



Badrakh Energy LLC
Zuuvch-Ovoo Uranium Project
H376512

Specification
Quality Management
Quality Management Systems - Specification for
Suppliers and Contractors

Specification

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This specification contains the expression of the professional opinion of Hatch, based upon information available at the time of preparation. The quality of the information, conclusions and estimates contained herein is consistent with the intended level of accuracy as set out in this specification, as well as the circumstances and constraints under which this specification was prepared."



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1. Purpose

The purpose of this specification is to define the minimum quality requirements with which external providers (vendors/suppliers/contractors) shall comply to demonstrate their ability to provide acceptable product and services as defined in the Contract and the Specification.

2. Scope

This Specification applies to the Quality Management System requirements of external providers for the Zuuvch-Ovoo uranium mining project.

3. References

Table 3-1: References

Reference	Description
ISO 9000:2015	Quality management systems – Fundamentals and vocabulary
ISO 9001:2015	Quality management systems – Requirements
ISO 10005:2018	Quality management – Guidelines for quality plans
ISO 10006:2017	Quality Management – Guidelines for quality management in projects
ISO 17025:2017	General requirements for the competence of testing and calibration laboratories
ISO 31000:2018	Risk management – Guidelines
EN 10204: 2004	Metallic products – Types of inspection documents

4. Abbreviations and Definitions

4.1 Abbreviations

Table 4-1: Abbreviations

Term	Description
AIA	Authorised Inspection Authority
CA	Corrective Action
CAR	Corrective Action Request
CWP	Construction Work Package
DP	Data Package
DCN	Design Change Notice
EDMS	Electronic Document Management System
FCI	Final Conformity Inspection
FIC	Final Inspection Certificate
HAZOP	Hazard and Operability
IRR	Inspection Release Report

Term	Description
IWR	Inspection Waiver Report
IOM	Installation and Operating Manual
ISO	International Organisation for Standardisation
ITP	Inspection and Test Plan
MDL	Master Document List
MDR	Manufacturing Data Report
NC	Nonconformity
NCR	Nonconformance Report
OEM	Original Equipment Manufacturer
OWL	Outstanding Work List
PO	Purchase Order
PQP	Project Quality Plan
PSI	Pre-shipment Inspection
QA	Quality Assurance
QC	Quality Control
QCP	Quality Control Plan
QMS	Quality Management System
QVR	Quality Verification Record
RACI	Responsibility, Accountability, Consulted and Informed matrix
RCA	Root Cause Analysis
TQ	Technical Query
VDDR	Vendor Document Deliverable Requirements

4.2 Definitions

Table 4-2: Definitions

Term	Description
Audit	Systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled
Client	Badrakh Energy LLC (Badrakh) – the Employer is the party/entity on behalf of whom the Contract/Order is placed
Concession	Agreement between the Contractor and Client/Engineer to use a part of the works that is not in accordance with the original acceptance criteria of the works information, and which will only be binding if approved and implemented in accordance with the Contract procedures
Contractor	Vendor, manufacturer, supplier, contractor, consultant or any person real or juristic that supplies, fabricates, manufactures, installs, constructs or otherwise contributes material, plant or services to the Client in furtherance of the Contract, the term Contractor has the same meaning as applied to the term sub-supplier/sub-contractor/sub-consultant



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Term	Description
Contractor data requirements	The documentation required to be submitted by the relevant supplier/contractor in terms of the Contract. These requirements are generally tailored to suit the scope of work, although it also addresses the way the documentation is required to be submitted, e.g., hard copy, electronic copy, etc.
Corrective Action Request (CAR)	Output from a corrective action which resulted from an NC. A document describing the NC, the RCA to determine its source, the action plan to remedy the root cause, and follow-up action(s) performed to ensure the effectiveness of the remedy
Data	All drawings/documents/information/DPs and IOMs required to be supplied under the Contract
Data Package (DP)	A compilation of manufacturing data, certification, inspection and testing records prepared by the Contractor to verify compliance with the Contractual requirements
Evaluation	An appraisal to determine if design, manufacturing, manufacturing facilities, construction processes and quality programs can produce a quality item or service and of generating evidence that support decisions on acceptability
Engineer	Client's Representative/Qualified person deployed by Hatch (the EPCM Contractor), responsible for the design and engineering of the specific Works (Hatch appointed design/package/lead engineer or package coordinator)
Guideline	The document describes the preferred method for suppliers or contractors to carry out a task
Hatch	Client's appointed EPCM Contractor as per the conditions of Contract
Hazard and Operability (HAZOP)	A detailed hazard and operability problem identification process carried out by a team. HAZOP deals with the identification of potential deviations from the design intent, examination of their possible causes and assessment of their consequences
Intervention Points	Controlled points indicated by the various controlling bodies concerned with the implementation of a specific QCP/ITP. These can be in the form of tests, inspections, surveillances, witnessing and reviews
Inspection	A phase of QC which, by means of examination, observation or measurement, determines the conformance of materials, supplies, components, processes or structures to predetermined quality requirements
Inspection Release Report (IRR)	A document issued to the Contractor by the Engineer advising release of the materials for dispatch. This does not relieve the Contractor of any obligations in accordance with the Terms and Conditions of the Contract
Inspection Waiver Report (IWR)	A document issued to the Contractor by the Engineer advising that the Engineer has waived final inspection for the materials listed in this document. The issue of this report does not preclude further inspection by the Engineer, is issued without prejudice and does not relieve the Contractor from the guarantees, warranties and obligations included in the Contract

