Documentation Requirements

All Transnet appointed suppliers or contractors shall list all documents required for the scope of work or package and shall as a minimum provide the following project specific documents, as applicable, if not already defined in the Contractor Documentation Schedule (CDS) submitted with the tender enquiry:

- Project quality policy
- Project quality objectives
- Project quality plan
- Project organisation chart
- Project RACI matrix
- Job descriptions and CVs of quality personnel to be deployed
- Design (EMP, design QCP and equipment criticality list)
- Installation inspection and testing plan
- Construction inspection and testing plan
- Commissioning and take-over
- Project QCPs – per work package (e.g. civil, architectural, services, electrical etc.)
- Project QC procedures per individual activity identifying specific inspection and test methods and acceptance criteria
- Project inspection and test plans or QCPs per individual activity that plan and assure quality and define inspection intervention levels

- Project verification records per individual activity as referenced on QCPs/ITPs (e.g. certificates of conformance, inspection reports, inspection checklists, etc.)
- Manufacturing, construction and commissioning data books.

14. ENGINEERING AND DESIGN QUALITY MANAGEMENT

14.1 Preliminary Design

As this is a refurbishment project and components will be replaced on a 'like for like' basis, there will be no design work involved. If for any reason design work is required the below-mentioned will apply.

Preliminary design focuses on developing the information required to obtain quotations on pre-purchased equipment packages.

TPT Project Team will provide the project design criteria. The design criteria present project specific standards to be used in the design process. The standards can be applicable to the project, national, industry and internal standards or statutory laws. In effect, the design criteria describe how the project's end product will be designed.

The design criteria and the basis of design are key inputs to the design process. Based on these documents, each discipline initially produces:

- Concept drawings
- Standards procedures and specifications
- Records and Reports (documenting the results of design studies and the evaluation of design alternatives).

Generally, the drawings, procedures, specifications and reports are verified and approved for consistency and conformance with the design criteria, and other drawings, procedures, specifications or reports before being issued to the Client for comment or approval. In addition, equipment specifications are verified and approved for conformance with applicable general specifications.

14.2 Engineering Document Review

Each drawing and document that is reviewed will be reviewed for consistency and conformance with:

- Design acceptance criteria
- Overall project objectives
- Scope definition documents
- Other drawings by the same discipline in the same area
- Other drawings in other areas (especially interfaces)

- Project drawings design template
- Clarity of instruction and language used.

All drawings, documents, lists etc. will be reviewed prior to being issued for tender and fabrication or construction.

14.3 Tender Document Review

The package engineer will manage the change process for:

- Initial issue for construction (if the drawing has been revised since the tender issue)
- All subsequent issues (if the drawing has been revised).

14.4 Drawing and Document Review Participants

Participants in the review of a set of contract drawings will be selected based on the drawings being reviewed in accordance with the RACI matrix. Potential participants include, but not limited to:

- TPT Senior Project manager
- TPT Construction manager
- TPT Engineering manager
- TPT Quality manager
- Project engineer (civil, structural, electrical as applicable)
- TPT project discipline engineers (civil, structural, electrical as applicable)
- Responsible engineer (civil, structural, electrical as applicable)
- Quantity surveyor
- Technical specialists (as required).

14.5 Review of Technical Specifications

Prior to being issued for tender, the project engineering manager is responsible to review and approve all technical specifications and other engineering documents for consistency and to ensure:

- The technical document complies with the overall project scope and objective
- Related drawings and other documents are included
- Client specific requirements are included
- Completeness and clarity of the document
- Alignment with design acceptance criteria.

14.6 Design Reviews

As this is a refurbishment project and components will be replaced on a 'like for like' basis, there will be no design work involved. If for any reason design work is required the below-mentioned will apply.

Formal design reviews with the OWNER participation will be conducted. The first review is typically carried out during basic engineering and determines that the main design concepts are correct.

The second review typically occurs after the detail design has been substantially completed and addresses all design issues including constructability and maintainability.

- Review 1 (approved for detailed design): concurrent multidiscipline signs off through a formal design review of reports or layouts to allow start of detailed design
- Review 2 (approved for construction): Formal design review used to confirm that output or deliverables could be issued for construction and signed from originator through to professional engineer or project manager with the appropriate issued for, stamp displayed.

Following internal review, designs shall as applicable be submitted to the OWNER for review and approval before construction commence.

