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Contractor QA/ QC Requirements Specification

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1 Introduction

1.1 Purpose

The objective of this specification is to clarify to the CONTRACTOR including its Subcontractors and Suppliers/Vendors the Contractual Quality Management Requirements on major works and developments (hereafter referred to as the Project), taking full cognisance of all aspects of Quality as defined within the specific CONTRACT.

1.2 Scope

The requirements of this specification apply to CONTRACTOR, Subcontractors and Suppliers/Vendors working on the Project. CONTRACTOR is responsible for ensuring that all Contractual requirements are correctly and adequately cascaded and understood by their Subcontractors and Suppliers/Vendors.
This Specification details the requirements for Quality Management, Quality Assurance and Quality Control of project execution, product realisation and service delivery.

1.3 Application

The application of this specification shall be determined by CONTRACTOR equipment and/or quality criticality assessments and CONTRACTOR process for conducting these assessments shall be assessed and monitored.
The requirements contained within this quality specification are supplementary to current Legislation and Regulations. In cases of conflict, legal requirements will take precedence. It is the CONTRACTOR responsibility to identify and arrange compliance with all Statutory Legislation.
Additional quality requirements may be contained within CONTRACT, specific project specifications, or project specific procedures. Where there is a conflict between this quality specification and project specifications the project specifications shall take precedence. Any exceptions, clarifications or queries to this quality specification must be highlighted pre Contract award, during the invitation to tender phase.

1.4 Definitions

COMPANY	Dana Petroleum E&P Limited
CONTRACTOR	Company nominated in the CONTRACT, or its assignee or successors in interest, in charge of the execution of the CONTRACT
SUPPLIER	Company nominated in a Subcontract, or its assignee or successors in interest, responsible for the provision of equipment or delivery of a service
WORK	All and any part of the Works, including documentation and services to be performed by CONTRACTOR, Subcontractor and Supplier under the terms of the Contract.
CONTRACT	The contract signed between COMPANY and CONTRACTOR

1.5 Abbreviations

ASME	American Society of Mechanical Engineers
ATEX	Appareils destinés à être utilisés en **AT**mosphères **EX**plosives
ATMS	Action Tracking Management System
CPI	Company Provided Item (Free Issue Material, Equipment or Product)
FAT	Factory Acceptance Test
ISO	International Standards Organisation
IDC	Internal Discipline Check
ITP	Inspection and Test Plan.
IVB	Independent Verification Body
KoM	Kick Off Meeting
KPI	Key Performance Indicator
MIHU	Marine Installation and Hook-Up
MoC	Management of Change
MRB	Manufacturing Record Book
MDR	Master Document Register
NCR	Non Conformance Report
NDE/T	Non-Destructive Examination and Testing
NOBO	Notified Body
PMI	Positive Material Identification
PPM	Pre-Production Meeting
PQP	Project Quality Plan
QA/QC	Quality Assurance/Quality Control
QMS	Quality Management System
SCE	Safety Critical Element
SDRL	Supplier Document Requirements List
TPI	Third Party Inspection
TQ	Technical Query

1.6 International Standard References

Reference	Description
BS EN 10204:2004	Metallic Products. Types of Inspection Documents
ISO 9001: 2015	Quality Management Systems - Requirements
ISO 10005: 2005	Quality Management Systems - Guidelines for Quality Plans
ISO/IEC 17025:2005	General requirements for the competence of testing and calibration laboratories
ASNT SNT-TC-1A	American Society for Nondestructive Testing
BS EN 60079	Explosive Atmospheres. Equipment. General Requirements

2 Field of Application

Country	UK
ODMS part(s)	Supply Chain Management
Asset(s)	UK Generic
Risks(s)	Operating - Procurement and Supply Chain
Dana Standard(s)	ISO 14001 - 4.4.6 Operational Control
Organisation	All UK Departments
Requirement(s)	ISO 14001:2015 8.1 Operational Planning and Control

3 Contract Review

CONTRACTOR shall perform a Contract review in order to become familiar with the Contractual requirements such as applicable codes and standards, specifications, drawings, and any other documents referenced in the CONTRACT. CONTRACTOR shall have robust processes for the identification and control of technical clarifications and exceptions to the CONTRACT. Any contradiction or inconsistency or omissions shall be reported immediately to COMPANY or to CONTRACTOR in the case of a Subcontractor or Supplier/Vendor. The Contract review result shall be documented in a report and signed by CONTRACTOR Representative. CONTRACTOR shall define by issue of a Supplier Document Requirement List (SDRL) the required documentation in their Subcontracts and Purchase Orders. The extent of the documentation shall also satisfy the Contractual, Statutory and Regulatory requirements.

4 Quality Organisational Structure

CONTRACTOR shall demonstrate clear lines for decision making, approvals and support with respect to the management and control of quality. CONTRACTOR shall have an organisational quality structure sufficient to suitably manage their contracted scope of work. This organisational structure shall identify roles within the quality organisation directly responsible for ensuring quality of execution of contracted scopes and shall be submitted to COMPANY for review in a diagram format, showing reporting lines from Senior Management to Inspectors executing inspection tasks.

This organisational structure diagram shall be supported with job descriptions for primary roles within the organisation responsible for management and control of quality.

4.1 Management Commitment

CONTRACTOR shall demonstrate management commitment to quality and describe how management shall influence, promote and support quality. CONTRACTOR management shall provide quality statistics for the provision of the organisations services for quality. CONTRACTOR shall present quality metrics applicable to their contracted scope of work for the last three (3) years from the date of Invitation to Tender.

4.2 Quality Management System

CONTRACTOR shall manage quality within their organisation using a certified Quality Management System (QMS) to ISO 9001. It is the intent of the COMPANY to use CONTRACTORS who can demonstrate an ability to successfully manage quality with certified quality management systems.

CONTRACTOR shall be able to demonstrate the history of their current QMS, and provide evidence of its application over the last five (5) years. Importantly, all Subcontractors and Suppliers shall also operate and maintain a Quality Management System that is certified to ISO 9001 or an agreed equivalent.

4.3 General Competency of CONTRACTOR Personnel

CONTRACTOR is responsible for ensuring that all workmanship is of an acceptable level, meeting the requirements of the Contract and any specification or requirements identified within it. All quality assurance and control activities shall be carried out by competent people, with appropriate qualification and proven experience. CONTRACTOR shall ensure that the required level of competency and qualifications is defined and applied in all procedures and processes.

CONTRACTOR is required to provide information on how training and competence assurance is managed within its quality management system. CONTRACTOR is required to describe how its competency assurance system is suitable, sufficient and maintained to manage quality with particular focus on the following specific areas:

- Alignment to industry competency standards
- Management and assurance of agency/temporary/third party personnel and transient workforce
- Management of competency gaps, e.g. recruitment, promotion, etc.
- Adequacy and methods of assessment processes
- Supervisor, Assessor and Verifier training
- Frequency of reassessment, e.g. evaluation, appraisal, etc.
- Identification and management of quality critical activities
- Identification and management of safety critical activities

Specific data should be available to demonstrate that these systems are implemented and that relevant training is identified and provided, and that appropriate competence standards are defined, reached by relevant personnel and maintained.

CONTRACTOR competence assurance system shall include copies of current certificate(s) showing scope of certification and validity period and include training and competency matrices for all key personnel in support of the scope of work.

5 Quality Risk Assessment (QRA)

CONTRACTOR depending on criticality of scope shall conduct a Quality Risk Assessment as part of their Project Quality Planning. The assessment meeting shall be arranged and chaired by the CONTRACTOR or their Representative. Stakeholders at the meeting may include Representatives from the COMPANY and appointed Project Third Party Agencies as required.

The assessment shall be conducted in accordance with CONTRACTOR risk assessment methodology and shall typically consider:

- The overall contractual scope of work
- Identification of critical quality management activities
- Material handling
- Selection and management of Subcontractors, Suppliers/Vendors
- Inspection planning and testing requirements
- Special quality requirements to be identified
- Simultaneous work activities and the management of interfaces
- Procurement activities and schedule risks
- Locality aspects and requirements, environmental parameters
- Delivery of materials, components and products from Subcontractors, Suppliers/Vendors
- Logistic activities
- Construction and Installation sequence and schedule
- Change Control
- Interfaces (contractual and technical)
- Resources (quantity and competency)
- Certification, documentation and traceability including TPIA
- Requirements from or involvement of National and International Regulatory Authorities

The results of the Quality Risk Assessment shall be reported to COMPANY with risks and actions recorded in the CONTRACTOR Project Risk Register or Action Tracker. The result from the assessment shall be an input to the CONTRACTOR Project Management Systems, Project Quality Plan, Resource Plan, Audit Programme and ITP to ensure mitigation of identified risk.

6 Quality Plan (QP)

Post QRA, CONTRACTOR shall prepare a Quality Plan (QP) to address the outputs (risks) from the QRA and any specific work practices, methods, events, procedures, audit planning, performance indicators, allocation of resources, responsibilities and authority, as required for all stages of the Contracted Scope of Work. The quality planning requirements shall be related to a criticality rating of the item to be manufactured, fabricated or supplied. The QP shall reference and ensure compliance to applicable Statutory Legislation, Codes, Standards and identify interfaces with the COMPANY and other Stakeholders or Agency Bodies. CONTRACTOR shall submit their Quality Plan for approval within the time stated in the Contract. CONTRACTOR shall, unless otherwise agreed establish and implement a Quality Plan for the Scope of Work that includes but is not limited to the following:-

- Contract Review
- Quality objectives / focus areas
- Organisation for quality, including responsibilities for performance, checking and approval of all engineering deliverables, documents and drawings
- Communication routes and interface management
- Scope of work control, scheduling and management of critical path mechanisms
- Purchasing and materials handling procedures
- Scope of work (definition and execution)
- References to relevant Subcontractors and Supplier procedures
- Certification / control of equipment / personnel
- Control of production and quality records
- Procedure for the evaluation and selection process for SUBCONTRACTORs and Suppliers
- Control of outsourced scope of work (i.e. interface and management of Subcontractors and Suppliers)
- References to Project Specifications and relevant Regulatory references
- Methods and acceptance criteria for inspecting and testing, equipment, materials and systems
- Management of non-conformances
- Planned audits/verifications/design reviews
- Management of punch-lists and outstanding works

The Quality Plan shall be submitted to COMPANY for review and approval within the agreed time and prior to the commencement of any manufacture/fabrication/construction/commissioning.

Quality Plan shall be based on the latest revision of following guidelines as a minimum:

- ISO 9000 Quality Management Systems Fundamentals and Vocabulary
- ISO 10005 Quality Management Systems Guidelines for Quality Plans

7 Document Control Systems

CONTRACTOR shall manage all internal and external documentation using an established document control process as part of their QMS. All documentation pertaining to the Contracted scope shall be developed and maintained by this document control process.

CONTRACTOR shall establish a system for control of Project documents, in order to preclude the use of superseded or non-applicable or non-approved documents. Any superseded, deleted or out-of-date documents shall be clearly identified to avoid misuse and shall be removed from point of use. Documents and any subsequent revisions shall be prepared, reviewed (IDC), approved and issued by authorised personnel in a controlled manner.

Paper and electronic records shall be maintained to demonstrate achievement of quality and the effective execution of the Contract. Such records shall be legible and traceable to products, components, equipment or items involved and shall be safeguarded in accordance with COMPANY requirements. Where electronic records are required by COMPANY they must comply with COMPANY requirements e.g. media, format, file type.

Typical documentation relevant to the Contract that shall be controlled by the document control process includes but is not limited to the following;

- Schedules and Plans
- Quality Plan
- Engineering Drawings
- Purchasing Records and Bill of Material
- Manufacturing Records
- Welding Procedures
- Test Procedures
- Test Records
- Material Certificates
- Manufacturing/Fabrication Quality Records
- NDE/T Records

This list is not exhaustive and CONTRACTOR shall specify all documentation types controlled by their document control process.

All documentation shall be numbered per a formal process, detailed within CONTRACTOR document management process. All documents shall be filed according to requirement for use considering the necessity for both electronic and paper format at points of use within the entire organisation, e.g. drawings and weld procedures held as paper copies at point of work. All national and international standards utilised by the CONTRACTOR in the execution of their service shall be controlled at the latest revision, unless otherwise agreed with COMPANY.