Term	Description
Installation and Operating Manual (IOM)	A document prepared by the Contractor providing relevant information applicable to the installation and maintenance of the specific equipment, including consumables (e.g., oils, etc.)
Non-Conformity (NC)	A system, process or product related non-fulfilment of a requirement related to the intended or specified use
Owner	Same as Client
Procedure	The internal document that describes the preferred method of carrying out a task
Project Quality Plan (PQP)	A document that outlines the strategy, methodology, resource allocation, QA/QC systems/activities to ensure that goods and services supplied meet or exceed the requirements defined in the Contract, drawings and the applicable codes and standards
Quality Control Plan (QCP)/Inspection and Test Plan (ITP)	A document outlining the Contractor's specific manufacturing/construction inspection and testing requirements, including responsibilities, test acceptance criteria, and the witness and hold points
Quality	The degree to which a set of inherent characteristics fulfils requirements
Quality audit	A documented activity conducted for verifying by examination and evaluation that the applicable elements of the QMS have been established, documented and effectively implemented
Quality manual	A document setting out the quality policy, organisation, procedures and practices
Quality Management Structure (QMS)	The organisational structure, responsibilities, procedures, processes and resources for implementing quality management
Quality review	An activity undertaken to determine suitability, adequacy, effectiveness and efficiency of the subject matter to achieve established objectives and the degree to which a set of inherent characteristics fulfils the requirements
Quality risk	The effect of uncertainty on the Project quality objectives by ensuring that risks are identified, analysed and mitigated. This is done by risk impacts of non-conformances, concessions, rework, or rejections
Quality Verification Record (QVR)	A document stating results achieved and providing evidence of the activities performed
Responsibility, Accountability, Consulted and Informed matrix (RACI)	Structure used to categorise responsibility for each stakeholder/participant in the delivery of a task, whenever multiple parties are involved
Reject/scrap	A disposition used when an item is unsuitable for its intended use and/or is economically unfeasible to repair or rework. The item is discarded, scrapped and is replaced with an item that is fully conformant
Repair	The process of restoring a non-conforming characteristic to a condition such that the capability of the item to function reliably and safely is unimpaired, even though that item still does not conform to the original requirement. Repair disposition requires approval of the Engineer/Client
Requirement	Need that is stated, generally implied or obligatory

Term	Description
Re-work	The process by which an item is made to conform to the original requirements by completion or correction
Specification	The document that prescribes the precise requirements with which the product or service must conform
Supplier	Any supplier, sub-contractor or sub-consultant or any person real or juristic that supplies, fabricates, manufactures, installs or otherwise contributes materials, plant or services to the Contractor in furtherance of the Contract
Technical Query (TQ)	This refers to a document used by the Contractor to formally clarify and obtain approval for technical, or fabrication, or construction related design changes prior to implementation
Traceability	The ability to trace the history, application or location of an item or activity, or similar items or activities, by means of recorded identification
Use as-is	A disposition permitted for a non-conforming item when it can be established that the item is satisfactory for its intended use. Use as-is disposition requires approval of the Engineer/Client
Vendor	Manufacturer, supplier, contractor, consultant or any person real or juristic that supplies, fabricates, manufactures, installs, constructs or otherwise contributes material, plant or services to the Client in furtherance of the Contract
Works	All deliverables expected from the Contractor as per the scope of work requirements specified in the Contract between the Client and the Contractor

5. Quality Management System

5.1 General Requirements

- The Contractor shall document and implement a QMS in accordance with the requirements of ISO 9001: 2015 Quality Management Systems
- The QMS shall be suitable for the scope of services, size of the organisation and commensurate with the complexity of the services and products to be provided
- All outsourced processes shall be identified and controlled in the QMS
- Contractors shall comply with the contractually agreed quality requirements as well as those specified in technical specification and procedures that form part of the Contract.

5.2 Quality Documentation Requirements

5.2.1 Quality documents to be Submitted with the Tender:

5.2.2 Bidders shall submit the following deliverables for quality as specified in the relevant section of the Tender 'Returnable Schedule for the Tender:

- Valid ISO 9001: 2015 certificate

- Quality Manual
- Quality Policy
- Typical QCP
- Typical DP index
- Typical PQP (Construction packages only)
- CV of Quality representative detailing qualifications and experience (Construction packages only)
- Organogram detailing quality resources for the Contract (Construction packages only)
- Procedures for the assessment, selection, approval and evaluation of sub-suppliers and sub-contractors.

5.2.3 Quality Document Requirements after Contract Award:

5.2.3.1 Contractors shall list all documents required for the effective implementation of the QMS and shall provide, as a minimum (as agreed and as applicable to their scope, contract and within the contract scheduled/agreed dates), the following project specific documents:

- Copy of the (valid) ISO 9001: 2015 certificate
- Project Quality Policy
- Project Quality objectives
- Project organisation chart
- Project RACI matrix
- CVs of management and discipline leads
- Job descriptions of management and discipline leads
- Roles and responsibilities of management and discipline leads
- PQPs per project phase containing, as a minimum, quality plans for:
 - ◆ Design
 - ◆ Manufacturing inspection and testing
 - ◆ Construction inspection and testing
 - ◆ Commissioning and hand-over
- Discipline-wise project QCPs:
 - ◆ List of QCPs/ITPs for the Works
 - ◆ Civil and structural works

- ♦ Mechanical works
- ♦ Piping works
- ♦ Electrical works
- ♦ Control and instrumentation works
- ♦ Painting and insulation works
- ♦ Any other works
- Each project QCP shall identify specific inspection and test methods, acceptance criteria and formats for Project QVRs/inspection sheets as referenced on QCPs/ITPs as well as the DP index as per individual activity
- Index of manufacturing, construction and commissioning data books.