Evidence of all design reviews must be maintained.

14.7 Document Change Control

All document changes shall be in accordance with the approved procedure.

15. PROCUREMENT QUALITY MANAGEMENT

15.1 Overview

The overall approach to quality management for the procurement of goods and services consists of:

- Input into the adjudication of suppliers.
- Ensuring that suppliers have plans for controlling work processes.
- Monitoring their compliance with the plans.

In summary, the suppliers will be responsible for the quality of their work while the TPT Project Team will be responsible for verifying and monitoring that the suppliers are fulfilling their obligations.

Quality management activities during the process of procuring goods and services consists of:

- Defining quantitative bid evaluation criteria for use on all purchase packages (bid analysis, evaluation and recommendation)
- Ensuring that all of the technical and commercial requirements are adequately defined in the bid documents
- Auditing or assessing potential suppliers or contractor of services
- Selecting suppliers or contractors that best meet the evaluation criteria
- Verifying that each suppliers or contractors is in conformance with his QMP as defined in thepurchase order
- Verifying the performance of each supplier or contractor against the specification and QMP during the delivery of the goods or services as called for in the purchase order or contract.

The responsibility for managing supplier or contractor quality is shared between engineering, procurement and the quality manager.

Engineering is responsible for defining the specific quality requirements applicable to pre-purchasedequipment packages and for determining the technical acceptability of bidders.

The quality manager is responsible for reviewing the commercial recommendation of bidders and inspection or surveillance of suppliers. As required, engineering will assist in these recommendations.

15.2 Quality Assurance Activities

A quality surveillance program will be developed by the TPT Quality manager, to monitor and evaluate supplier or contractor procedures, methods, products and records to ensure conformance to specified requirements.

This program will be administered by the TPT Quality manager, directing discipline specialists, field representatives and quality inspectors employed for verification and witness inspection activities.

The quality surveillance program will commence upon award purchase order and/or contract and will include but not limited to the following activities:

- Evaluating suppliers' or contractors' QA and QC programs
- Evaluate suppliers' or contractors' special processes for validation and effectiveness
- Monitor the preparation of inspection and test plans (ITPs) by suppliers and contractors.
- Monitor preparation of data books by suppliers and contractors.
- Monitor and review material certification, traceability and documentation by suppliers and contractors.
- Technical review and acceptance of design documents
- Supplier and contractor quality surveillance
- Review and acceptance of ITPs

- Review and acceptance of data packs
- Non-conformance applications, which are in effect changes to specification requirements
- Technical queries initiated for technical review and resolution by the company representative
- Direct material substitution requests by suppliers and contractors.
- Data book compilation
- Package change management (deviations and concessions).

15.3 Quality Assurance Levels

During the procurement cycle, the TPT Project Team will specify in the technical specifications, the material classification of all components and/or sub-assemblies as required by the specifications. A criticality analysis shall be used to determine the need for and extent of QCPs including third party intervention points.

The criticality analysis shall evaluate the combined effect of the likelihood of failure and the consequences (impact) in order to determine the level of quality assurance, quality control and inspection and testing required in order to optimise the use, effort and effectiveness of the quality management program and resources during design, manufacturing, construction and commissioning.

The appointed designer shall define the criteria on which the criticality assessments should be based with the relevant criticality rating definitions.

The criticality rating assigned, shall determine during design, manufacturing, construction and commissioning and as applicable the level of:

- Design and engineering management, QA, validation and review (e.g. design change approvals, independent third party design review, Owner design review or approvals)
- Level of meeting intervention (e.g. kick-off, post award clarification, pre-manufacturing kick-off, pre-inspection meeting, construction kick-off meeting)
- Level of document review and checking (e.g. for approval, for review and comment or information, self-check, discipline check, inter-discipline check or independent check)
- Level of QC to be applied (e.g. if an ITP or QCP is required or not, and phases for which required e.g. design, manufacturing or installation)
- Level of inspection to be conducted (e.g. no inspection in case of commercial quality or resident inspection)
- Level of inspection intervention (e.g. surveillance, witness and hold inspection)
- Level of material certification (e.g. type A, B or C certificates – ISO 10204)
- Level of traceability (e.g. labelling, hard stamping, stencilling)
- AIA involvement or not.