7.1 Control of Software

All software used on the Contract shall be registered and controlled in accordance with Contract requirements. CONTRACTOR shall establish and implement procedures to record, control and verify all software. The procedures shall address, as a minimum:

- Control of authorised users
- Formal registration of all versions of software in use
- Anti-virus controls
- Back-up controls

Controls to ensure that software used for calculations and analysis is authorised and that all results can be traced to the software type and version that was used for the task. Effective validation of these controls shall be demonstrated through validation certificates, manual checks of calculations and checking validity at the numerical limits of the input/output.

7.2 Documentation Traceability

CONTRACTOR shall ensure all documentation pertaining to the quality or inspection status of systems, equipment, components or parts are clearly displayed providing full traceability. The traceability must be maintained from receipt of materials through fabrication and construction and must accompany the item (or parts of the item) with its delivery. In circumstances where it is inappropriate to deliver this documentation with the product, alternative arrangements must be agreed with COMPANY prior to shipment/delivery. To assure integrity of end product, a materials control system shall be established, implemented and maintained to prevent the inclusion of ‘rogue’ materials into equipment and fabrications.

8 Codes and Standards

COMPANY have established a Codes and Standards Register, which shall be reviewed and implemented by CONTRACTOR. The Codes and Standards Register references all applicable Codes, Standards, Technical Specifications, Classification and Certification requirements. Only those listed in this Register shall be recognised as approved for use. CONTRACTOR shall ensure that this requirement and register is communicated to all Subcontractors and Suppliers/Vendors. CONTRACTOR shall ensure that the relevant Codes and Standards from the Register are included in Subcontracts and Purchase Orders. New Codes and Standards, Classification and Certification requirements can only be added with the approval of COMPANY.

Requests for concessions or deviations from Codes, Standards, Specifications, Data Sheets, Drawings and Specified Construction Material shall be raised using COMPANY or agreed Technical Deviation Procedure. Should there be any conflict between the Contractual documents, the requisition, data sheets, drawings, specifications, or lack of clear definition as to the applicability of any Codes and Standards this shall be identified by the CONTRACTOR in writing immediately for resolution / clarification before proceeding.

In the event of conflict, actual or implied, within documents, the order of precedence shall be as stated within the defined Project Codes and Standards documents or Contract.

9 Regulatory, Permits, Notifications and Consents

COMPANY has established a register of mandatory Legislation and Regulations (PLANC). PLANC is a list of Permits, Licenses, Approvals, Notifications and Consents, which must be obtained in order to legally perform tasks and services in the Scope of Work of the Contract. Permitting is the process by which applicable Authorities ensure that Activities comply with Laws and Regulations.

PLANC registers may include, but are not limited to licenses to design, construct, commission, permit to erect temporary facilities, work permits, professional licenses required by applicable governments. The Register will be updated and maintained throughout duration of the Contract. CONTRACTOR is responsible for identifying and informing COMPANY of any additional mandatory Legislation and Regulations that may apply. CONTRACTOR shall ensure that relevant extracts from the Register are included in their Subcontracts and Purchase Orders. It is the responsibility of CONTRACTOR to monitor compliance with Legal and Regulatory requirements within their scope of work.

CONTRACTOR shall identify and maintain Permits, Licenses, Approvals, Notifications and Consents (PLANC) related to their activities and their scope of work to ensure that all permitting requirements are consistently and correctly included in CONTRACTORS plans, schedules, procedures, work instructions and deliverables.

CONTRACTOR shall ensure that all PLANC requirements remain valid throughout the Contract and monitor changes to ensure that activities related to the performance of the Contract are fully compliant. Requests for waivers from applicable Legislations and Regulations shall be raised using COMPANY Technical Deviation Procedure.

10 Management of Change (MoC)

CONTRACTOR shall operate a Change Management Control Procedure. This MoC process shall manage change in all aspects to the COMPANY. CONTRACTOR procedures for MoC shall describe how change is;

- Identified, Processed, Controlled, Documented, Assessed, Approved, Executed and Monitored

CONTRACTOR Project Management System (PMS) shall capture and document the resulting changes within lower level working procedures. CONTRACTOR shall ensure that change management requirements are included in their Subcontracts and Purchase Orders. CONTRACTORS shall further ensure that any mandatory COMPANY change management processes are properly implemented by their Subcontractors and Suppliers/Vendors and to ensure that all requirements are understood.

Changes originated by Subcontractors or Suppliers/Vendors shall be assessed by the CONTRACTOR, for their impact on cost, schedule, quality, reliability and availability, before being entered into CONTRACTOR Change Management Process.

Changes that impact Contract execution, design specification, schedule, quality, HSE or stakeholder interface shall be submitted to COMPANY for review, acceptance and instruction prior to any change commencing.

11 Interface Management

The overall responsibility for all interfaces is with the CONTRACTOR. However, all parties have the responsibility to provide accurate and adequate interface information.

CONTRACTOR shall therefore operate an interface management procedure for documenting and disseminating interface requirements and information for all internal and external interface activities with other scope areas. CONTRACTOR shall identify focal points for the management of all interfaces between COMPANY and adjacent scope areas.

CONTRACTOR shall hold regular interface meetings with COMPANY and other Stakeholders in order to maintain up to date interface data. This procedure shall identify the interface parties, the primary interface party and a list of interface types. The procedure shall be approved by COMPANY.

COMPANY reserves the right to utilise COMPANY interface system for the Contract and this will be provided to CONTRACTOR if deemed necessary or applicable.

12 Quality Records

CONTRACTOR shall prepare together with operating procedures, for the management of an electronic archive system for long term storage and management of quality records and documents. The structure and content of the archive shall be such that access to the records retained by the CONTRACTOR are readily available to the COMPANY, and shall be stored in a manner that prevents damage, deterioration or loss. All records detailing the history of the equipment or service shall be deemed quality records and maintained as such. All quality records shall be maintained by the CONTRACTOR for a minimum of five (5) years. After this time the records may be archived for long term storage at a fire secure location as part of CONTRACTORS QMS or Contract requirement. Design verification documentation shall include independent review certification with relevant pertaining part numbers, serial numbers as per CONTRACTOR procedures.

All quality records shall be generated in or translated into English.

13 Supplier Documentation Requirements

CONTRACTOR shall submit a Master Document Register (MDR) for COMPANY review and approval. The MDR shall include the documents and drawings to be produced by CONTRACTOR including dates when the documents will be available for COMPANY review.

Submission dates for documents and drawings that are critical to the overall schedule delivery shall be agreed with COMPANY to ensure Contract schedule is maintained. The following information shall typically be included within the MDR:

- CONTRACTOR document number and revision
- Document title
- Date of initial submission
- Date and revision coding of each subsequent submission

13.1 Document Preparation and Format

CONTRACTOR shall use its own format for documentation to be supplied. All documents will be submitted using a COMPANY front sheet. CONTRACTOR format for documentation identification and numbering shall be agreed with COMPANY.

13.2 Document Submittal

All documents shall be submitted electronically with document transmittal form to the agreed Document Control email addresses (or otherwise where document exceeds 9MB in size). The document shall be converted to Adobe Acrobat PDF directly from the program in preference to a scanned document. Documents shall be bookmarked according to the table of contents for ease of review.

The process for COMPANY review and approval of CONTRACTOR, Subcontractor and/or Supplier documents shall be communicated and clarified by COMPANY at the CONTRACTOR Kick-Off Meeting (KOM) or Pre-Production Meeting (PPM).

Table 1 below provides an indication of CONTRACTOR documentation requirements and timescales for Contract delivery. These shall be considered in conjunction with the Contract specific MDR requirements defined by the CONTRACT.

CONTRACTOR TYPICAL DOCUMENTATION REQUIREMENTS	
Document	**Submit to COMPANY**
Master Document Register (MDR)	1 week from Contract Award
Manufacture/Fabrication Schedule	2 weeks from Contract Award
Procurement Plan	2 weeks from Contract Award
As Built/Manufacturing Record Book (MRB) Index	4 weeks from Contract Award
Quality Plan	2 weeks from Contract Award
Inspection and Test Plan (ITP)	2 weeks prior to Pre-Production Meeting
Base Material Certification	1 week from Contract Award
General Arrangement drawings (showing weights / COG and interface dimensions)	2 weeks prior to commencement of Manufacture/Fabrication
Engineering / Manufacturing Documents/Drawings	2 weeks prior to commencement of Manufacture/Fabrication
Weight Data Sheet	2 weeks prior to Manufacture/Fabrication
Welding Procedures	2 weeks prior to Welding
NDT Procedures	2 weeks prior to Welding
Test Procedures	2 weeks prior to Testing
FAT/SIT Procedures	2 weeks prior to FAT/SIT
Operation and Maintenance Manual	4 weeks prior to Final Release

CONTRACTOR TYPICAL DOCUMENTATION REQUIREMENTS	
Document	**Submit to COMPANY**
Independent Design Verification	Prior to release where applicable
Handling, Shipping, Site Preservation and Packing Information	2 weeks prior to shipping
Procurement Status	In weekly report
Release Certificates	Prior to release where applicable
Certification of Compliance	Prior to release where applicable

Table 1: CONTRACTOR Typical Documentation Requirements

13.3 Document Review

Document review cycle times will be defined in the Contract, typically 10 days. Documents sent to COMPANY for review will be returned to CONTRACTOR with corresponding comment sheet that will include COMPANY comments and any relevant third party or Certifying Authority comments. In addition, a document review code will be assigned to the document by the COMPANY as follows;

Code 1: Reviewed and no comments. Submit final version of document.
Code 2: Revise and resubmit. Work may proceed subject to comments being incorporated.
Code 3: Revise and resubmit. Work may not proceed.
Code 4: For Information.

Note: Revised and resubmitted documents with no accompanying revised comment sheet will be rejected by COMPANY. Responsibility for the content of all documents is that of the CONTRACTOR, Subcontractor and/or Supplier. The COMPANY review at no times constitutes an approval of the content of the document and does not relieve the CONTRACTOR, Subcontractor and/or Supplier of their statutory or commercial obligations.

14 Quality Control Plan (QCP)

CONTRACTOR shall develop at the onset of the Contract a Quality Control Plan (QCP). The QCP shall include the provision of a scope of work schedule and should include Inspection Test Plans (ITP)

The CONTRACTOR shall propose a QCP (in accordance with ISO 10005) that meets the requirements of the contracted scope of work and be provided to the COMPANY for review.

14.1 Inspection and Test Planning (ITP)

CONTRACTOR shall generate Inspection and Test Plan(s) (ITP) at the onset of the Contract as required to control activities with assurance intervention points. At the onset of the Contract, COMPANY and CONTRACTOR shall mutually agree ITP requirements based upon criticality and assign suitable and sufficient inspection and intervention points within the production and delivery schedule.

CONTRACTOR shall ensure where relevant that the Independent Verification Body (IVB/NOBO) is included in the review cycle to capture IVB/NOBO intervention and assurance requirements. The Inspection and Test Plan (ITP) shall be completed and approved by COMPANY prior to start of fabrication and construction, and be maintained in a continuous “as-built” condition ensuring that activities are accurate and that those witness inspections and testing confirm their attendance by signature.

CONTRACTOR shall provide an ITP, which shall include the following details as applicable to the scope of work or supply:

- Process and product monitoring and measurements to be applied; the stages at which they should be applied and the type of verification required
- Quality characteristics to be monitored at each stage
- Procedures and acceptance criteria to be used
- Quality records that will be completed for each stage
- Where inspections or tests require to be witnessed by regulatory authorities
- Proposed Subcontractors
- Third party inspections or tests
- Criteria for process release to next stage
- Criteria for product release

The ITP developed by the CONTRACTOR shall cover the full spectrum of the scope of work. Typical examples of an ITP intervention points may include but not be limited to the following;

- Dimensional Inspections
- Weld Qualification
- Non Destructive Examination and Testing
- Pressure Testing
- Electronic Testing
- Qualification Testing
- Painting/Coating

- Build Verification
- Flange Management

CONTRACTOR and Subcontractor/Sub-Supplier manufacture/fabrication shall not commence until the ITP has been approved by COMPANY where necessary. For supply of items where an ITP is not deemed to be required, CONTRACTOR shall advise extent of inspection planned to provide assurance.