5.2.4 Project quality management, quality assurance, control and inspection and test programme:

5.2.4.1 Project Quality Plan:

- The Contractor shall compile and submit to the Client/Hatch, a PQP covering the QMS arrangements for the Project for approval within the contractually agreed timeframe from the Contract signature date
- The PQP shall document the processes for overall quality management for project along with a plan as to how the processes shall be affected on all phases of the Project
- As a minimum, the following processes shall be included:
 - ♦ Leadership:
 - Leadership commitment
 - Customer focus
 - Quality policy
 - Organisations roles, responsibilities and authorities
 - ♦ Planning:
 - Risks and opportunities
 - Quality objectives
 - Planning of changes
 - ♦ Support:
 - Resources

- People
- Infrastructure
- Environment for operation of processes
- Organisational knowledge
- ♦ Competence
- ♦ Communication
- ♦ Documented information:
 - Creating and updating
 - Control of documented information
- ♦ Operation:
 - Planning and control
 - Requirements of products and services
 - Customer communication
 - Determining the requirements of products and services
 - Review of the requirements of products and services
 - Changes to the requirements of products and services
- ♦ Design and development of products and services:
 - Design and development planning
 - Design and development inputs
 - Design and development controls
 - Design and development outputs
 - Design and development changes
- ♦ Control of externally provided processes, products and services:
 - Type and extent of control
 - Information for external providers
- ♦ Production and service provision:
 - Control of production and service provision
 - Identification and traceability
 - Property belonging to customer or external providers
 - Preservation

- Post-delivery activities
- Construction and commissioning
- Control of changes
- ♦ Release of products and services
- ♦ Control of non-conforming products
- ♦ Performance evaluation
- ♦ Monitoring, measurement, analysis and evaluation:
 - Customer satisfaction
 - Analysis and evaluation
- ♦ Internal audit
- ♦ Management review
- ♦ Improvement
- ♦ Non-conformity and corrective action
- ♦ Continual improvement.

5.2.4.2 Project Quality Assurance Planning:

All processes for quality management involved in the works included in the Contract must be identified and documented. The document shall include but not limited to the following:

- Management responsibility in projects
- Resource management in projects:
 - ♦ Resource planning and control
 - ♦ Project organisational structure
 - ♦ Resource allocation
 - ♦ Team development
- Product/service realisation in projects:
 - ♦ Project initiation
 - ♦ Project management
 - ♦ Interaction management
 - ♦ Change management
 - ♦ Project closure
 - ♦ Scope development and control

- ◆ Definition of activities
- ◆ Control of activities
- ◆ Planning of activity dependencies
- ◆ Schedule development and control
- ◆ Communication management and control
- ◆ Risk assessment, treatment and control
- ◆ Procurement planning and control
- ◆ Documentation of requirements
- ◆ External provider management and development
- ◆ Contracting and contract control
- Measurement, analysis and improvement in projects
 - ◆ Measurement and analysis
 - ◆ Improvement.

5.2.4.3 Quality Control Plans (or Inspection and Test Plans):

QCPs are the activity specific documents to plan the assurance, control and verification of quality during fabrication, installation and testing and shall be compiled by the Contractor for each unique manufacturing, construction/installation and commissioning activity, whether temporary or permanent, or as required by the Engineer and shall describe in the following order:

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

For manufacturing and construction activities the Contractor may utilise standard QCP which is their own or that of their supplier(s), provided that they account for the requirements as stated above and facilitate the documenting of intervention requirements of supplier, their sub-supplier, the Contractor, their sub-contractor, the Engineer and the

AIA. Alternately the Contractor may utilise the Engineer's QCP format as provided in Appendix A.

All QCPs shall be submitted to the Engineer for approval, any inspection requirements of the Engineer and/or AIA shall be inserted and approved prior to their implementation.

Submission dates of QCPs to the Package Engineer shall be documented in the Contractor's Level-4 manufacturing and construction schedule, coincident with the activity portrayed but at least 21 days prior to activity commencement date. Works associated with a QCP shall not commence until the latter has been approved by the Engineer.

A register of QCPs shall be developed and maintained by the Contractor throughout the life cycle of the project with the following:

- QCP document with revision number
- QCP titles (project name and project number)
- The relevant PO number
- Equipment Name and Tag number
- Planned and actual QCP status to the Package Engineer
- Engineer approval status
- QCP revision status.

The register shall be provided in electronic format to the Package Engineer on a weekly basis.

QCPs shall be populated as the work progresses and shall, where applicable, be supported by records/datasheets/logging sheets/inspection reports/field inspection checklist (FIC), etc.

The Package Engineer reserves the right to review QCPs at any stage during execution of the works to ensure progressive completion of the works.

Any changes to QCPs after the work has started shall be approved by the Package Engineer and the prior working copy/version shall be retained, marked as superseded and attached to the latest approved version for record of any activity to the stage prior to change.

Any minor changes to QCPs shall be done by mark-up/addition/deletion and approval by signature next to change by relevant vendor's/contractor's representative and Package Engineer.

5.3 Control of Documented Information

5.3.1 The Contractor shall document and implement a procedure for control of documented information.



- 5.3.2 The Contractor shall maintain the documented information in a way that it is easy to retrieve.
- 5.3.3 The Contractor documents shall contain the following:
- Project name and number, when applicable
 - Equipment Name and Tag number
 - Document number and revision
 - When required, it should be easily possible to retrieve any measurement, analysis and trending data.
- 5.3.4 The Contractor shall maintain an MDL that contains:
- The document title, number and revision status
 - Mention if contractor/engineer review and approval is required and in case it is, the status of review/approval
 - Be submitted to the Engineer on a monthly basis in electronic format.
- 5.3.5 The Contractor shall define and implement a process for the Engineer's approval, specifying, as a minimum:
- The documents applicable to the Contractor's QMS
 - The format, structure and contents of documents
 - The document numbering and revision system.
- 5.3.6 The Contractor shall define and implement a process specifying the controls needed to:
- Approve documents for adequacy prior to issue
 - Review and update as necessary and re-approve documents
 - Ensure that changes and current revision status of documents are identified
 - Ensure that relevant versions of document are available at point of use
 - Ensure that documents remain legible and readily identifiable
 - Ensure that documents of external origin are identified and their distribution controlled
 - Prevent the unintended use of obsolete documents and to apply suitable identification to them if they are retained for any purpose.
- 5.3.7 Documents shall be submitted to the Engineer for review/approval in their native electronic file format.