16. CONSTRUCTION AND COMMISSIONING

The contractors shall plan and document and implement procedures to control manufacturing, construction and commissioning processes and submit the latter for approval to the TPT Project Team.

Planning for construction and commissioning shall include but not limited to the following:

- Access permits
- Takeover or handover certificates
- Punch and back punch listing
- Availability of engineer approved QCP or ITPs, inspection and testing procedures and related quality verification records
- Availability of engineer approved site erection plans, procedures, method statements, commissioning procedures and plans (if applicable)
- Availability of trained and competent personnel
- Competent and qualified QC inspection personnel
- Calibrated inspection and measuring equipment with substantiating calibration records
- Materials and/or equipment certified as released
- Availability of AIA.

The Contractor shall introduce a process for verifying (in conjunction with the TPT Project Team) whether all the planning requirements for the works have been met prior to commencement of work.

17. QUALITY AUDIT SCHEDULE

Project Audits shall be conducted with the intent to ensure that:

- Quality management activities have been identified and scheduled in the work plan or schedule and completed as planned
- Action items resulting from quality management activities are being acted upon
- Quality management activities actually add value by improving quality.

Audits shall be conducted as follows:

- By the Contractor Quality Manager
  An initial quality audit is conducted once quality management activities have started. The results of the initial audit will determine the frequency of subsequent audits, but in general audit shall be conducted as follows:
  - Project execution(with further follow up audits as required based on audit results)
  - Close-out review before project close-out
- By the TPT Quality manager
  - Contractor or supplier capability assessments (before contract award)
  - Supplier or contractor audits (formal) shall be conducted periodically by way of reviews and follow up on action identified for corrective action

- By Transnet - Gate Review Team
  - Audits by Transnet - Gate Review Team or appointed auditor shall be planned for during the planning and execution of the project up until the Project close out phase.

The TPT Quality manager is responsible for coordinating the audits and will involve technical specialists as required. An audit plan shall be submitted for approval by TPT Project Team.

18. QUALITY CONTROL STRATEGIES

Quality control planning shall be an integrated part of the project management process and covers the entire engineering, procurement and construction management cycle and include as applicable for each phase of the execution the establishment of the following:

- **A project quality control plan (PQCP)** ensuresthat all the project functional or discipline specific management and control plans and procedures required for successful execution of the project have been defined and agreed with theTPT Project Teamand is used to track delivery of the latter
- **Internal design reviews** In addition to frequent, informal design reviews, there are typically two formal design reviews. The first review (Review 1 approved for detailed design) is typically carried out during basic engineering and determines that the main design concepts are correct. The second review (Review 2 approved for fabrication or construction) typically occurs after the detail design has been substantially completed and address all design issues including constructability and maintainability
- **Internal squad reviews** of all project deliverables are conducted to ensure that all relevant role players interrogate and verify the technical correctness and validity of all project deliverables to ensure compliance. Deliverables may be subject to multiple internal and client reviews cycles before they are approved for use.
- **Set up reviews** are conducted to ensure that all the prescribed requirements for a specific phase of a project are verified on initiation of the project in order to identify and remedy any deviations and omissions
- **Project reviews** are conducted to ensure that the overall project objectives (schedule, budget and quality) and KPIs are met. Project reviews and progress evaluations cover all the project processes and provide an opportunity to assess the achievement of the project objectives. The outputs from these reviews and evaluations provide significant information on the performance of the project as well as any mitigations that should be implemented and as inputs into future management or project reviews
- **Contractor and supplier surveillance programmes** are developed by the TPT Quality manager, to review and evaluate suppliers and contractors'procedures (including QCPs), methods, products and records (including data packs) to ensure conformance to specified requirements. This program is administered by the project quality manager, directing discipline specialists, field representatives and the quality control inspection agency for verification and witness inspection activities.
  TPT might have their own surveillance programmes.
- **Inspection and test programmes (ITPs) or quality control plans** (QCPs) covering design, manufacturing and execution as applicable, supplied by suppliers and contractors are reviewed and technically evaluated based on the criticality of items or equipment to ensure that the latter are manufactured or installed and constructed in accordance with the design requirements.

Inspections using checklists for guidance and trend analysis are key elements of quality control. QC verification, witness inspection and quality surveillance activities is carried out in accordance with the defined quality surveillance programme to ensure compliance with the relevant project specifications, codes and contract requirements.