COMPANY shall review the CONTRACTOR ITP to establish key Quality Control activities are addressed. The ITP shall include columns defining the intervention points for CONTRACTOR, COMPANY and Independent Verifying Bodies to either conduct Hold (H), Witness (W), Monitor (M) Review (R) and Approval (A) intervention points, see Table 2 below.

ITP INTERVENTION POINTS (Table 2)	
ACTIVITIES	**DESCRIPTION**
Hold Point (H)	A "Hold" point (a mandatory inspection point) is defined as a point in the manufacturing or testing cycle beyond which it is not permitted to proceed without the presence of a nominated party. CONTRACTOR to inform COMPANY, Independent Verification Body (IVB), and Third Party Inspector (TPI), ten (10) working days prior to hold point. 'No' work shall proceed without written consent of COMPANY. Only the COMPANY may waive the hold point. Approval to waive specified hold points shall be documented before continuing work beyond the designated hold point.
Witness Point (W)	A "Witness" point is defined as a point in the manufacturing or testing cycle where the nominated party must be given the option to attend. For repetitive activities witnessing of a percentage of the total may be agreed. CONTRACTOR to inform COMPANY, Independent Verification Body (IVB), Third Party Inspector (TPI), ten (10) working days prior to witness point. Work may proceed at the appointed time with or without the attendance of COMPANY, IVB or TPI.
Monitor (M):	A "Monitor" point is defined as a random check, by direct or indirect inspection, to verify conformance of the item or activity to specification. CONTRACTOR to inform COMPANY at the start of the manufacture or process, thereafter work may proceed. No notification is required.
Review (R):	A "Review" point is defined as a point in the manufacturing or testing cycle at which a record of the activity is required. The nominated party is required to review / endorse these records, which shall be presented at the earliest opportunity, preferably before the next activity.
Approval (A):	An "Approval" point is defined as point of the manufacturing or testing cycle where the CONTRACTOR is required to submit certificates for approval.

Table 2 – ITP Intervention Points and their Notification Requirements

14.2 Inspection Notification

CONTRACTOR shall provide sufficient notification to COMPANY nominated Package Manager and/or Quality Representative when an inspection is due to take place.

Notification of agreed inspection and test activities shall be notified in accordance with COMPANY Contract. The variety of advance notification can range from ten (10) days for manufacturing to twenty four (24) hours for installation activities in advance of the inspection and test and will be specified in the CONTRACT and agreed during the KoM and/or PPM.

Notification of Inspection (NOI) form shall be emailed by CONTRACTOR via COMPANY document control for appropriate distribution and include the following information as a minimum:

- Name and address of place of inspection
- Project or scope of work name
- Equipment Name and Identification Numbers
- Inspection and Test Plan activity reference and number
- Date and time of inspection
- Exact location of inspection
- Contact Details

COMPANY IVB or NOBO may, at their sole discretion, attend selected inspections and tests or as necessary carry out their own surveillance activities. CONTRACTOR shall be responsible for ensuring that all non-conformances, failures and deviations are implemented and followed up accordingly.

15 Subcontracting

It is CONTRACTORS responsibility to incorporate the specific and correct quality requirements in all Subcontracts, Purchase Orders and to ensure that the requirements are communicated throughout the Supply Chain. Also the allocated Criticality Rating specific to the Equipment and Materials being procured shall be communicated and documented within the CONTRACTORS Subcontracts and Purchase Order deliverables that are issued to the Subcontractors, Suppliers and Vendors. These requirements are essential to ensure that all parties understand the applicable quality programme that requires to be implemented with respect to the CONTRACT or PO.

A full list of Subcontractors shall be specified by CONTRACTOR for work executed for COMPANY Project or service. CONTRACTOR shall ensure that all Subcontractors and Suppliers are formally audited and assessed as part of a robust QMS. Quality must be driven through the entire supply chain with capability and performance monitored and reviewed.

Where CONTRACTOR Subcontracts services for the fabrication of equipment, wrought material forming, welding and machining. CONTRACTOR shall employ a process for the approval of the subcontracted processes, such as weld qualification and material certification.

If CONTRACTOR decides to Subcontract COMPANY work scopes to other geographic locations, either CONTRACTORS own organisation or other, then CONTRACTOR shall make this known to COMPANY within their quote or tender submission, or at any time thereafter.

CONTRACTOR shall provide details of the exact geographic location of the manufacture of equipment and or supply of services. CONTRACTOR shall provide assurance on how quality will be applied to other geographic locations where the equipment or service is being provided. Sole accountability for quality of Subcontractors shall be the responsibility of the CONTRACTOR.

All Subcontractor inspections shall be the responsibility of the CONTRACTOR. Where CONTRACTOR employs the service of an Independent Verification Body (IVB), this shall be managed by the CONTRACTOR. The COMPANY will coordinate with CONTRACTOR any Third Party Inspection activities within the Subcontractors scope of work. The CONTRACTOR shall work with the COMPANY in the development of inspection requirements at the onset of the Contract once Subcontractors have been identified and subcontracted.

15.1 Prequalification Requirements

CONTRACTOR Approved Supplier List (ASL) for the Contract shall be shared with COMPANY and shall include Companies whose capabilities have been assessed with regard to the following:

- Quality systems
- Technical capability
- Production capacity/capabilities
- Financial status
- HSE history and commitment
- Previous suppliers performance history:– quality, schedule, cost

If the Approved Suppliers List is considered not adequate then prior to the issue of the request to tender, consent shall be obtained by the CONTRACTOR from COMPANY for additions to the list.
The pre-qualification assessment shall cover as a minimum the items listed above and shall be carried out using CONTRACTORS pre-defined checklists and acceptance criteria. The CONTRACTOR must document the process of evaluation and selection of Subcontractors and Suppliers/Vendors. The use of evaluation services such as FPAL and Achilles or similar is accepted.

All Subcontractors and Suppliers/Vendors on the Approved Supplier List shall have a Quality System certified by a recognised accredited body. The certificate must be current, valid and applicable to the scope of work. Those Suppliers offering licenced products, e.g. API, must hold current certification to the relevant licencing body.

Subcontractor or Supplier/Vendor shall have a certified Quality Management System. COMPANY shall approve any exceptions. The risk associated with the lack of a formal Quality Management System must then be assessed and mitigated as necessary.

15.2 Subcontract Pre-Award Requirements (Tender Submission)

CONTRACTOR shall ensure that Subcontractors and Suppliers/Vendors that have been pre-qualified and invited to tender shall include the following quality assurance documentation (dependent upon equipment/material criticality rating) in their Tender Submission:

- Quality System Certificate (valid for the specific contract scope and location of manufacturing)

- Contract Review Process and Purchasing Procedures
- Scope of Work Quality Organisation
- Key Quality Personnel and Experience
- Draft Quality Plan
- Draft Register for planned Project Management System procedures
- Specimen Inspection & Test Plan (ITP) (used on previous Contracts)
- Audit Procedure
- Specimen Audit and Review Schedule (used on previous Contracts)

- List of 3rd Party Audit(s) of their Quality System, dates of the audit(s), list of Audit, Findings and date(s) of Action(s) Close Out
- List of previous Contracts, indicate those that had a Quality Plan and the number of Quality Audits planned and number completed

If any of the above information cannot be provided an explanation shall be given in the Tender Submission.

15.3 Subcontract Pre-Award Requirements (Tender Evaluation)

CONTRACTOR shall ensure that an experienced Quality Manager/Engineer reviews the quality submission of Subcontract tenders and the evaluation results shall be rated in accordance with the defined tender evaluation process requirements.

The evaluation shall be carried out using the following steps:

- Review of historic performance data from records of previous Contracts and evaluation assessment.
- Review of suitability of Quality System Certificate and Scope
- Review of suitability of QMS and documents provided

The evaluation shall be documented and the records filed as part of the Contract tendering documentation. The documentation shall be available for COMPANY audit.

15.4 Subcontract Compliance Monitoring

CONTRACTOR shall plan and schedule; audits, inspection, testing and controlling activities as described throughout this Specification of all Subcontracts. These assurance activities shall be described in CONTRACTOR Quality Plan and Audit Schedules. The defined criticality rating shall determine the minimum level of monitoring activities.

COMPANY reserves the right to perform compliance audits of CONTRACTOR and its Subcontractors and Suppliers, except where COMPANY has been provided with assurance of satisfactory audit results or recent satisfactory performance.

Note: Where CONTRACTOR proposes to outsource any stage of the Contract, this must be clarified during the tender stage. CONTRACTOR shall not assign or Subcontract the Contract or any part without COMPANY written consent.

16 Classification, Regulatory Bodies, IVB and NOBO

COMPANY may engage an Independent Verification Body (IVB) and/or NOBO to verify compliance with appropriate Legislation during appropriate stages of Contract. This shall be fully coordinated with Class approval process if necessary. Details of IVB/NOBO requirements will be provided by COMPANY if applicable in Tender documentation.

If applicable to contracted scope of work, CONTRACTOR shall liaise with the IVB/NOBO as required to enable witnessing of inspections, tests, mechanical completion and commissioning that confirm the acceptability of the Safety Critical Elements. This shall include review of documents and records and review of as built documents and data.

Where COMPANY has appointed an IVB or Notifying Body (NOBO) for the Contract. CONTRACTOR shall be required to provide IVB/NOBO with the applicable documents/drawings at the appropriate time for review. CONTRACTOR shall also ensure free and unrestricted access for the IVB/NOBO to carry out surveillance, inspections and ensure access to witness FAT's and final documentation review.

17 Design Development

Where design of equipment and components is included within contracted scope of work, all of the following subsections of section 16 shall apply.

17.1 Design Planning

All equipment supplied by the CONTRACTOR to the COMPANY shall be designed in accordance with relevant industry Regulations, Industry Specifications and Industry best practise. CONTRACTOR shall make reference to COMPANY supplied functional specifications where applicable or supplied as part of the Contract. If a COMPANY functional specification is not supplied as part of the Contract then CONTRACTOR shall supply equipment designed in accordance with their own engineering functional specifications in accordance with relevant industry regulations, industry specifications and best practise

CONTRACTOR shall establish and maintain documented procedures for the preparation, control and verification of its designs in order to ensure that the CONTRACT requirements are met.

CONTRACTOR shall ensure all design aspects are contained within an Engineering Plan to ensure adherence to the design policy, defined Project baseline, codes and standards and all statutory and technical requirements of the work. Additionally the requirements and methods for measuring, controlling and approval of design work including integrity control and verification shall be included in the Engineering Plan.

The Engineering Plan shall define the processes to be followed during development of the design as depicted in Figure 1 below.

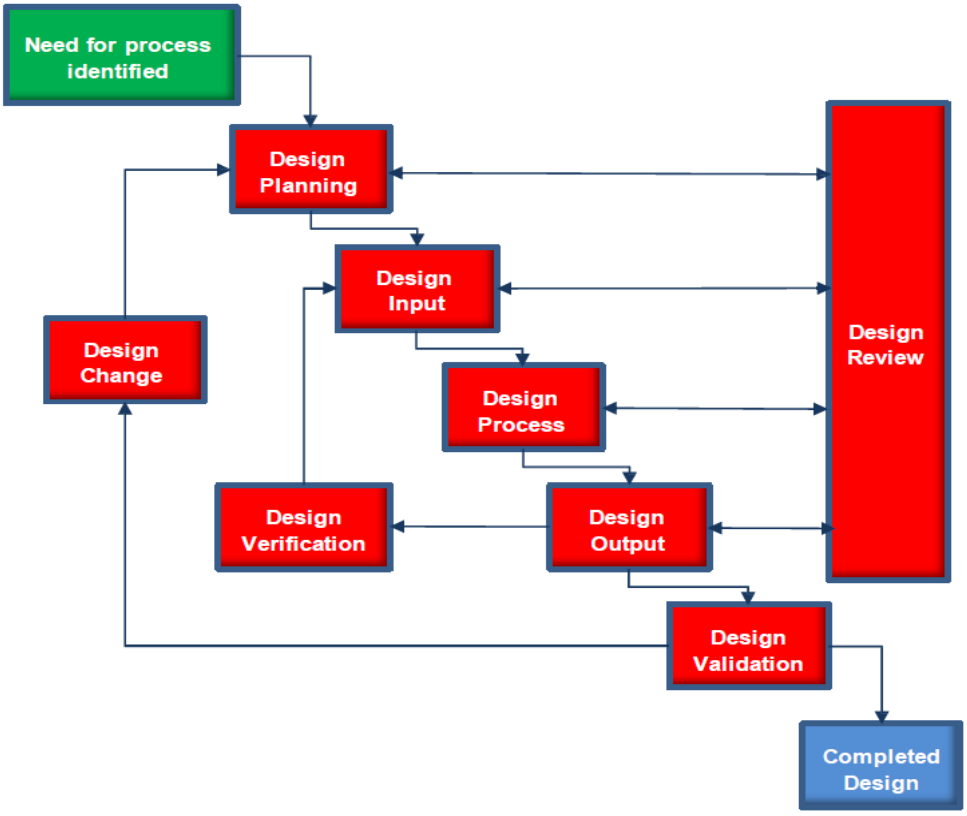

Figure 1: Design and Development Process

The scope of work for each engineering office shall be defined and organisational interfaces between them addressed in the Engineering Plan.