5.4 Document Submission and Review

- 5.4.1 The Contractor shall use the Vendor Portal of the Hatch EDMS also referred to as DocShare Portal for transmitting documents formally to Hatch/Client.

- 5.4.2 The Contractor shall define a process that prescribes how documents shall be reviewed and approved before their issue to the project for use. This process shall define:
- Internal review and approval of documents by the Contractor team prior to submission to the Engineer
 - Review and approval of these Contractor documents by the Engineer.

5.4.3 The above procedure shall be approved by the Engineer.

5.5 Documented Information of Quality Verification

- 5.5.1 The documented information for QVRs substantiating the conformity of the Works shall be identified and listed for all works in a DP that shall be submitted to Engineer on delivery (for material and equipment) or on completion of the works.
- 5.5.2 The Contractor shall complete a detailed Vendor Drawings and Documentation Requirements (VDDR) that will specify all the documents/deliverables for all functions/disciplines, and for all phases of the Project and shall be handed over to the Client on completion of the works.
- 5.5.3 The VDDR shall form the basis of monitoring Contractor performance on document delivery and progress reporting.
- 5.5.4 The Contractor shall maintain any physical copies of the documented information in a way that ensures:
- Protection from damage due to fire, theft or deterioration
 - Controlled access by authorised personnel
 - Controlled storage conditions such as temperature, humidity and air conditioning.
- 5.5.5 The QVRs shall be filed in accordance with a system that is suitable to the different types of works and shall be indexed to facilitate ease of retrieval of records.
- 5.5.6 All documented information shall be stored in electronic format on Memory Stick and DocShare.
- 5.5.7 All records shall be backed up based on a redundancy regime.
- 5.5.8 Records shall be made available at the Contractor's record facility for review by the Client/Engineer as and when required.

6. Leadership

6.1 Leadership Commitment

- 6.1.1 The Contractor's leadership team shall be committed to the implementation of the established project QMS requirements and shall define the:
- PQP

- Project quality objectives
- Resources for implementing the QMS.

6.2 Customer Focus

6.2.1 The Contractor's leadership team shall:

- Identify, document and obtain the Engineer's/Client's approved project KPIs for measurement and reporting
- Measure, analyse and trend the KPIs for reporting to Hatch/Client
- Institute a process for obtaining the Engineer's feedback on the operation and performance of the Contractor QMS and satisfaction on a regular basis.

6.2.2 The Contractor shall ensure that any complaint from the Client/Hatch/Engineer are addressed in accordance with the Contract, that the necessary corrections are done and that all corrective actions are taken and monitored.

6.3 Project Quality Policy and Objectives

6.3.1 The Contractor shall define and document a Project quality policy and objectives at all relevant functions and levels within their project organisation.

6.3.2 The Project quality policy and objectives shall be communicated to all personnel as soon as they are mobilised to the Project to ensure that they all understand how they contribute to achieve quality.

6.3.3 The Project quality objectives shall be measurable and aligned with the Client's objectives and Contract requirements and shall be regularly reviewed for performance against stated objectives by the Contractor's leadership on a regular basis.

6.4 Roles, Responsibilities and Authorities

6.4.1 The Contractor shall be responsible for the quality of fabrication, manufacturing construction and commissioning (as applicable as per the Contract) for their scope of work.

6.4.2 The Contractor shall define and document the roles, responsibilities, authorities and lines of communication for the project via plans, procedures, RACI matrices and job descriptions.

6.4.3 The Contractor shall be responsible for the quality of the Works at any of their appointed suppliers/sub-contractors/sub-consultants that they may have appointed.

6.5 Project Quality Manager

6.5.1 The Contractor shall appoint a member of its leadership team as a project quality manager who shall be responsible for managing the QMS and for reporting on all matters related to quality to their leadership. If the size and complexity of the Project or order

does not warrant a project quality manager, a quality representative can be appointed, if approved by the Engineer.

- 6.5.2 The Contractor shall submit the roles and responsibilities and CV of this representative to the Engineer for approval and shall obtain approval from the Engineer, in writing, before commencing any work.

6.6 Management Review/Project Reviews

- 6.6.1 The Contractor shall conduct Management/Project reviews at specified intervals (at least quarterly) and shall cover the following during such reviews:

- Suitability, adequacy and effectiveness of the QMS
- The need for any changes to the project QMS
- Any client changes that may impact the QMS
- Review of audit reports, non-conformance reports, client feedback and process performance
- Recommendations for improvement.

- 6.6.2 Documented information of these reviews shall be maintained and made available to the Engineer/Client upon request.

7. Resource Management

7.1 General

- 7.1.1 The Contractor shall employ sufficient resources in all functional areas/disciplines to ensure that the QMS requirements through all phases of the project are effectively implemented.

- 7.1.2 The Contractor shall ensure that all project personnel are:

- Verified as competent for their intended work function
- Trained in the project quality policy, objective and job requirements
- Employed in adequate number in all required functions/disciplines
- Documented information to substantiate the above shall be maintained.