19. QUALITY CONTROL TOOLS AND TECHNIQUES

19.1 Quality Control in Design and Engineering

The TPT Project Teamwill verify that sub-consultants, suppliers or contractors have implemented design plans (or equivalent controls) for all items that have been classified as major or critical.

These plans define the design and engineering quality management strategy to control quality in engineering.

19.2 Quality Control Plans (QCPs)

Prior to the start of execution all the Contractors QCP's shall be reviewed, revised (if required) and approved. See Annexure F for QCP example. QCPs are the activity specific documents to plan the assurance, control and verification of quality during fabrication, installation and testing and shall be compiled by the supplier or contractor for each unique manufacturing, construction or installation and commissioning activity, whether temporary or permanent works, or as required by the TPT Project Team engineer and shall describe in the following order:

- Process, inspection and testing activities in chronological order
- Process control (method statements or procedures) and quality control procedures
- Applicable design or contract specification
- Inspection intervention requirement
- Quality verification records (by document number) used to provide objective evidence that the specified quality characteristic has been achieved
- Inspection or defect identification status
- Traceability to works and work commencement or completion date
- Contractor verification and engineer endorsement.

TPT will forward all the project Quality Control Plans to TPT Quality Manager for review.

For manufacturing and execution activities the suppliers or contractors may utilise their own, or their sub-suppliers, standard QCP, provided that they account for providing the requirements as stated above, and facilitate the documenting of intervention requirements of suppliers, sub-supplier, the contractor, sub-contractor, the TPT Project Teamand the AIA.

All QCPs shall be submitted to TPT Engineering for approval and insertion of the engineering and/or AIA inspection requirements and approval of the proposed inspection or testing verification records prior to their implementation.

Submittal dates of QCPs to the TPT engineer will be documented in the Contractor Documentation Schedule (CDS).

Works associated with a QCP will not commence until the latter has been approved by all identified signatories.

A Register of QCPs will be developed by the supplier or contractor throughout the lifetime of the project with the following:

- QCP document and revision number
- QCP titles (project name and project number)
- The relevant project number
- QCP planned and actual submitted status and dates to engineering
- Approval status
- QCP revision status.

The register will be provided in electronic format to TPT Engineering on a period to be agreed on.

QCPs will be completed as the work progresses.

All QCP's will where applicable be supported by records or data logging sheets, inspection reports or field inspection checklist (FIC).

TPT Engineering reserves the right to review QCP's at any stage during execution of the works to ensure progressive completion of the latter.

Any changes to QCP's after the work has started shall be approved byTPT Engineering and the prior working copy or version shall be retained and attached to the latest approved version for record of any activity to the stage prior to change.

Alternately minor changes to QCPs shall be done by marking up or adding and approval by signature next to change by relevant contractor representative and TPT Engineering.

19.3 Supplier Quality Control

Suppliers of major and critical equipment shall implement QCP's for management of quality of the equipment.

Supplier QCP's shall be reviewed and approved by the TPT package engineer responsible for the package prior to start of any work.

The package engineer shall indicate the required minimum witness and hold inspection that will be conducted by the TPT Project Teamand TPT.

19.4 Construction Quality Control

While the site quality control plan provides the overview of control on the execution of the works, the inspection of more specific items shall be controlled by the use of construction or installation checklists, which provide a more detailed guideline of points to be reviewed.

The Contractor shall provide for a series of such check lists for use by the site management personnel. If required, these lists may be adapted to specific site requirements, or new ones developed, however, these variations should be reviewed or approved by the TPT construction manager and the site quality controller.

Once an item has been checked, it may be necessary to release it for further action by other contractors or disciplines, e.g. concrete plinths used for supporting structural steel, which is in turn used for supporting equipment or pipelines.

In these cases the relevant inter-disciplinary area release note shall be raised. The checklists shall be used on an attributed basis, whereby the persons responsible for the checking or inspection shall sign and date the applicable list in order to confirm that the checks have been carried out and are satisfactory.

All original checklists shall be retained for insertion in the data pack, held by the contractor, but they will not be considered valid unless signed by all the relevant inspection parties. Copies of all signed checklists shall be retained in document control.

20. PUNCH LISTING

When a contractor has substantially completed the agreed area or the defined building or infrastructure, it is incumbent on him to inspect that area in accordance with the latest revisions of the drawings and specifications in his possession, prior to calling the site construction management staff for the formal punch list inspection.