All design/engineering work for CONTRACTOR equipment shall be executed in accordance with CONTRACTOR approved engineering processes. CONTRACTOR shall have an established engineering process for the design of new or refurbishment of equipment. The engineering process shall cover all aspects of the design and engineering of a product and may include but not be limited to the following;

- Production and checking (IDC) of design deliverables
- Reviewing designs against Contract technical specification or industry codes and standards
- Interface control and technical queries
- Changes in COMPANY basis of design(s)
- Finite Element Analysis (FEA)
- Basis of Design (BoD)
- Design validation during the completion of the design process
- Management of calculations
- The preparation and management of design documents, drawing and technical specifications
- Material Selection and production of Bill of Materials
- Qualification and Testing requirements
- Certification and Verification
- Approvals

CONTRACTOR shall submit an Engineering Plan to COMPANY for approval within the time stated in the Contract.

Equipment designed by the CONTRACTOR may require Independent Verification Body (IVB) review as defined by COMPANY. In addition, primary equipment forming part of an assembly for supply to the COMPANY may require to be supplied with an Independent Review Certificate (IRC). This requirement will be specified in the Tender and Contract documentation provided by the COMPANY.

All equipment design/engineering shall be verified through the execution of formal design review processes in accordance with CONTRACTOR engineering processes. This review shall be attended by COMPANY Representatives. The extent of the CONTRACTOR design review shall be agreed at the onset of the CONTRACT. CONTRACTOR shall include formal design reviews within the Project schedule. CONTRACTOR shall submit a design review schedule as part of the overall Project schedule for the procured equipment during the Tender submission.

17.2 Design Inputs

CONTRACTOR shall ensure that engineering and design input requirements are controlled and maintained and readily available to all parties concerned.

17.3 Design Outputs

CONTRACTOR shall register all Project deliverables in compliance with COMPANY requirements.

Design output deliverables made by a Supplier/Vendor or Subcontractor shall be registered in an engineering meeting the same requirements as the CONTRACTOR. The system used by the CONTRACTOR shall interface and be compatible with COMPANY systems.

All output deliverables shall be checked and approved by CONTRACTOR in accordance with approved procedures before submittal to COMPANY. The design checking and approval processes shall be defined in the Engineering Plan.

CONTRACTOR shall implement a system for control and tracking of design ‘holds’ on issued documents. The tracking shall be registered such that parts of a document which are not ready (approved) for use are clearly marked and controlled.

17.4 Design Reviews

Design reviews shall be carried out at appropriate stages of the engineering work. CONTRACTOR shall establish a design review programme to address scope to be covered and schedule. The Design Reviews shall be conducted in accordance with an approved Design Review Procedure.

The Design Review Programme shall ensure:

- Compliance of the design with the Basis of Design (BoD) or design intent
- Optimisation for minimum lifecycle costs
- Verification of technical integrity
- Mitigation of Lessons Learned and quality risks identified
- Completion of documentation in readiness for the next Project phase

All review results shall be documented and maintained by the CONTRACTOR and shall form part of the handover documentation. COMPANY may attend these reviews as necessary.

COMPANY may also conduct specific design reviews during the course of the Contract as it deems necessary. These will be identified in COMPANY Contract Schedule and advised to the CONTRACTOR.

17.5 Technical Assurance – QA/QC in Design

COMPANY and CONTRACTOR shall maintain a technical assurance process to ensure that all design deliverables are prepared, reviewed, approved and signed off by technical personnel (technical authorities) who meet the minimum competence requirements.

The technical assurance process shall be Contract specific and shall provide an overview and timeline of assurance events / activities, including main controls and design reviews. This process shall also contain a drawing/document distribution and approval matrix for documenting the approved discipline technical authorities and describe approval requirements.

The technical assurance process will be monitored and audited to ensure compliance with its requirements.

17.6 Design Verification

The design verification shall be performed in accordance with CONTRACTORS verification programme. This programme shall check that the engineering and design outputs are appropriate, as expected and consistent with the input requirements including where applicable meeting any safety critical element (SCE) Performance Standards. As an integral part of design verification; ergonomics, constructability, maintainability, operability and safety reviews shall also be scheduled and conducted by the CONTRACTOR.

CONTRACTOR verification of critical work elements, as defined by COMPANY, shall involve personnel other than those having direct responsibility for the engineering and design work.

CONTRACTOR shall describe the design review and verification programmes, scope, process, roles and responsibilities and documentation in the Engineering Plan. All results from design verification shall be recorded and maintained. COMPANY shall have the right to participate in CONTRACTORS design review(s) and verification events.

The scope of work for each engineering office shall be defined and organisational interfaces between them addressed in the Engineering Plan. CONTRACTOR shall submit the Engineering Plan to COMPANY for approval within the time stated in the Contract.

17.7 Design Validation

CONTRACTOR shall establish and implement an Integrity Management system, conforming to COMPANY requirements. The objective is to provide assurance to COMPANY that the design has technical integrity, and that the designed solutions will be capable of meeting all requirements for safe construction and operation.

The Integrity Management activities shall be integrated with the design control activities with the purpose of ensuring integrity of all design output and define appropriate design validation. CONTRACTOR Verification Plan shall be sent to the COMPANY for review and approval.

CONTRACTOR shall qualify equipment designs in accordance with relevant international, regulatory and industry specifications such as API, BS, EN, ISO, ASME, PED, etc. Equipment qualification requirements may be specified within Specific Technical Engineering Specifications supplied by the COMPANY, CONTRACTOR shall make reference to these if presented by the COMPANY.

The qualification of new or existing equipment may pose a significant threat to the procurement or service schedules. CONTRACTOR shall provide full details of the qualification status of equipment or services provided to the COMPANY. This shall be presented as a separate technical submission within the Tender.

Records of qualification testing for all equipment to be supplied as part of a procurement or service shall be made available to COMPANY upon request. Equipment with ‘No’ qualification records shall be deemed as ‘NOT’ being qualified.

IMPORTANT NOTE: Qualification by design scaling is strictly prohibited. If CONTRACTOR equipment is qualified by scaling, this shall be made known to COMPANY through the technical submission of the Tender.

17.8 Design Changes

CONTRACTOR shall manage design changes using a dedicated design change process. The adverse effect of design changes may pose significant risk to the COMPANY. CONTRACTOR shall notify the COMPANY in writing of all proposed design changes, prior to changes being employed by the CONTRACTOR. Typical design changes may include but not be limited to the following;

- Fit, Form or Function
- Capacity
- Materials
- Qualification

CONTRACTOR shall provide details on how design changes are managed within their organisation, provision of the following details shall be submitted as part of the technical submission of Tender;

- Design change control process
- Design change impact assessment and review
- Design change delegation of authority for approval
- Verification and validation of design changes

CONTRACTOR shall assign a severity to the design change and communicate these to the COMPANY in writing. Depending on the severity or risks associated with a design change, a formal process shall be employed for gaining approval form the COMPANY. An agreed method for design change shall be mutually agreed between COMPANY and CONTRACTOR at the onset of the Contract.

18 Procurement

CONTRACTOR shall utilise an established, documented and proven purchasing procedure and process for the procurement of equipment used in the execution of the Contract. CONTRACTOR shall only purchase equipment from Suppliers who have been verified for quality through evaluation and meeting set criteria, these shall be listed within the CONTRACTOR Approved Suppliers List (ASL). The use of evaluation services such as FPAL and Achilles or similar is accepted.

The purchase of equipment or service shall be limited to the CONTRACTORS Approved Suppliers List (ASL) where possible. CONTRACTOR shall employ a regular review process for the auditing of existing Suppliers, based upon criticality and performance. CONTRACTOR shall ensure that their purchasing process includes the following;

- Defined process for purchase of equipment or services
- Supplier evaluation process and performance reviews
- Supplier auditing based upon criticality and performance, including frequency and close-out
- Non-conformance history

CONTRACTOR purchasing procedures shall be subject to review and acceptance by COMPANY.

18.1 Free Issue Material

COMPANY may as part of Contract issue CONTRACTOR with 'free-issue' equipment or product. CONTRACTOR shall inspect this for quantity, damage and conformance with the requirements identified on the COMPANY delivery documentation within 24 hours of receipt.

Free issue material shall arrive with the relevant paperwork. As a minimum this shall include a delivery note detailing the material description and traceability information. In the case of materials that are to be welded, these shall arrive with the correct material certification. Where certification has not been provided or is not traceable to the free-issue items provided, the CONTRACTOR shall quarantine the items as per CONTRACTOR QMS procedures.
In the event of any damage, shortage or overage or where certification has not been provided, the CONTRACTOR shall notify COMPANY immediately.

19 Meetings and Reporting

19.1 Kick Off Meeting (KoM)

COMPANY shall organise a KOM, typically held at COMPANY premises within two (2) weeks of contract award. The agenda shall be agreed between all parties and COMPANY but shall contain as a minimum:

- Final review of contract content and scope of work
- Detailed review of scope of work and high level plans
- QA and HSE commitment and objectives
- Contract management requirements, i.e. resources and reporting requirements with regard to service quality
- Review of CONTRACTORS MDR and document control requirements
- Subcontractor/Supplier execution plan, schedule, production processes, Sub-Suppliers
- Special quality requirements that have been defined

Minutes of meeting shall be prepared and issued to all parties.

19.2 Pre-Production Meeting (PPM) – Readiness Review Meeting

A PPM/Readiness Review Meeting will be held pre FPSO arrival. The purpose of this meeting is to determine readiness of CONTRACTOR to start work. The minimum requirements for this meeting are:

- Kick-off meeting has been held and all actions from minutes of meeting are closed.
- Relevant documents have been reviewed and approved by COMPANY and Third Party Agencies (if required).
- Deviations and Technical Queries relating to the contracted scope of work/specification have been reviewed and closed out.
- Final review and walk-through of Scope of Work, Schedule and Inspection and Test Plans (ITP).
- Readiness checklist has been reviewed for completeness.

The meeting will be held at CONTRACTOR facility unless otherwise agreed. Prior to the meeting an agenda will be prepared by COMPANY or nominated deputy for comment and agreement. Minutes of meeting shall be recorded by COMPANY and agreed by all parties through formal correspondence.

Attendees from CONTRACTOR shall include personnel responsible for the Project Management, Quality and Production. In addition where deemed necessary by COMPANY a further meeting specifically to review inspection requirements (Pre-Inspection Meeting PIM) may be held prior to commencement of manufacture/fabrication with relevant Quality and Inspection personnel.