7.2 Quality Resource Planning

- 7.2.1 Adequate QA/QC personnel shall be provided considering the number of sub-contractors/suppliers, proximity of manufacturing facilities/sites and fabrication/construction schedules.

- 7.2.2 The Contractor shall employ skilled QA/QC staff to assure, control and to verify the quality of manufacturing and construction.

- 7.2.3 QC personnel shall be familiar with the applicable codes, specifications and processes as well as the applicable verification processes and documentation.
- 7.2.4 All quality staff shall be independent of those responsible for fabrication, construction and commissioning activities and shall report to the Contractor's project quality manager or site quality manager.
- 7.2.5 Where the Engineer is of the view that the Contractor has not provided the quality resources as per the Contract, or insufficient resources to meet the Contract quality requirements, the Engineer reserves the right to request additional resources at the Contractor's cost to satisfy the quality obligations in terms of the Contract. Alternately the Engineer may elect to provide resources and recover the related cost from the Contractor.
- 7.2.6 The Contractor shall prepare an overall project organisation chart, which shall include a quality organisation chart depicting the names, titles and locations of the planned resources as well as the reporting relationships and inter-relationships of all key personnel before starting the Project. The plan shall be updated to the resources actually mobilised once the Project starts. The plan shall be a dynamic document showing the latest status at any point of time.

7.3 Competence

- 7.3.1 Resources performing work affecting the QMS or product quality shall be competent based on appropriate qualifications, training, skills and experience.
- 7.3.2 The Contractor shall maintain and verify information for all personnel assigned to the Quality discipline consisting of:
- CV identifying qualifications and experience
 - Job description/profile
 - Assessment of competence.
- 7.3.3 Competence records for all the quality resources shall be maintained.
- 7.3.4 Client/Hatch reserves the right to have any person deemed to be incompetent removed immediately from performing any work related to their scope.

7.4 Infrastructure

- 7.4.1 The Contractor shall provide and maintain all infrastructure needed for operation of processes and achieve conformity of products and services to the Contract requirements. Infrastructure includes as applicable:
- Buildings, workspace and associated utilities
 - Equipment including hardware and software
 - Supporting services

- Transportation resources
- Information and communication technology
- Work environment.

8. Product Realisation

8.1 Planning for Project Realisation

- 8.1.1 The processes, activities, tasks and actions that influence or affect the quality of the design, engineering, construction, commissioning and maintenance of the works shall be identified, planned and documented.
- 8.1.2 The Contractor shall define the processes defining a risk-based criticality approach during design, manufacture and installation/construction as applicable to their Scope of Work and submit documented information of the same for the Engineer's approval.
- 8.1.3 The criticality assessment shall evaluate the combined effect of the likelihood of failure and the consequences (impact) to determine the level of QA/QC including inspection and testing required to optimise the use/effort/effectiveness of the quality management program and resources.
- 8.1.4 All equipment, processes and systems shall be assigned a criticality rating by considering and scoring on each of the following criteria:
- Safety
 - Environmental impact
 - Operational significance
 - Availability and accessibility for repair/replacement
 - Complexity of manufacture/construction and installation
 - Economics.
- 8.1.5 As a guideline, the following criticality ratings shall be applied:
- Critical – Safety and quality are vital and shall not be compromised
 - Major – Safety and quality of item is of significant importance
 - Minor – Quality of item is of moderate importance.
 - Standard – Commercial quality is acceptable.
- 8.1.6 After determining and documenting the criticality rating of any equipment on the Equipment list, the Contractor shall determine and document the corresponding levels for:
- Level of documentation check/review to be applied:
 - ♦ For approval/review/comment/information

- ◆ Level of checking and escalation – self check, discipline check, multi-discipline review and/or independent check
 - The level of material certification to be provided:
 - ◆ Refer to Section 11.4.4
 - The level of traceability to be provided:
 - ◆ Refer to Section 11.4.3.3
 - The inspection level to be implemented during manufacturing, installation and construction:
 - ◆ Refer to Section 11.5
 - The level of meeting intervention to be conducted prior to manufacture and installation and construction:
 - ◆ Post award clarification, pre-manufacturing kick off, pre-inspection meeting and construction kick-off meeting
 - AIA involvement.
- 8.1.7 The Contractor shall submit the Equipment list containing the following information for approval by the Engineer:
- Criticality rating
 - Level of document review
 - Level of material certification
 - Level of traceability
 - Level of inspection
 - Level of meeting intervention
 - AIA involvement.
- 8.1.8 The Equipment list shall be updated and re-submitted for the Engineer's approval whenever a new equipment is added.
- 8.1.9 The Contractor shall communicate all the quality requirements to suppliers/sub-contractors/sub-consultants inclusive of the criticality rating process conditions to be met.
- 8.1.10 Criticality level requirement shall be reviewed during the bid evaluation process.
- 8.1.11 For equipment/processes with criticality rating of critical and major the following shall be applied as a minimum:
- Post-award quality clarification meeting shall be held between the Contractor and their nominated Supplier and the Engineer (or delegated representative/s)

- Design control processes shall be implemented, and major suppliers and the Engineer (or delegated representative/s) shall participate in all these reviews/verifications
- Pre-production/pre-inspection kick-off meetings shall be held for major systems and equipment before any work commences. The Engineer (or delegated representative/s) shall participate in meetings
- All vendors/suppliers shall be assessed for compliance by the Contractor and copies of a recent audit shall be submitted to the Engineer (or delegated representative/s) for review. The Engineer shall perform their own capability assessment of all vendors/suppliers of the major equipment/materials/works as and when required.

8.2 Interface Management and Coordination

8.2.1 The Contractor shall define and document the interfaces of its internal process and procedures with those specified by the Contract, Client, Hatch/Engineer or third parties.