If, after the contractor has inspected his own work and that of his sub-contractor, he then considers the work to be substantially complete and of a satisfactory standard, he shall request the TPT-construction manager for an inspection giving an agreed period of notice. If the contract is such that a separate contractor represents each discipline, e.g. civil, mechanical and electrical, then measures will have to be taken to co-ordinate the disciplines' inspections to cover the required areas. This is necessary as the ultimate site inspection, prior to TPT Project Team's inspection, may be on a multi-disciplinary basis. If the contractor(s) requesting inspection has items outstanding, these may be listed with the inspection request form. However, such outstanding items shall be of a minor nature expected to be completed by the requested inspection date.

21. INSPECTION RECORDS, REPORTS, EQUIPMENT AND CONSTRUCTION DATA BOOKS

Suppliers or contractors shall be required to provide documented proof that their work has been manufactured or erected in accordance with the latest drawing revisions, to the agreed contractual standards and specifications and that all inspection and contractually agreed testing has been carried out and approved by all relevant inspection parties.

The quality verification records that substantiates conformity of the works shall be identified and listed for all works in a data pack that shall be submitted to Transnet on delivery (for material and equipment) or completion of the works.

The initial layout and index for the data pack shall have been agreed at the same time as the QCP.

The supplier or contractor shall ensure that data packs are compiled and signed off progressively, in order to ensure the minimum delay in presentation of the document prior to final completion.

The supplier or contractor shall complete a detailed Contractor Documentation Register (CDR) that will specify all document deliverables for all functions or disciplines and for all phases of the project and to be handed over to Transnet on completion of the works.

The Contractor Documentation Register (CDR) shall form the basis of monitoring contractor performance on document delivery and reporting of progress.

The supplier or contractor shall provide record storage facilities for all documents and verification records that will ensure:

- Protection from damage due to fire, theft or deterioration
- Controlled access by authorised personnel
- Controlled storage conditions such as temperature, humidity and air conditioning.

Records shall be filed in accordance with a system that suites the different types of works and indexed in order to facilitate ease of retrieval of records.

Records shall be made available at the supplier or contractor record facility for review by TPT Project Team as and when required.

22. FINAL HANDOVER, TAKEOVER AND ACCEPTANCE

Final handover and acceptance shall take place on completion in compliance with the quality and contractual requirements and upon final acceptance of the data pack by TPT Engineering via duly signed and approved certificates.

22.1 Contractor Initiated Handover

The contractor shall develop, document and implement a process for effective handover of the work as set forth in the contract.

The contractor shall upon completion of the contractual works:

- Verify that work is complete and conformant
- Ensure that a complete data book demonstrating compliance with the contract is compiled
- Produce an index of all handover quality records
- Formally apply to TPT Engineering for a request for handover for the works.

TPT Engineering shall upon application perform a review of the:

- Data book completeness
- Completed as built records
- Change management documentation (if applicable)
- Defect management documentation (if applicable).

Based on the results of the review, TPT Engineering will either accept or reject the request for handover.

Where handover has been rejected the contractor shall undertake the necessary rework and reapply for handover as per the contract.

When accepted, TPT Engineering will issue a formal takeover certificate.

22.2 TPT Project Team Initiated Takeover

Where the TPT Project Team requires to take over the works or a portion of the works, the TPT Engineering will identify the work or portion thereof and inform the contractor accordingly.

When the agreed portion of the work is complete and conformant the contractor shall process as per section 18.1 above and TPT Engineering will issue the relevant certificate.

23. NON CONFORMANCE MANAGEMENT

All non-conformances that occur during the course of supply, fabrication or construction, will be processed by the supplier or contractor such that specification compliance is achieved. A copy ofall supplier or contractor NCR, with proposed corrective action or disposition will be reviewed and approved by:

- TPT Quality manager
- TPT Engineering
- Company's applicable technical representative
- Consultants (engineer of record) as required
- Client when applicable.

Product or items not conforming to specified requirements shall be immediately identified, segregated, tagged or marked as such by the supplier or contractor using a formal documented system.

The parties will evaluate the potential for adverse impact on the project. The NCRs will be regularly reviewed at suppliers or contractor premises as part of the quality surveillance programs, to verify effective control and close-out.