19.3 Reporting Requirements

Contract reporting requirements shall be governed by the COMPANY Contract and the scope of work; this will be clarified during the Kick-Off Meeting. CONTRACTOR shall report on its Quality activities and its progress against its Quality Objectives, Plans and Schedules, at least monthly. CONTRACTOR shall agree with COMPANY the content of the Quality Report but typically Quality Reporting shall comprise but not be limited to the following:-

- Inspection and test records submitted in accordance with ITP activities
- Welds performed and NDT repairs (identify major and minor)
- Engineering/manufacturing/production progress – a summary of current manufacturing progress, incl. areas of potential risks
- Engineering/manufacturing/production technical queries – list any new or outstanding and append or reference main register
- Performance – Audits planned/performed internal and external
- Non-conformances raised internal and external related to the scope of work
- Weekly status of agreed key performance indicators (KPIs) to COMPANY
- Procurement – status of procurement including any free issue/customer provided items
- Look ahead status for next 4 weeks activities – note, any upcoming planned activities refer to schedule and ITP for reference, including Subcontractor and Supplier visits
- Variations – list any new or outstanding and append or reference main register

20 Audit Requirements

A pre-award or post award audit of the CONTRACTOR may be performed by COMPANY or COMPANY Representative. This requirement will be assessed against criticality of scope of work or equipment criticality. In any case, an audit will likely be required in the following cases;

- Scope of work is critical to COMPANY, or is large and complex in nature
- CONTRACTOR, Subcontractors or Suppliers do not have a Quality Management System that is certified to the most recent revision of ISO 9001
- Where concerns have been raised during previous Contracts/Purchase Order
- Where there are a significant number of non-conformances raised (Note: if requested, Subcontractor/Supplier shall provide information regarding non-conformances raised in the last 12 months inclusive of Sub-Supplier activity)
- Critical supply process has not been periodically audited by COMPANY
- When requested by the COMPANY Assurance, Interface and Risk (AIR) function

Where applicable, the audit shall be performed against Contract requirements including the relevant Inspection and Test Plan(s). CONTRACTOR shall perform audits of its Quality Management System and personnel resource and have an audit schedule in place to verify and demonstrate the suitability and effectiveness of QMS and the competency of deployed personnel on COMPANY Projects.

21 Competency Assessment and Records

CONTRACTOR shall be responsible for providing suitably qualified and experienced personnel and provide documentation that confirms, monitors and maintains personnel qualifications. The experience and qualifications required shall depend on the Contract scope of work/specifications.

Inspectors shall be qualified in the discipline in which they are performing inspections. COMPANY reserves the right to remove individual Inspectors. CONTRACTOR shall have a competency review system in place, aligned with the applicable certification bodies' requirements to verify and demonstrate the competency of deployed personnel.

The records of qualification, certification and training shall be maintained and made available for COMPANY review at all times. All training records shall be maintained in a COMPANY acceptable format for at least three (3) years or the duration of the Contract or supply agreement, whichever is longest.

Those personnel who have responsibility for quality inspection will hold appropriate valid qualifications at appropriate levels, for example;

- Valid eye sight certification
- CSWIP welding certification (3.2 and 3.1 as appropriate)
- Radiographic Interpretation (Levels 1 and 2)
- IcoRR or BGAS Coating (Levels 1, 2 and 3)
- MPI, Dye Penetrant (Levels 1 and 2)
- Explosive Atmosphere and Hazardous Areas

21.1 Recognised Certifications Schemes

The following certification bodies or international equivalents are recognised by COMPANY:

- UKAS accredited Explosive Atmosphere training, CompEx Certification or similar. IEC 60079
- Engineering Institute of Technology
- National Qualifications Framework and City and Guilds
- The British Institute of Non-Destructive testing (BINDT) and Personnel Certification for NDT (PCN)
- Certification Scheme for Welding and Inspection Personnel (CSWIP).
- ISO 9712. Recommended Guidelines for Qualification and Certification of NDE Personnel.
- American Society for Non-destructive Testing (ASNT) SNT-TC-1A.
- Qualification and Certification of Welding Inspectors (AWS CWI and CAWI).
- The American Welding Society Scheme for qualification and certification of welding inspection personnel.
- Engineering Research Council (ERS) British Gas Corporation. (Examination and review board of British Gas Corporation for NDT; Pipeline, Pipe mill and Painting Inspection).
- National Association of Corrosion Engineers (NACE) Coating Inspector Training and Certification Program. (Three training levels (Level-I, II and Peer Review) are offered, each more demanding. Completion of Peer Review (earlier known as Level-III) culminates in candidates acquiring NACE approved Coating Inspector's status).
- Institution of Corrosion (ICorr) Paint Applicator Training and Certification (PATAC) Scheme. (Principally a test program that recognises and provides accreditation of coating application. Grades range from helper through blaster, brush applicator, spray applicator to paint supervisor).

21.2 Selection and Certification of Personnel Responsible for Quality

CONTRACTOR shall assign sufficient resource to manage and assure quality and only assign individuals to the work that have the requisite qualifications and experience and are acceptable to COMPANY. To ensure that both these requirements are met, CONTRACTOR shall submit a preliminary 'Quality Resource Plan' with an organisation chart including all positions assigned to manage quality from management to inspection roles. Résumés of individuals for each quality position shall be provided. Individuals may not be assigned to the work until evidence of qualifications is provided, e.g. in the form of certificates. Original certificates shall be submitted for review by COMPANY. NDE personnel qualified to the ASNT system are accepted, provided such qualification has been conducted by an independent authority. The qualification documents of such independent authority including the written practice shall also be submitted.

COMPANY shall be entitled to perform interviews of individuals nominated by CONTRACTOR for the work. At COMPANY discretion, NDE personnel may be required to be re-certified if any question arises about their ability at any time during the execution of the Contract.

21.3 Minimum Qualification Requirements

It is recognised that the effectiveness of Quality Management, Quality Assurance, Quality Control, Welding Inspection, Coating Application and Non-Destructive Examination (NDE) depends upon the capabilities of the personnel who perform functions related to these activities.

It is important for CONTRACTOR to identify, select, propose and only deploy qualified, competent and experienced personnel with at least the minimum requirements as defined in this Specification.

CONTRACTOR shall also ensure that throughout the supply chain all its Subcontractors and Suppliers quality personnel are competent to perform auditing, inspection and testing activities according to this Specification.

22 Process Control

CONTRACTOR depending upon criticality of process shall employ the use of documented procedures work instructions and checklists for the execution of work tasks. The procedures and work instructions shall detail the sequences of the work tasks or operations and make reference to other related procedures, drawings and standards where applicable. The acceptance or approval of each operation shall be signified by an authorised signature of each operation as it is completed. In the event that any operation has numerous attributes to be verified, acceptance shall be signified by authorised signature or relevant documentation. Acceptance criteria shall be the attributes as detailed within the engineering procedures, drawings, specifications, bills of material.

23 Control of Weight – Centre of Gravity

Suitable weight control is essential to COMPANY deliverables and the CONTRACTOR PQP and ITP shall refer to the CONTRACTOR system, plans and procedures for maintaining weight control from design through to final construction. The procedures shall cover quantity estimating, growth allowances, weight trend reports, deviations, corrective actions and weight measurement etc.

Where applicable within Contract scope of work, CONTRACTOR weight and measuring control system, plan and procedure shall be transmitted to COMPANY for review and approval.

24 Materials Management

CONTRACTOR shall establish procedures to ensure that all materials and equipment are properly identified, verified as conforming to specification, properly documented, preserved and stored appropriately prior to incorporation in the works.

CONTRACTOR shall ensure that:

- Suppliers/Vendors provide sufficient protective materials to preserve equipment and materials during transport and field installation.
- Procedures are established for checking incoming materials and associated documentation against the Purchase Order requirements, that the materials are free from damage or corrosion and are properly stored and preserved.
- Suitable identification and segregation of exotic and carbon steels, including possible contamination from tools, lifting equipment, grinding dust, wires brushes and cutting tools.
- Procedures are established for the release of material and equipment for incorporation into the works and quarantine procedures are established for the control of unidentified, suspect or damaged materials.
- Procedures are established and implemented such that materials can be traced back to the original batch documentation (certificate). All items shall have the identification marked on the item itself.
- Records of transfer of ownership of material from CONTRACTOR to COMPANY or vice versa are available.
- Procedures are established to ensure that COMPANY supplied materials and equipment are properly stored, protected, preserved and safeguarded.

24.1 Positive Material Identification (PMI)

Procedures shall be established by CONTRACTOR to identify material for welding verification, etc and also to identify substandard, rogue or counterfeit materials. This will require CONTRACTOR to implement a Positive Material Identification (PMI) programme and procedure which specifies when and how PMI will be performed and planned for within QP and ITP. The PMI programme shall include % PMI of alloy steels, austenitic and duplex stainless steels etc., and all types of product forms including boltings as appropriate. The purpose of the PMI programme is to provide the assurance that the materials are confirmed as specified and therefore can be released into production and installation.

24.2 Material and Equipment Preservation

CONTRACTOR shall provide secure, suitably weather protected open and covered storage for all Materials and Equipment obtained for incorporation into the work. All Materials and Equipment shall be protected against deterioration and CONTRACTOR shall provide all necessary temperature and humidity control preservation and maintenance including that required by Specifications, Supplier or Manufacturer storage and preservation procedures as applicable.

CONTRACTOR shall develop and utilise an approved equipment preservation programme during the course of the work. COMPANY shall reserve the right to review and approve preservation programme. As part of the CONTRACTOR Quality Assurance Programme, CONTRACTOR shall continuously monitor and enforce the equipment preservation programme to protect Materials and Equipment during all phases of production, storage, transportation and installation until such time as these items are mechanically accepted by the COMPANY.

CONTRACTOR shall allow the COMPANY access to all facilities, including storage and warehousing and associated records at all stages of Contract execution.

25 Manufacturing/Fabrication/Installation Processes

CONTRACTOR shall identify and plan the production, fabrication and installation processes which directly affect quality and ensure that these processes are carried out under controlled conditions. CONTRACTOR shall fabricate and/or construct using approved for construction documents utilising its own approved document control procedures. CONTRACTOR shall ensure that identified lessons learned during production are reflected in the surveillance, inspection and testing activities in the current ITP.

CONTRACTOR shall employ established and proven processes for the execution of manufacturing and fabrication such as forging, machining, pipefitting, welding, heat treatment, non-destructive examination (NDE), hardness testing, flange management, cable Installation and painting/coating, etc. CONTRACTOR shall employ suitably competent personnel for the execution of all manufacturing, fabrication and installation processes.

25.1 Welding

CONTRACTOR is responsible for producing suitable weld procedures for the work being performed. Weld procedures and supporting Procedure Qualification Records (PQR) shall be prepared and approved by competent personnel. Copies of certificates confirming their competency, experience, and qualifications in adherence to European Engineering or International Standards shall be made available on request.

All welding shall be performed using procedures prepared in accordance with the Contract design requirements. CONTRACTOR shall operate a system which assigns unique weld numbers to structural, piping and pipeline welds, traceable to both their final location in the structure, pipe work or pipeline, and to the Welder who performed the weld.

Where pre-qualified procedures are not available then CONTRACTOR shall supply weld procedure specifications (WPS), perform weld procedure records and qualify welders to meet the specified requirements or European Engineering or International Standards.

All welding procedures must be approved by COMPANY prior to starting welding.

All qualification testing is to be witnessed by COMPANY and/or Company Representative. Notification shall be given at least ten (10) days prior to the start of qualification testing.

All mechanical testing shall be carried out by an ISO 17025 approved test facility.

All test results shall be complete and accurate. The omission of any relevant information or inaccuracies may result in the requirement for new or repeat tests at CONTRACTOR expense.

No production testing shall be carried out whilst in production.

All weld procedures (including provision for repair welds) shall be qualified to COMPANY Specification or CONTRACTOR Specification and Industry Standards. All welding shall take place using dedicated welding procedures approved for use by the CONTRACTOR. Welding procedures shall be made available to Welding Operators and Welding Inspectors for all welding processes.

COMPANY may present specific requirements for COMPANY weld procedures. CONTRACTOR shall make reference to COMPANY weld procedure requirements if presented as part of the Tender process. CONTRACTOR Welders and Welding Operators shall be suitably qualified to the appropriate level of competency as defined within the CONTRACTOR weld procedures. CONTRACTOR and its Subcontractors shall maintain welder qualification register for all specifications.