8.2.2 The interfaces documented above shall include but not limited to the following:

- Contractor project communication procedure
- Project change control (organisation, scope)
- Contractor invoicing, claims procedures
- Design liaison interface and design approval/acceptance
- Interface with AIA.

8.2.3 The interface documented information shall be submitted to the Engineer for approval.

8.3 Change Management

8.3.1 The Contractor shall document and implement processes for change management. The documented information for the same shall be submitted to the Engineer for approval. The Change management procedure/s shall supplement the contractual requirements as applicable and shall typically cover the following changes in their project:

- Changes to project procedures and scope of work for agreement with the Engineer
- Project changes to cater for scope creep and documenting and obtaining the Engineer's approval for scope changes in line with the Contract
- Design changes for obtaining the Engineer's approval of design changes and related cost before their implementation (refer to Section 9.4)
- TQs for obtaining the Engineer's approval for construction changes and authorisation for performing work differently to what has been specified or delivered in terms of the Contract prior to implementation
- The approval of recommended deviations because of any identified corrective actions

- Concession for approval of recommended deviations, defect repairs and the validation of defect repairs. Always use the Hatch concession form.

8.4 Customer Related Processes

- 8.4.1 The Contractor shall define and document the processes for communication, administration and liaison requirements of the Engineer for approval by the Engineer.
- 8.4.2 All contractual communication shall be done via the appointed Contractor's representative/agents.
- 8.4.3 The Contractor shall maintain a register of all incoming and outgoing communications related to the Contract.

8.5 Permits, Licenses and Statutory Provisions

- 8.5.1 The Contractor shall ensure that all Mongolian statutes, regulations, licenses and permits are complied with. Documented information of processes established for ensuring the same shall be maintained and all registered approvals pertaining to these shall be incorporated in the QMS.
- 8.5.2 As a guideline, following is the list of Mongolian codes to be complied to:

Table 8-1: Mongolian Codes

Document No.	Document Title
Civil – CNR 11-03	Regulations on Elaboration of Design Documents of the Construction. Facilities on the Territory of Mongolia by Foreign Organisations
Civil – CNR 11-01	Regulation on Elaboration, Agreement and Confirmation of Design Documents
Civil – CNR 2.01-01	Climatic and Geophysical Parameters for Construction
Civil – CNR 2.01.07	Load and Effect
Civil – CNR – 2.09.12	Hygiene Requirements for Industrial Buildings
Civil – CNR 11. 60	Designing and Construction of Cities Settlements
Civil – CNR 22.01.01	Norms and Regulations on Construction Planning in Seismic Zones in Mongolia
Civil – MNS 4943	Mongolian Standards for Industrial discharge to Surface Waters
Structural – CNR 2.01-01	Climatic and Geophysical Parameters for Construction
Structural – BNaR 2.01.03	Construction Thermotechnics
Structural – SNIP 11-M.1	Construction Norms and Rules (USSR)
Structural – CNR 11-0302	Regulations Elaboration of Design Documents of the Construction Facilities on the Territory of Mongolia
Architectural – CNR-11-03	Regulations on Elaboration of Design Documents of the Construction Facilities on the Territory of Mongolia by Foreign Organisations
Architectural – CNR11-01	Regulation on Elaboration, Agreement and Confirmation of Design Documents

Document No.	Document Title
Architectural – CNR 2.01-01	Climatic and Geophysical Parameters for Construction
Fire Protection System – CCM 21-01-02	Fire Safety of Buildings and Facilities
Fire Protection System – BNbD 21-02-02	Fire Safety Code for Buildings and Structural Design Works
Fire Protection System – BNbD 21-04-05	Automatic Fire Fighting and Alarm Devices of Buildings and Structures
Electrical – BD 43-101-03	The regulation of electrical installations, Ministry of Infrastructure Mongolia 2003
Electrical – BNbD 3.05.06-90	Electrical Devices, Ministry of Infrastructure Mongolia

8.6 Certified Equipment, Authorised Inspection Authority

- 8.6.1 The Contractor shall identify and provide the details of their preferred AIA who will conduct statutory inspection of certified equipment for approval by the Engineer, prior to contracting.
- 8.6.2 The AIA shall discharge its duties in accordance with the provisions of the relevant Mongolian regulations.

9. Design and Development

9.1 Design and Development Planning

- 9.1.1 To ensure adherence to the design objectives, criteria and all statutory and regulatory requirements of the Works, all relevant aspects of ISO 9001:2015 'Design and development of products and services' shall be analysed, planned and documented in an engineering management plan or equivalent.
- 9.1.2 Where applicable, the scope of work for each engineering office and the organisational interfaces between them and site shall be defined in this plan.

9.2 Design and Development Inputs and Outputs

- 9.2.1 The Contractor shall ensure that all work is performed to fulfil all the functional and performance requirements in accordance with the design and development inputs as per the relevant codes, standards and the Project specifications. Any conflicting design and development inputs shall be resolved before starting any work.
- 9.2.2 All design inputs shall be controlled and maintained as documented information and shall be readily available for review by all parties concerned including the Engineer.
- 9.2.3 Design outputs such as calculations, data sheets, drawings, specifications technical data and other deliverables shall be checked and approved by authorised personnel to confirm compliance with the relevant codes, specifications and standards so as to fulfil all design input requirements and shall be maintained as documented information.

9.2.4 Design outputs shall contain adequate information for subsequent processes and shall also reference the acceptance criteria and any monitoring and measuring requirements.

9.2.5 Documented information shall be maintained for any changes in inputs as a result of design development and the impact of the same on the outputs. These outputs shall be maintained and controlled.