Non-conformances that occur as a result of audit, will be recorded on a non-conformance report (NCR) by the audit TPT Project Teamand will be managed from corrective action and preventative action, to close-out by the supplier or contractor. These non-conformance reports will be regularly reviewed at suppliers or contractors premises as part of the quality surveillance and audit programs, to verify effective control and close-out.

Supplier or contractor requested disposition of non-conformances which would result in a specification deviation will be notified in writing to the project quality manager, by returning the non-conformance report with requested deviation as an action item. The TPT Quality manager will coordinate an appropriate review which includes the technical, regulatory, health and safety and environment with the engineering manager or the construction manager and the area or discipline manager. The result will be presented for approval to the TPT Engineering manager or the TPTconstruction manager when required.

24. CONCESSIONS

Where a consultant, supplier or contractor requests a concession or waiver to deviate from the requirements of the purchase order, specification or standard as defined by the designer and conditions of contracting, the consultant, contractor or supplier shall raise the request with the TPT Engineering manager and project manager and the request shall be captured in the concession register.

The concession requests shall clearly identify all elements of the proposed concession together with any resulting technical, commercial and/or schedule impact or any benefits in cost saving to Transnet which does not have a negative effect on the project and to the design life.

No concession or waiver shall be implemented without formal written approval by TPT Engineering manager and TPT Project manager.

The completed original approved concession shall be updated in the concession register and included in the data pack.

25. DEFECT LIABILITY MANAGEMENT

Patent and Latent Defects

Adequate terms and conditions shall be included in the contracts of all suppliers or contractors for the management of defects discovered during construction and the defect notification period.

Contracts shall in addition provide for management of defects in line with applicable industry specific workmanship standards (e.g. model preamble of trades).

26. SUPPLIER QUALITY MANAGEMENT

26.1 Long Lead Items

Long lead items will be identified. The quality management systems to be implemented shall be based on the criticality of the relevant items. All the QMS system and/or processes as described in this plan will also be applicable to manage these items.

The relevant QCPs for the procurement of long lead items shall be approved by the TPT Project Team in advance to placing the order (during procurement process), in order to ensure that suitable quality control arrangements are applied.

26.2 Supplier Audits

Supplier audits shall be conducted as soon as an order or contract is awarded and priority shall be given to suppliers of critical and major equipment.

26.3 Contractor Documentation Register (CDR)

Documentation requirements for all enquiries and contracts shall be defined and documented via a Contractor Documentation Schedule (CDS) to be issued for each work package.

The package engineer shall ensure that Contractor Documentation Schedule (CDS) is completed for issue with each enquiry or contract or have been formally agreed with the supplier or contractor before order or contract placement.

26.4 General Quality Control

Planned surveillance and inspection for off shore equipment will be accomplished by the appointment of a third party inspection company for all long lead items classified as critical work packages. If available, in house inspection personnel will be used for major and minor long lead items.

Only competent inspectors, in their specific disciplines, will be used to monitor conformance to quality plans. The products and services criticality analysis shall be used to determine the need for and the extent of QCPs.

Critical products and services are those whose failure will result in significant consequence with respect to safety or production loss or delays or costs. Major products and services are those whose failure will result in significant consequence with respect to production loss or delays or costs.

26.5 Quality Control Plans and Data Books of Contractors / Suppliers

QCPs will be created with various levels of inspection requirements based on historical knowledge, cost or complexity of the supplied long lead products by the suppliers or contractors

These QCPs will consist of inspection sheets and plans for the inspector for every piece of long lead equipment to be supplied with the appropriate intervention positions.

26.6 Quality Review of Contractor's / Supplier's Programmes

The TPT Quality manager will review every contractor / supplier enquiry document for quality requirements and then perform a review of the selected contractor's / supplier's quality management system as required.

26.7 Inspection of Fabrication or Supply

Based on the inspection level, inspection will be performed on packages. Additional items will be reviewed at the contractor's / supplier's site to ensure that they fully comply with the quality requirements.

26.8 Inspection on Receipt of Goods

On delivery of long lead items to site, every item will be inspected to ensure that there has been no damage in transit.

An additional quality programme will be developed for site work and will be implemented by the site supervisors with periodic inspection from the TPT Project Team. This will include quality activities in terms of final inspection and punching, acceptance of data books and performance testing, handover and training, operating and maintenance (O&M) manuals, etc.