All CONTRACTOR welding inspection personnel shall be suitably qualified to the appropriate level of competency as defined within the CONTRACTOR weld procedures. Additionally all CONTRACTOR welding inspection personnel shall meet the qualification and certification requirements approved by the CONTRACTOR quality assurance processes and this Specification.

CONTRACTOR shall be fully accountable for welding conducted by Subcontractors or Sub-Suppliers. Welding by Subcontractors or Sub-Suppliers shall meet the minimum requirements as defined by CONTRACTOR own processes and procedures. COMPANY shall reserve the right to review CONTRACTOR and/or Subcontractor weld procedures.

IMPORTANT NOTE: ‘NO’ weld repair shall be exercised by CONTRACTOR on COMPANY equipment without formal written approval. This shall apply to COMPANY procured equipment in the manufacturing phase. Weld repair shall apply to both ‘HOT’ and ‘COLD’ weld repair. Weld repair to CONTRACTOR owned equipment shall be at the discretion and control of the CONTRACTOR although CONTRACTOR shall notify COMPANY of such weld repairs to equipment proposed in the service to the COMPANY.

25.2 Heat Treatment

Where included within Contracted Scope of Work, heat treatment procedures shall be qualified in accordance with COMPANY Specification (where provided), or CONTRACTOR Specification or Industry Standards. All heat treatment shall take place using dedicated heat treatment procedures approved for use by CONTRACTOR. Heat treatment procedures shall be made available to heat treatment Operators for all heat treatment processes. COMPANY may present specific requirements for heat treatment procedures. CONTRACTOR shall make reference to the COMPANY heat treatment procedure requirements if presented as part of the Tender process. All CONTRACTOR heat treatment Operators shall be suitably qualified to the appropriate level of competency as defined within CONTRACTOR procedures.

CONTRACTOR shall be fully accountable for heat treatment by Subcontractors or Sub-Suppliers and shall meet the minimum requirements as defined by CONTRACTOR processes and procedures. COMPANY shall reserve the right to review CONTRACTOR and/or Subcontractor/Sub-Supplier heat treatment procedures.

25.3 Non-Destructive Examination (NDE)

Non-destructive examination shall be in accordance with COMPANY Specification (where provided), or approved CONTRACTOR Specification or Industry Standards and CONTRACTOR engineering standards, procedures or technique sheets. All of which shall be approved by an NDE Level III certified NDE Engineer. As a minimum the requirements of EN473 Level 2 (PCN/GEN/92) scheme shall be followed. NDE techniques may include but not be limited to the following;

- Magnetic Particle Inspection (MPI)
- Liquid Particle Inspection (LPI)
- Radiographic Techniques and Interpretation (RI)
- Ultrasonic Inspection (UT)

CONTRACTOR shall employ dedicated procedures and processes for NDE testing.

COMPANY may present specific requirements for COMPANY NDE procedures. CONTRACTOR shall make reference to the COMPANY NDE specification and/or procedure requirements if presented as part of the Tender process.

CONTRACTOR NDE Operators shall be suitably qualified to the appropriate level of competency as defined by Europe and International Codes and Standards and this Specification with copies of NDE/NDT Operator certificates made available for review and held at CONTRACTOR or Subcontractor/Supplier premises.

Interpretation of results shall be conducted by a level 2 Operator as a minimum. All reports shall identify the procedure and the qualifications of those Operators validating, signing and approving them.

CONTRACTOR shall be fully accountable for NDE by Subcontractors or Sub-Suppliers and shall meet the minimum requirements as defined by the CONTRACTOR processes and procedures. CONTRACTOR

shall provide NDE and Flaw Acceptance Criteria in accordance with CONTRACTOR procedures and relevant Industry Codes and Standards.

COMPANY shall reserve the right to review CONTRACTOR and Subcontractor NDE procedures.

25.4 Hardness Testing

Where included within Contracted Scope of Work, material hardness testing shall be performed in accordance with COMPANY Specification (where provided), or approved CONTRACTOR Specification or Industry Standards. Material hardness testing shall apply to products, equipment and equipment offered to the COMPANY as part of a service. The latter may apply to rental tooling or equipment subjected to prolonged or numerous usage. CONTRACTOR shall employ processes for the maintenance of rental equipment that requires periodic hardness testing to verify the mechanical properties of the materials used in the construction of the equipment.

At least one hardness test shall be performed on a base material. In applications whereby welding is employed for either new or refurbished equipment, one hardness test shall be performed on the weld and adjacent base material. Hardness testing shall be employed, post heat treatment, and after machining.

Hardness values shall meet the base material requirements of relevant Industry Standards.

CONTRACTOR shall employ standard industry recognised techniques for hardness testing, typical techniques may be as follows;

- Vickers Hardness Test (HV)
- Brinell Hardness Test (HB)
- Knoop Hardness Test (HK)

COMPANY may present specific requirements for hardness testing. CONTRACTOR shall make reference to the COMPANY material specification requirements if presented as part of the Tender process. All CONTRACTOR hardness test Operators shall be suitably qualified to the appropriate level of competency as defined within the CONTRACTOR procedures and European and International Codes and Standards.

CONTRACTOR shall be fully accountable for hardness testing completed by Subcontractors or Sub-Suppliers and shall meet the minimum requirements as defined by the CONTRACTORS own processes and procedures. COMPANY shall reserve the right to review CONTRACTOR and Subcontractor hardness testing procedures.

25.5 Painting and Coating

Painting and coating shall be performed in accordance with COMPANY Specification (where provided), or approved CONTRACTOR Specification or Industry Standards. CONTRACTOR shall provide painting or coating of equipment for both COMPANY asset, procured equipment or equipment offered as part of a service by the CONTRACTOR.

CONTRACTOR shall employ robust procedures for the pre-application preparation and testing, application and post-application testing of paints or coatings to equipment as specified for the lifecycle of the product or equipment. COMPANY may present specific requirements for painting/coating. CONTRACTOR shall comply with and make reference to the COMPANY paint/coating Specification requirements if presented as part of the Tender process.

All CONTRACTOR paint/coating Operators and Inspectors shall be suitably qualified to the appropriate Industry Codes or Specifications for competency. CONTRACTOR shall be fully accountable for painting/coating completed by Subcontractors or Sub-Suppliers and shall meet the minimum requirements as defined by the CONTRACTORS own processes and procedures.

COMPANY shall reserve the right to review CONTRACTOR and Subcontractor painting/coating procedures.

26 Control of Inspection, Measuring and Test Equipment

CONTRACTOR shall only utilise measuring equipment that has been subject to formal calibration. CONTRACTOR shall employ systems for the management and control of measuring equipment calibration.

Measurement equipment or instruments shall be periodically re-calibrated in accordance with equipment or instrument operational guidelines. All equipment or instruments shall be calibrated with a frequency within its demonstrated reliability. Calibration status shall be identifiable by the following;

- Date Indicator
- Calibration frequency (identified on calibration schedule)

Calibration certificates shall be reviewed upon receipt, adjustments made shall be noted. This shall include any adjustments out with the tolerated range. All calibration certificates shall be retained in accordance with CONTRACTOR and Subcontractor quality processes.

All calibrations shall be fully traceable to relevant national and/or international standards. All calibrated instruments shall be traceable to the individual piece of equipment measured.

27 Dimensional Inspections and Surveys

Dimensional inspections shall only be executed using calibrated equipment which is within the defined calibration dates. All equipment manufactured by the CONTRACTOR shall be dimensionally inspected during and/or following manufacturing/fabrication operations, such as material forming, erection of primary or secondary steel structures, machining, welding. This requirement shall be included in ITP documents. Particular emphasis for dimensional inspections shall be applied to primary sealing areas and areas with fixed or extreme tolerances. At the onset of the Contract, COMPANY and CONTRACTOR shall discuss critical dimensional inspection requirements. COMPANY may wish to witness critical dimensional inspection of COMPANY procured equipment or equipment supplied as part of a service form the CONTRACTOR.

28 Photographic Surveys

If required by Contract, photographic surveys of equipment or structures shall be completed by experienced photographic survey personnel using suitable equipment capable of providing an indexed catalogue of photographs that enables efficient planning for operational intervention. The survey methodology shall be planned within a procedure with clear expectations and outcomes defined for COMPANY approval.

Particular emphasis for Subsea equipment and structures shall be applied to primary locations of key components, equipment interfaces, remote access and verification of ROV and Diver intervention. At the onset of the Contract, COMPANY and CONTRACTOR shall discuss the requirements for photographic surveys. COMPANY may wish to witness photographic surveys of COMPANY equipment or structures, manufactured or fabricated as part of a service from the CONTRACTOR.

29 Test Procedures

CONTRACTOR shall have developed robust processes and procedures for the management of equipment tests for equipment procured, fabricated, manufactured, or supplied as part of a service by CONTRACTOR. Typical test procedures may include but not be limited to the following;

- Factory Acceptance Test (FAT) and Extended Factory Acceptance Test (EFAT)
- System Integration Test (SIT)
- Stack-up Test, Field Test
- Adhesion Test, Dry Film Thickness
- Pressure Test, Hydro Test, Gas Test
- Loop Test, Point to Point Test, Continuity Test

CONTRACTOR test procedures shall be developed in accordance with CONTRACTOR engineering processes and relevant European or International Industry Code and Standards.

All test procedures shall include appropriate signatories for approval of tests. COMPANY may elect to witness tests, such witness points shall be mutually agreed between COMPANY and CONTRACTOR and scheduled within an ITP.

COMPANY may elect to review CONTRACTOR test procedures prior to test taking place. Accordingly, CONTRACTOR test procedures shall be distributed to COMPANY allowing sufficient time prior to test schedule.

Test procedures shall be developed in a form to allow approval by either, COMPANY, IVB/NOBO or TPI. This shall be the norm even though approvals are not necessarily required by parties out with the CONTRACTOR approvals.

Tests procedures shall consider all aspects of the test from pre-test set-up to final completion of the test. In the case of pressure tests, strict conditions shall be evident for bleed down of pressure form the tested component. CONTRACTOR shall ensure that no trapped pressure in any form is remaining within the tested component.

Testing of equipment shall only be performed by suitably qualified personnel.

CONTRACTOR shall demonstrate guidelines for testing of equipment provided as part of a service to the COMPANY. Equipment with regular utilisation by multiple parties shall be subject to periodic testing in accordance with CONTRACTOR engineering processes.

30 Equipment Identification and Traceability

CONTRACTOR shall employ established processes and procedures for equipment identification and traceability. All equipment shall have appropriate identification, certification and traceability from raw material through to final as delivered component/assembly, and be marked in such a manner that they can be related to their certificates.

All equipment supplied by CONTRACTOR shall be marked in accordance with CONTRACTOR standard processes and applicable Industry Standards. Whereby a piece of equipment is supplied as designed in accordance with specific Industry Standards, the identification process shall be in accordance with the referenced Industry Standard. Where equipment tagging is applicable CONTRACTOR shall apply an applicable numbering system provided by or agreed with COMPANY.

All raw material shall be uniquely identified and traceable to relevant certification. Traceability shall be maintained throughout all manufacturing/fabrication processes as per CONTRACTOR processes. Where applicable, traceability shall include material log number and heat cast number.

Equipment shall be marked with the appropriate stencilling or etching, stress-less stamps or vibro-etching on a non-critical location as depicted by CONTRACTORS engineering drawings or procedures. Equipment which is unable to be marked by methods outlined above, shall be suitably tagged for identification and traceability purposes.

Where a machining or fabrication process removes identification, the serial number shall be transferred to ensure traceability is maintained. All assemblies shall be assigned a unique serial number; all component parts shall be recorded against a serial number and documented in accordance with CONTRACTOR process and procedures.

IMPORTANT NOTE: Where CONTRACTOR is providing equipment as part of service which may be made-up to third party components. CONTRACTOR may control the identification and traceability of equipment unitised together from different Suppliers. The extent of control by the CONTRACTOR shall be mutually agreed between COMPANY and CONTRACTOR at the onset of the Contract.

31 Material Traceability and Certification

CONTRACTOR shall ensure full traceability and identification of material from mill to completed product both to fulfil material traceability requirements and for taxation and custom requirements. Material and equipment supplied shall be of known quality and be certified in accordance with applicable Specifications, Codes, International Standards and European Directives.