9.2.6 In case outputs are revised due to design development, the same process as for the original output shall be followed, and the changes shall be highlighted in the revised output.

9.2.7 All design deliverables shall be maintained and shall be readily available for review by all parties concerned including the Engineer.

9.3 Design and Development Controls

9.3.1 Project specific procedures for design controls including appropriate checks, reviews, verification and validation of engineering work shall be documented and approved by the Contractor and the Engineer.

9.3.2 The Contractor shall document all formal design review activities including HAZOPs. Copies of the documented information for design reviews shall be submitted to the Engineer for information or approval as applicable.

9.3.3 Appropriate deliverables shall be approved by suitably qualified professionals as mandated by Mongolian statutory and regulatory requirements.

9.3.4 All documents shall be in English except for the documents submitted to the Mongolian government for the construction permits, which shall be in Mongolian.

9.3.5 Design reviews shall be conducted at specified stages of design, the results of such reviews shall be documented, and design changes shall be affected accordingly. The Engineer shall be invited to attend design reviews at appropriate stages as defined and agreed in the Contract.

9.3.6 Design verification and validation of critical work elements may involve personnel other than those having direct responsibility for the design of the work. The Contractor shall identify those work elements defined as critical and requiring alternative verification.

9.3.7 The design shall be validated to ensure that it will deliver to the specified design criteria, as applicable.

9.4 Design and Development Changes

9.4.1 The Contractor shall develop and implement a process for control of design and development change control during all phases of the work.

9.4.2 Design change management shall be applied to all systems, sub-systems and products to ensure that design and manufacturing variations/at source modifications/field modifications and replacements are properly notified and authorised and that re-validation by test or analysis, if necessary, is implemented and reported to the Engineer. The

Engineer shall ensure that the design change does not have any adverse impact on conformity to requirements.

9.4.3 Where the Contractor cannot comply with any of the specified design requirements and offers an alternate, a full justification shall be submitted with an application for review and acceptance by the Engineer.

9.4.4 Design changes shall as appropriate be reviewed and approved by the responsible design engineer and accepted by the Engineer.

9.4.5 The Contractor shall submit a design change register containing the following information to the Engineer every month:

- Design change notice number
- Detail of the change
- Reference documents (drawings, specifications, calculations)
- Status of design change – approved/rejected
- Cost related to design change
- Measures taken to prevent adverse impact if any due to the change
- Date the change was initiated
- Date the change was approved/rejected.

10. Procurement

10.1 Purchasing Process

The Contractor shall ensure that all sub-contractors/suppliers/sub-consultants are implementing a QMS that complies with the requirements of ISO 9001:2015, the Contract and the Project specific requirements.

10.2 Purchasing Information

10.2.1 The Contractor shall ensure and document the adequacy of specified purchase requirements prior to engaging their sub-contractors/suppliers/sub-consultants for implementation via internal review(s).

10.2.2 Where applicable, the Contractor shall ensure that the Client's contractual requirements are transferred on a back-to-back basis in the contracts and POs placed on sub-contractors/suppliers/sub-consultants.

10.2.3 Un-priced copies of the POs shall be provided to the Engineer when issued to sub-contractors/suppliers/sub-consultants.

10.3 Manufacturing Data Records and Product Release

- 10.3.1 The Contractor shall ensure that all MDRs (draft or final) are available at the premises of sub-contractors/suppliers/sub-consultants of the manufactured equipment at the time of final inspection to facilitate a review of applicable QVRs for the manufactured component or sub-component.
- 10.3.2 The Contractor shall ensure that they have obtained and reviewed final inspection and test records/and/or material release certificate for all material and plant before incorporating such items into the works.
- 10.3.3 A copy of the signed final inspection release certificate shall be issued with the shipped equipment or material to the delivery destination; no delivery will be accepted at the delivery destination without the signed inspection release certificate.
- 10.3.4 The final MDR shall be reviewed and accepted for completeness, and the final inspection release certificate shall be included in the MDR.
- 10.3.5 Once completed, the MDR shall be issued for final review by the package discipline engineer and the quality manager/representative for acceptance and approval.

10.4 Sub-contracting

- 10.4.1 The Contractor shall invoke this requirement and the relevant technical requirements in all levels of sub-contracting. The Contractor shall submit to the Engineer a list of all the sub-contractors/suppliers/sub-consultants they intend to use for approval prior to placement of any contracts or purchase orders.
- 10.4.2 The list of sub-contractors/suppliers/sub-consultants shall include the following for each of them:
- Name and physical address
 - Details of the closest airport (where applicable)
 - Scope of work and order/contract number thereof
 - Name and contact number of their representative for the work.
- 10.4.3 Sub-contractor assessment and selection:
- 10.4.3.1 The Contractor shall perform capability assessments on all sub-contractors to establish their competence to deliver services conforming to the Contract.
- 10.4.3.2 Documented information of all these assessments shall be maintained and provided to the Engineer on request.
- 10.4.3.3 Contractors should be aware of the requirements for assessment of all suppliers supplying material/equipment with criticality rating of critical and major.
- 10.4.4 Contractor performance evaluation and review:

- 10.4.4.1 The Contractor shall monitor and periodically review the performance of each sub-contractor/supplier/sub-consultant to ensure that are providing work in accordance with the Contract and maintain documented information thereof to be provided to the Engineer on request.
- 10.4.4.2 The Contractor shall institute corrective actions as necessary.
- 10.4.4.3 The Contractor shall stop any work that is not in accordance with the design being performed by any of its sub-contractors/suppliers/sub-consultants and shall inform the Engineer of such event within 24 hours.