27. OFF SHORE PROCUREMENT

Special care and Quality Control measures to be put into place for Offshore Supplier's Quality surveillance for items procured off shore shall be planned for. The following minimum requirements shall be applied to all equipment procured offshore:

- Supplier capability assessments to be conducted before contract award to validate the tender submissions and identify any risks related to achievement of quality.
- TPT review of supplier QMPs, QCPs and quality checklists of critical identified components, throughout the fabrication process.
- Final quality check by TPT prior to taking delivery of the component.

28. EXTERNAL QUALITY ASSURANCE OR CONTROL

28.1 Inspection and Testing Laboratories Services

When required, the use of independent inspection and testing laboratory services shall be identified by the Contractorand formally communicated to TPT Project Team, who shall be responsible for contracting and payment for such services as provided. The TPT Project Team will verify the following:

- Testing laboratories are accredited by a recognized accreditation body to ISO 17025 as competent to conduct the required testing
- Reports are submitted to TPT Engineering indicating all observations an test results in compliance or non-compliance with the contract requirements
- Supplier or contractor provide samples of materials, design mix, equipment, tools, storage and assistance as requested
- Request for retesting due to non-compliance with the specified requirements.

Where contractors are required to use independent inspection and testing laboratory services they shall be subject to the same control as those specified above, however the cost related to the use of such services shall be borne by the contractor.

28.2 Third Part Inspection Agencies

When required, the use third part inspection agencies shall be identified by the Contractor and formally communicated to TPT Project Team, who will be responsible for contracting and payment for such services as provided.

The TPT Project Team will verify the following:

- Accreditation of such agency
- Competence of the assigned inspection personnel for the specific assignment
- Inspection Reports are submitted to TPT Engineering indicating all observations an test results in compliance or non-compliance with the contract requirements
- Invoices for payment of services.

Where contractors are required to use third party inspection services they shall be subject to the same control as those specified above, however the cost related to the use of such services shall be borne by the contractor.

29. CONTINUAL IMPROVEMENT

The TPT Quality managerwill collate and analyse all NCRs on the project in an ongoing basis with the aim of identifying trends and identifying opportunities for improvement.

Information of NCRs raised on site related to quality of supply shall be feedback to the relevant suppliers and quality inspectors to prevent recurrence.

30. PROJECT QUALITY MEETINGS AND REPORTING

Reporting related to quality shall be done during all scheduled project progress and technical engineering meetings for site and off site work packages.

Formal quality reports shall be submitted on a monthly basis to Transnet Port Terminals as part of the overall project monthly progress report.

Ad hoc reports related to quality inspection shall be communicated to the project should concerns or deviations be noted.

The requirements for quality reporting shall include as applicable, but not limited to the following:

- Summary of quality performance including achievements and major quality problems
- Audits conducted on the works and summary of findings

- List of approved QCPs/ITPs for the works
- Latest document register (contractor document register)
- Latest Contractor Documentation Register (CDR)
- Updated non conformities (NCR) register
- Major quality problems
- Design changes – design change register
- Concessions - register
- Inspections performed (inspection register)
- Inspection schedule (forward view of at least two weeks)
- Photo records and logistics
- Data book status report
- Quality incident management.

Third Party Inspection Reporting (If applicable and required)

Third party inspection providers shall provide reports in accordance with the contractually agreed time frames, on matters being executed within the project schedule as planned and highlighting any deviations or potential risks to the project.

31. PROJECT HANDOVER AND CLOSE-OUT

The TPT Project Manager will implement a project close-out management plan to define the requirements for closure and in order to close-out the project in a controlled and consistent manner.

31.1 Handover, Operations and Maintenance

Upon completion of the project, the facility will be handed over to Transnet and the operation and maintenance of the facility will be the responsibility of the Terminal Operator. The handover certificates will be signed by TPT representative and copies shall be included in the final project documentation to be handed to Transnet Port Terminals.

31.2 Administrative Closeout

Administrative closure will consist of documenting project results to formalise acceptance of the product by Transnet. It includes collecting project records, ensuring that they reflect final specifications, analysing project success, effectiveness and lessons learned, and archiving such information for future use. Administrative closure is an ongoing process which will be dealt with as each phase of the project closes and not left until the end of the project. This will ensure that important and useful information is not lost.