31.1 Traceability

The following three levels shall be used to identify traceability requirements.

Level I: Full Traceability

Material shall be uniquely identified and its history tracked from manufacture through stockists (where applicable) to Suppliers and CONTRACTOR to actual position on the equipment with specific location defined on a material placement record. Material placement records may be verified by COMPANY or Third Party Body where applicable.

Level II: Type Traceability

CONTRACTOR, Subcontractor or Sub-Supplier shall maintain a system to identify material throughout manufacture and be traceable to a material certificate.

Level III: Compliance Traceability

CONTRACTOR, Subcontractor or Sub-Supplier shall maintain a system of traceability that enables a Certificate of Compliance to be issued.
Mills shall operate a tracking system which ensures that each product is traceable through the manufacturing process to the original cast and to the individual testing performed.

31.2 Material Certification

CONTRACTOR shall comply with EN 10204 for material certification.

Table 3 below outlines the Material Certification and Traceability levels for particular equipment and products. This requirement provides assurance that materials meet defined chemical and mechanical properties. The range of certificate types are listed below;

Type 2.1: Document issued by the manufacturer, stating compliance with the order

Type 2.2: Test report issued by the manufacturer,

Type 3.1: Inspection document endorsed by the manufacturer's authorised representative stating compliance with the order

Type 3.2: Inspection document endorsed by the manufacturer's authorised representative and either an inspection representative named by the CONTRACTOR or an independent third-party inspection body.

The following table (3) provides guidance of typical material traceability and certification to be defined in Contract as applicable.

TYPICAL MATERIAL CERTIFICATION AND TRACEABILITY		
Product/ Equipment	**Material Traceability Level**	**EN 10204 Material Certificate Type**
Structural Steel	I	3.1
Non Structural Steel (handrails and plate for protection structures etc,)	II	2.2
Valves (Choke, Gate, Ball)	I, II,III	3.2, 3.1, 2.2
Pipe (Hydrocarbon Carrying)	I	3.2
Pipe (Utility / Non-Hydrocarbon Carrying)	II	3.1
Flanges and Fittings	I	3.2
Pipeline Bends	I	3.2
Flexibles / Umbilicals	I	3.2
Sacrificial Anodes	II	3.1
Bolts / Gaskets	II	3.1
Pressure Vessel	I	3.2
HPHT Wellheads, Trees and Associated Valves	I	3.2

Table 3: Typical Material Certification and Traceability

Note: Table 3 is for guidance only, the following three requirements shall apply during EN 10204 assessment.

1. Certification for all critical, pressure retaining and controlling parts shall be supplied in accordance with EN 10204: 3.2.
2. Certification for non-pressure retaining and unstressed components shall be supplied in accordance with EN 10204: 3.1.
3. Non-pressure retaining, non-metallic components shall be supplied with certification to EN 10204: 2.2.

32 Quality Control

CONTRACTOR is required to operate secure goods receipt and have implemented formal processes for goods receipt inspection using pre-defined inspection criteria. Major and/or Safety Critical equipment and items classified according to a criticality rating are to be subjected to a defined level of inspection and control. CONTRACTOR will provide the criticality rating for acceptance by the COMPANY.

CONTRACTOR shall operate procedures, tools and techniques to ensure quality control is monitored by inspection, typical quality control activities shall include;

- Certification review
- Material certificate review
- Dimensional inspections
- Visual inspection
- Positive material identification (PMI)
- Ferrite test
- Profile roughness
- Coating thickness

Records of quality control results shall be maintained and appropriate action implemented in cases of nonconformity, these typically include;

- Inspection report
- Receipt of goods inspection
- Non-conformance register
- Non-conformance report
- Corrective action report
- Customer concession report
- Inspection release

33 Control of Non-conforming Product

CONTRACTOR shall demonstrate an established and proven system for the management of non-conformances. All non-conformances found in any event, manufacture or service shall be formally managed and communicated in the form of a Non-Conformance Report (NCR). All NCR's shall be recorded and risk assessed for their severity to their application by CONTRACTOR.

The review and disposition of NCR shall be the responsibility of CONTRACTOR, involving appropriate disciplines within CONTRACTOR organisation. All NCR shall be recorded within a dedicated management system.

NCR shall be communicated to COMPANY for review and potential approval depending on the severity and risk to COMPANY. If an NCR instigates a change to a piece of equipment or a service application, CONTRACTOR shall formally request a concession in accordance with agreed process and procedures.

Non-conforming equipment or parts shall be clearly identifiable using labels or indelible ink with the applicable NCR number. All equipment or parts with an NCR shall be quarantined.

CONTRACTOR shall monitor and manage Subcontractor or Supplier non-conformances and ensure suitable corrective action and disposition. These non-conformances shall be brought to the attention of COMPANY at the earliest opportunity.

33.1 Non-conformance Reporting

CONTRACTOR shall operate an NCR procedure that includes the following;

- Reporting and investigating of quality non-conformances and their root causes
- Identifying, tracking and closing out corrective or preventative actions arising from quality non-conformances
- Mechanisms to determine how sub-standard conditions and practises found during inspections are identified, addressed and closed out
- Methods of investigation failures of equipment or services
- Procedures for management, maintenance and replacement of equipment

34 Deviations, Concession and Technical Query Requests

CONTRACTOR shall operate a process and procedures for deviation or concession requests. This shall also apply to COMPANY procured equipment or service.

Post award deviations or technical queries to Contract scope of work or Specifications shall be submitted to COMPANY using an Action Tracking Management System (ATMS) provided by COMPANY. CONTRACTOR shall nominate a focal point to coordinate all deviations and queries to and from CONTRACTOR to COMPANY focal point.

Each deviation or concession request shall be reviewed by COMPANY and returned to CONTRACTOR with details of approval or rejection. In the case of technical queries a suitable answer shall be provided.

The formal ATMS process for submission of deviation/query requests shall be explained to CONTRACTOR at an appropriate time soon after Contract award or during Contract Kick-Off Meeting.

35 Internal Audits

CONTRACTOR shall undertake a programme of auditing the execution of the WORK and shall submit its audit schedule of the WORK to COMPANY for review and acceptance. The audit schedule shall be updated and issued at regular intervals to accurately reflect the audit status. CONTRACTOR shall ensure that audits on Subcontractors and Sub-Suppliers are included as necessary.

All internal quality audits shall be formally reported and documented within CONTRACTOR document control system. Corrective actions or non-conformances shall be reported into a formally defined action tracking system. Issues raised shall be monitored, reviewed and only closed out when demonstrative evidence of effective action to prevent a reoccurrence of the issue has been presented. Audits shall be carried out in line with the latest version of ISO 10011 Guidelines for Auditing Quality Systems. COMPANY will identify those audits in which it wishes to participate. COMPANY will identify audits it will undertake independent of CONTRACTOR.

All audit reports shall be issued to COMPANY for information as soon as they become available. On completion of the WORK, CONTRACTOR will issue a complete set of all audits, closed out with corrective actions in line with the fully completed audit register.

36 External Audits (Subcontractors and Sub-Suppliers)

CONTRACTOR shall have systems in place for the effective management and control of Subcontractors and Sub-Supplier audits. The auditing of Subcontractors and Sub-Suppliers shall be planned based upon criticality assessment and past performance. CONTRACTOR shall maintain a Contract specific schedule for auditing of critical Subcontractors and Suppliers during the Contract.

CONTRACTOR shall be fully accountable for the quality performance of Subcontractors and Sub-Suppliers. All external quality audits shall be formally reported and documented within the CONTRACTORS document control system. Non-conformances shall be reported into a formally defined action tracking system. Issues raised form non-conformances shall be monitored, reviewed and only closed out when demonstrative evidence of effective action to prevent a reoccurrence of the issue has been presented. At discretion of COMPANY, COMPANY may witness, or attend Subcontractor or Sub-Supplier audits, depending upon criticality. COMPANY reserves the right to conduct audits of Subcontractors or Suppliers.

37 COMPANY Audits

COMPANY shall execute audits for critical services provided by CONTRACTOR with criticality defined by COMPANY. CONTRACTOR shall provide full access to all areas of the CONTRACTOR business to facilitate audit(s). COMPANY audits shall be fully managed by the COMPANY and supported by the CONTRACTOR. Non-conformances shall be formally recorded by the COMPANY and reported back to the CONTRACTOR. CONTRACTOR shall review non-conformances and record these within a quality system and manage the action of the non-conformances via a tracking system. The resolution of non-conformances shall be achieved in a timely manner and where practical within the timeline defined by the COMPANY. Issues raised from non-conformances shall be monitored, reviewed and only closed out when demonstrative evidence of effective action to prevent a reoccurrence of the issue has been presented.

38 Third Party Audits

CONTRACTOR shall provide full access to all areas of the CONTRACTOR business to facilitate Independent Verification Body (IVB) or other Third Party audits (If necessary for the Contract).

IVB audits shall be formally reported and documented within CONTRACTOR document control system. Non-conformances shall be reported into a formally defined action tracking system. Issues raised from non-conformances shall be monitored, reviewed and only closed out when demonstrative evidence of effective action to prevent a reoccurrence of the issue has been presented.

39 COMPANY Quality Specific Requirements

39.1 COMPANY Documentation

COMPANY may require CONTRACTOR to formally communicate information using COMPANY formatted documents/templates. This requirement shall be mutually agreed between COMPANY and CONTRACTOR at the onset of the Contract. Typical documents may include but not be limited to the following;

- QCP Template
- Surveillance and Inspection Matrices
- Deviation, Concession and Technical Query Forms
- Technical Documentation Requirements
- Release and Handover Template Forms
- Final Documentation Template
- Action Tracking Management Systems (ATMS)

39.2 COMPANY Supplied Equipment

CONTRACTOR shall employ a system for the receipt and inspection of goods received form COMPANY. CONTRACTOR shall quarantine goods that does not meet the requirements of CONTRACTORS own quality processes.

CONTRACTOR shall demonstrate within Tender Submission the process for receipt of COMPANY supplied items. Upon acceptance of goods from COMPANY, CONTRACTOR shall effectively control the items within their own stock control system.

Management of COMPANY supplied equipment shall be through CONTRACTOR allocating a dedicated identification number (part or serial) that makes reference to the part and serial number called out on COMPANY supplied equipment. COMPANY equipment 'Not' meeting the requirements of the CONTRACTOR quality control system shall not be rejected but shall be placed into quarantine and COMPANY formally notified.

40 Shipping and Transportation

CONTRACTOR shall manage the shipping and transportation of equipment using dedicated processes and procedures. All equipment shall be adequately protected and packaged for shipment to the point of designation cognisant of means of land, sea or air. All transported equipment shall be accompanied with the appropriate documentation and all equipment shall be adequately identifiable and match the information as detailed within the supporting documentation.

CONTRACTOR shall utilise dedicated procedures for the transport and handling of all supplied equipment. Prior to leaving CONTRACTOR facility, all equipment shall be formally inspected and released by CONTRACTOR to ensure conformity with CONTRACTORS own processes and procedures and this process shall be documented.

41 Storage and Preservation

CONTRACTOR shall manage the storage and preservation of equipment using a dedicated storage and preservation process to prevent damage and deterioration of materials and equipment. CONTRACTOR shall have established procedures for general handling, storage, packing and onward transportation, whether directly purchased or free-issued by COMPANY.

CONTRACTOR shall identify risk to storage and preservation of equipment outside of its normal operating environment and employ suitable methods to mitigate these. COMPANY supplied equipment shall be subject to scheduled preservation in line with CONTRACTOR processes and procedures and any specific COMPANY requirements.

CONTRACTOR shall consider and operate processes for preservation of equipment over varying periods. This shall describe for short term storage < 6 months, mid-term storage <12 months and long term storage > 12 months.

CONTRACTOR shall manage preservation requirements using a dedicated preservation management system, controlling periodic preservation requirements.

All equipment shall be supported with a dedicated preservation procedure. This preservation procedure shall dictate minimum requirements for storage.

COMPANY and CONTRACTOR shall mutually agree storage and preservation requirements at onset of the Contract or as required by Contract schedule.

42 Mechanical Completion and Commissioning

Where Mechanical Completion and Commissioning is included within contracted scope of work, all of the following subsections of 41 and 42 shall apply.

42.1 Mechanical Completion (MC)

Mechanical Completion shall be managed throughout the fabrication, construction and installation stages up to the pre-commissioning stage and encompasses all disciplines. CONTRACTOR shall execute the MC Work and supply certification on a sub-system basis to contribute to MC documentation. Equipment Suppliers/Vendors shall execute MC, Factory Acceptance Test (FAT), pre-commissioning, commissioning, preservation and Supplier assistance as specified in the Contractual requirements. CONTRACTOR is responsible for ensuring that the following have been established prior to start of fabrication, construction pre-commissioning and commissioning activities:

- Commissioning package and MC package definition
- Defined Commissioning network
- MC, Pre-Commissioning and Commissioning Procedures

The definitions and procedures shall be approved in line with Contract. The fabrication, construction and installation planning shall be system orientated as described in the contractual requirements. All MC activities shall be planned on fully integrated fabrication, mechanical completion and commissioning schedules; on a system prioritised basis to meet the optimal sequence of completion. The COMPANY document coding system, for item and system numbering must be implemented to ensure that the completed documentation produced per item is traceable to each MC package. COMPANY Mechanical Completion requirements are described in COMPANY Completion Strategy, It is the CONTRACTORS responsibility to define the MC packages detailed requirements and boundaries.

42.2 Quality Assurance of Factory Acceptance Test (FAT)

Testing and inspection activities to be performed at CONTRACTOR, Subcontractor and Sub-Supplier facilities to verify the equipment's performance functionality, shall be included in ITP(s). CONTRACTOR shall define and include all tests, inspections, controls, acceptance criteria and documentation required for the FAT in the ITP.

42.3 Quality Assurance of MC Documentation Pack

CONTRACTOR shall establish MC control procedures to ensure that all MC activities are controlled and documented in accordance with Contractual requirements. The MC controls shall be included in the ITP to ensure that the checking and approval of documentation follows the sequence of work completion.

42.4 Quality Assurance of Punch Lists and Carry-Over Registers

CONTRACTOR shall establish a procedure for checking, categorising, approving and documenting punch list items in accordance with Contractual requirements. CONTRACTOR shall establish a Carry-Over Work Register (COWR) for all punch list items that COMPANY accepts as 'cannot be completed' at the current stage. The register shall be used for release of the Work from CONTRACTOR, Subcontractors and Sub-Suppliers and will as such be an input to the schedule and planning of outstanding work to be performed during later stages of the Project and be updated within the Completion Management System (CMS). The Material Status List and marked up drawings/instructions shall contain sufficient information for job definition at a later stage.

42.5 MC Certificates

CONTRACTOR performing a predefined scope of work shall issue a certificate to document that the MC scope has been completed. Each MC package shall have a MC certificate. CONTRACTOR shall establish a procedure for the preparation, checking, notification and Company approval of the MC Certificates, in line with the Completion Strategy and the CMS.

42.6 Pre-commissioning

Pre-commissioning shall be performed, if applicable, after the MC certificate has been issued. CONTRACTOR responsible for pre-commissioning shall establish a procedure in line with the Completion Strategy and the CMS for the preparation, checking and approval of the pre-commissioning work and for the issuance of a pre-commissioning certificate.

42.7 Ready for Commissioning Certificate (RFC)

The Ready for Commissioning Certificate (RFC) is the formal document for transferring the completed commissioning package(s) from the MC executor to the Commissioning executor. The RFC shall cover the pre-defined requirements and boundaries for the Commissioning Package set by CONTRACTOR.
CONTRACTOR shall establish a procedure in line with the Completion Strategy and the CMS for the preparation, checking and approval process.

43 Commissioning and Handover

Commissioning shall take place when MC and pre-commissioning (if applicable) is completed for a commissioning package and the Ready for Commissioning Certificate (RFC) is approved and issued. Commissioning is divided into three main steps:

1. Commissioning planning (preparation)
2. Commissioning execution
3. Commissioning documentation and Handover to COMPANY

43.1 Quality Assurance in Commissioning Planning

Quality assurance shall ensure the establishment of an area division plan for MC, commissioning network, definition of commissioning packages and commissioning procedures in due time before commissioning starts. As a minimum, to assure quality, commissioning planning shall cover the following activities:

- Development of commissioning organisation with suitable qualified and experienced personnel
- Development of system breakdown (sub-systems)
- Commissioning packages definitions
- Commissioning network

Requirements for removal of existing preservation. Where the system will be out of operation for an extended period, new protection and preservation shall be installed and include:

- Spare parts, temporary equipment and consumables for commissioning
- Commissioning preparation checking records
- Define requirements for witnessing and checking during the commissioning process
- Define requirements for final commissioning documentation before start and after completion of commissioning

Commissioning CONTRACTOR shall ensure that all planned activities have been completed prior to start of commissioning execution and any other requirements defined by the Completion Strategy and the CMS. This shall include:

- All commissioning preparation checking records are completed and signed
- Final documentation package complete as pre-defined
- Approved commissioning procedures and equipment suppliers' start up procedures are in place

43.2 Quality Assurance of Commissioning Execution

The detailed work scope shall be executed step by step in accordance with the commissioning plan. Immediately on discovery, irregularities and/or faults shall be recorded and mitigation actions taken.

As a minimum, to assure quality, the following shall be verified prior to, during and after the commissioning execution:

- All prescribed testing as defined within the CMS has been completed
- A formal review of; the systems, the planned commissioning packages and the commissioning procedures prior to start of execution
- Witnessing of critical activities during the commissioning process
- Performing spot checks on less critical activities
- The installation meets performance specification
- The installation is safe and reliable for operation
- A formal review of the final commissioning documentation after commissioning is completed.

43.3 Quality Assurance of Handover to Operations

Handover of systems from Commissioning to Operations shall be in accordance with requirements described in the Contract.

As a minimum, to assure quality, the following checking is required:

- All testing and certification requirements as defined in the CMS have been completed
- Verify that a completion acceptance certificate has been issued (signed by both parties)
- Verify completeness of handover documentation, e.g. as-built drawings, supporting engineering documentation, records, specifications and certification
- Verify availability of Supplier documentation for all equipment
- Verify that operating and maintenance procedures also include experience gained during commissioning

44 Manufacturing Record Book and Final Documentation

CONTRACTOR shall utilise an established process for the creation of MRBs. Post Contract award, the CONTRACTOR shall prepare and submit for approval a Manufacturing Record Book (MRB) Index (or As-Built Index).

CONTRACTOR shall submit the Final Documentation with As Built Drawings/Documents in accordance with the requirements specified herein or elsewhere in the CONTRACT.

CONTRACTOR shall prepare Manufacturing Record Books (MRB) concurrent with manufacturing/fabrication, incorporating any changes made during construction. MRB shall be available in draft as a minimum for final release inspection with final revision subject to COMPANY approval.

MRBs and Final Documentation shall be submitted in their final quantity and format to COMPANY by the date as defined in the Contract. Typically the following quantities shall be provided;

- Data Books: One (1) paper copy and one (1) electronic copy of final MRB to be supplied.
- Contract Documents: One (1) paper copy and one (1) electronic copy of final Documents to be supplied
- Drawings: One (1) paper copy and one (1) electronic copy of final Drawings to be supplied

Electronic copies shall be submitted in native software file format.

Manufacturing Record Books shall be in an agreed format and layout, agreed at the time of issue of the MRB Index, bookmarked for ease of review and retrieval of information.

The format and contents for MRB shall be consistent with scope of work/specification requirements; however in general, all items identified on the ITP for review by COMPANY shall form part of the MRB.

Typical Index list consisting of:

- Certificate of Conformity (CoC) reporting Conformity to applicable Specifications, duly signed by CONTRACTOR authorised Officer (e.g. QA Manager) including equipment assembly part numbers and serial numbers

- Third Party Build Appraisal Report / Release Note (where applicable)
- Third Party Design Appraisal Report (where applicable)
- CoC for all premium threads
- CoC of all other components
- Base Material Certification (EN 10204 3.1 and 3.2, etc)
- Mechanical Test Certificates
- Documented critical dimensional inspection reports
- NDE reports
- Load test certification (where applicable)
- Welding reports
- Post Weld Heat Treatment Reports / Charts
- Heat treatment furnace charts are required for all pressure-containing parts.
- Hardness test reports
- Hydro test reports/charts
- All torque turn charts
- Gas test reports/charts
- Drift test report
- Micrographs
- Mill Test certificates
- Inspection Release Note
- As-Built Dossier, including all as-built drawings, bolt torque and batch records, material certification and non-conformance reports;
- Factory Acceptance Test and Site Integration reports
- Coating reports

Table 4 below defines the typical documents that are released as part of Delivery (Dispatch Dossier) over and above MRB or As-Builts, as applicable to product, as part of Contract Delivery.

Table 4: Typical Manufacturing, As-Built Records and Dispatch Dossier

Description	CONTRACTOR Document Retention	Despatch Dossier	MRB
Certificate of Compliance	X	X	X
Purchaser's Release Notes / Waivers	X	X	X
Certifying Authority Release Note / Waivers	X		X
Material Traceability Records	X		X
Base Material Test Certificates (3.1 or 3.2 EN 10204)	X	X	X
Mechanical Test Certificates (3.1 or 3.2 EN 10204)	X	X	X
Welder Performance Qualification Certificates	X		X
NDE Records	X		X
NDT Operators Qualifications & Certificates	X		X
Heat Treatment Records	X		X
Factory Acceptance / Pressure Test Reports	X	X	X
Dimensional / "As Built" Report	X		X
Paint / Coating /Insulation Inspection Report	X		X
Paint / Coating /Insulation Inspector Qualification Records	X		X

Description	CONTRACTOR Document Retention	Despatch Dossier	MRB
Positive Material Identification (PMI Report) CRA Grades Only	X		X
Deviation / Query Request records	X		X
Non Conformance Reports	X		X
Equipment Calibration Certificates	X		X
Lifting Equipment Certification	X	X	X
Weight / Centre of Gravity Report	X	X	X
Hydraulic Test Certificate	X	X	X
Hydraulic Cleanliness Reports	X		X
Electrical Equipment Type Test Reports	X		X
COSHH Certificates	X	X	
Handling, Shipping and Site Preservation Data	X	X	X
Shipping and Packing Information	X	X	
Other reports as detailed on Purchase Order or quoted specification	X	X	X
Inspection Release Note	X	X	X

44.1 Contract Hand Over Dossier

CONTRACTOR shall conduct a final documented internal quality check on each Handover Dossier and ensure that all vital and essential non-conformance items have been closed out.
Documents formally handed over to COMPANY shall be indexed in accordance with COMPANY Contractual requirements as described. All Facility Handover requirements shall be described in the Contract.

45 Performance Monitoring

CONTRACTOR performance shall be measured throughout the Contract, both in the supply of products and services to the COMPANY. CONTRACTOR shall be monitored and measured against Key Performance Indicators (KPI) as agreed at the onset of the Contract. These KPI's shall be mutually agreed between COMPANY and CONTRACTOR and included within the various Contract Execution Plans. Typical KPI's may include but not be limited to the following;

- Quality attainment, (product or service)
- On Time Delivery (OTD)
- HSE Performance (leading and lagging indicators)
- Equipment performance
- Engineering/Design performance
- Non-conformances
- Non-productive time (NPT)
- Personnel performance
- Commercial performance
- Contractual performance

46 Contract Performance Reviews (CPR)

COMPANY shall monitor the performance of CONTRACTOR throughout the lifecycle of the Contract. COMPANY shall review and provide feedback to CONTRACTOR through the arrangement and execution of Contract Performance Reviews (CPR). These CPR's shall be mutually agreed between COMPANY and CONTRACTOR at the onset of the Contract, whereby an agreed format and schedule shall be developed for the course of the Contract or Service.
The CPR shall be managed by COMPANY Contract Sponsor and supported by the CONTRACTOR sponsor. The CPR shall cover all aspects of the Project or service being supplied and shall include a review of the agreed KPIs. The CPR shall employ the service of specialist personnel or services for the review of the KPIs where required. A minimum discipline list shall be developed and agreed between COMPANY and CONTRACTOR at the onset of the Contract.