31.3 Records Management

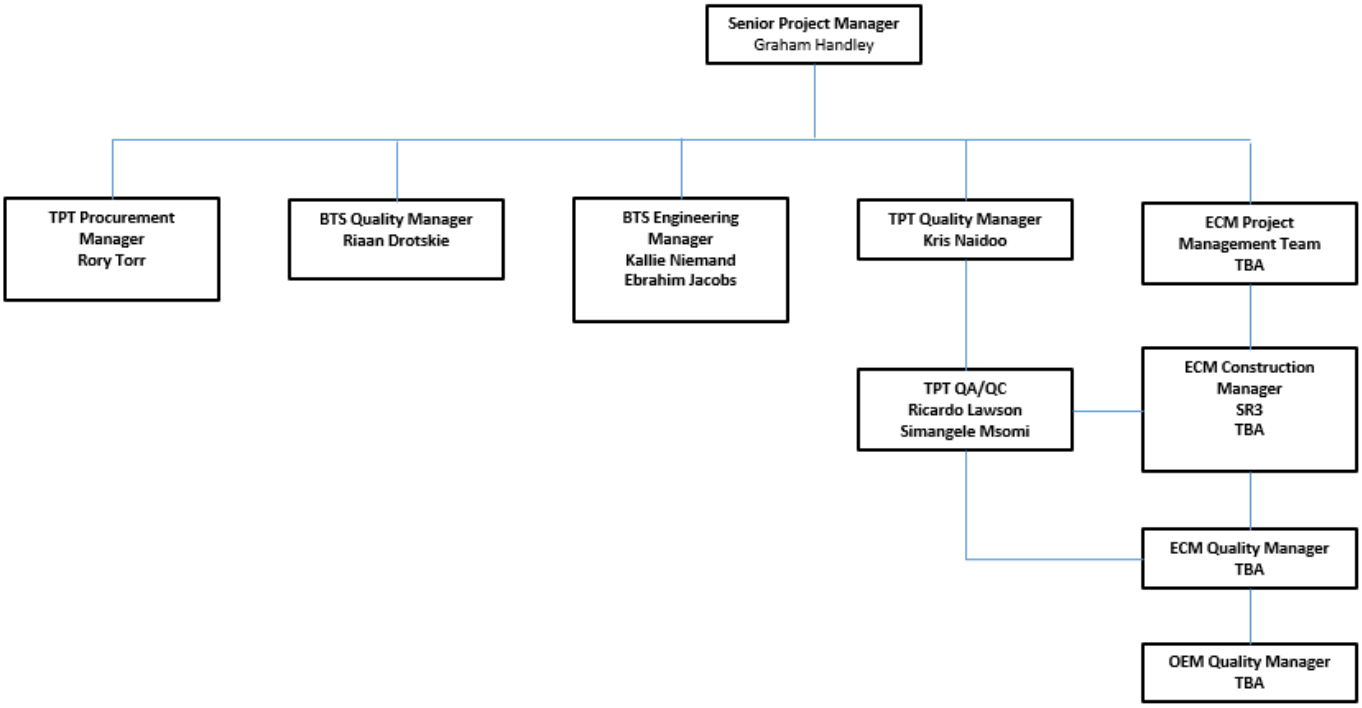
A complete set of indexed project records will be prepared for archiving by the appropriate parties. Any project specific or program wide historical databases pertinent to the project will be updated. Particular attention will be paid to archiving of financial records.

31.4 Contractual Close-Out

Contract documentation includes the contract itself along with all supporting schedules, requested and approved contract changes, any seller developed technical documentation, seller performance reports, financial documents such as invoices and payment records and the results of any contract related inspections or audits. The contractual terms and conditions will be complied with where they prescribe specific procedures for contract close-out. This will include formal written notice that the contract has been completed.

32. APPENDIX:

32.1 A - Typical TPT - Quality Organisation



32.2 B - Typical Contractor - Quality Organisation

To be submitted by the contractor to TPT on appointment for review and acceptance.

32.3 C - EEAM-Q-009 - QUALITY MANAGEMENT SPECIFICATION FOR SUPPLIER/CONSTRUCTION

32.4 D - EEAM-Q-013 - COMMISSIONING AND HANDOVER SPECIFICATION FOR SUPPLIER/CONSTRUCTION

32.5 E - Quality Control Inspection Process

32.6 F - Quality Control Plan (Example)