11. Control of Production and Service Provision

11.1 Manufacturing, Construction and Commissioning

- 11.1.1 The Contractor shall plan, document and implement processes to control manufacturing, construction and commissioning under controlled conditions and submit the latter for approval to the Engineer.
- 11.1.2 The planning shall include but not limited to the following:
- Access permits/hand-over
 - Health and safety specification and plan
 - Environmental management plan
 - Environmental provisions (e.g., record of decisions and of factors leading to that particular decision)
 - Take-over/hand-over certificates
 - Handover punch listing (if applicable)
 - Safe access and egress for personnel and equipment
 - Availability of the Engineer approved QCPs, ITPs and related QVRs
 - Availability of the Engineer approved site erection plan, procedures, method statements, commissioning procedures and plans
 - Availability of trained, competent and qualified QC and inspection personnel
 - Calibrated inspection and measuring equipment with valid calibration records
 - Materials and/or equipment certified as released
 - Availability of AIA (if applicable).
- 11.1.3 The Contractor shall introduce a process for verifying whether all the planning requirements for the works have been met prior to commencement of work.



- 11.1.4 Kick-off Meeting:
- 11.1.4.1 After the Contract start date and prior to proceeding for manufacture/construction, the Contractor shall call a meeting with the Engineer to discuss the implications of the Engineer's quality requirements.
- 11.1.4.2 This meeting may be held as part of the Contractor kick-off meeting for each package or may be a separate meeting, depending on the criticality or the complexity of the Work. Additional kick-off meetings may be required when sub-contractors are engaged for key equipment.
- 11.1.5 Inspection and test schedule:
- 11.1.5.1 Prior to commencement of work, the Contractor shall submit an inspection schedule with the proposed dates for inspections and tests specified in the QCPs where the Engineer's witness and hold points are required.
- 11.1.5.2 The schedule shall be regularly updated with progress and issued to the Engineer to show the current status of the schedule.
- 11.1.6 Inspection and test notification:
- 11.1.6.1 The Contractor shall formally notify the Engineer of the upcoming inspections or tests that requires witnessing within the contractually agreed time through an inspection notification request (or equivalent).
- 11.1.6.2 For inspections or tests within the country, arrangements shall be confirmed at least **2-working days** before the event. For inspection and tests outside of the country, arrangements shall be at least **15 working days** and then again confirmed at least **7-working days** before the event.
- 11.1.6.3 The Contractor may use the Hatch provided inspection notification request form (Appendix B) or if they prefer using their own format. In case they use their own format, inspection notifications shall include the following essential information:
- Contract number and project number
 - Location of inspection or test (including nearest airport, station for offshore inspection)
 - Equipment/system description
 - Type of inspection or test
 - QCP number and inspection reference/activity number
 - Date and time of inspection or test
 - Expected duration of the test
 - Name and telephone number of the Contractor's representative.

- 11.1.6.4 The Contractor shall confirm the Engineer's appointed representative to whom all inspection notification request forms shall be sent.
- 11.1.7 Inspection levels:
- 11.1.7.1 The following Inspection levels have been assigned for the project:
- Level 0 – no inspection of item required by the Client and a review of the documented information of the relevant processes performed by the Engineer or his designated representative
 - Level 1 – a final conformity inspection of the completed item is performed normally prior to closure of item for shipment, verification requirements to be defined
 - Level 2 – limited scope inspection. Requires that the Hatch appointed inspector shall perform inspection at predetermined verification points (specific witness and hold points) and shall include FCI prior to release of goods for shipment and/or PSI
 - Level 3 – full scope inspection. Requires that the Hatch appointed inspector shall perform inspection at predetermined verification points (specific witness and hold points) and shall include a FCI prior to release of goods for shipment and/or PSI
 - Level 4 – resident inspection. This level is required for critical and frequent verification. The resident inspector shall continuously monitor the work in progress and verify the Contractor DP.
- 11.1.7.2 The Contractor/Supplier shall verify the required level of inspection that applies to a scope of work or part thereof with the Engineer.
- 11.1.8 Inspection interventions:
- 11.1.8.1 The following inspection intervention types related to an activity specified on a QCP has been defined:
- Surveillance inspection (S) – random inspections are performed by the Engineer, and a formal notification of inspection is not required
 - Actual inspection (A) – conducted as set out in the QCP and means the actual inspection or test is performed by the Engineer. A formal notification of inspection in writing shall be issued by the Contractor to the Engineer
 - Witness inspection (W) – conducted as set out on the QCP and the engineer shall witness the actual inspection or test. A formal notification of inspection in writing shall be issued by the Contractor to the Engineer
 - Review (R) – conducted as set out in the QCP and entails a review of the relevant documented information pertaining to the process, inspection or test. A formal written notification of inspection to the Engineer is not required
 - Hold (H) – conducted as set on the QCP and means that a 'Hold' shall be applied to the process/schedule until that process, inspection or test activity requiring witnessing or actual testing by the Engineer has been carried out and the related quality



documentation has been found complete. A formal notification of inspection in writing shall be issued by the Contractor to the Engineer. If the Engineer cannot attend, the Contractor shall not proceed with the process/schedule unless the Engineer has issued a formal written waiver of inspection that may be issued subject to a review of the quality documentation.

11.2 Inspection and Testing

11.2.1 The Contractor is responsible for management of all internal inspections and tests, as well as those of their sub-contractors/suppliers/sub-consultants and this shall include:

- On-time issue of inspection notification requests to the Engineer appointed quality inspector
- Documenting inspection and test results in inspection reports, QCPs, FICs and certificates
- Progressively inspecting the quality of the scope of work performed, including that of all their sub-contractors/suppliers/sub-consultants
- Inspecting to meet all the contractual requirements, in number, type and form
- Inspecting the day-to-day activities, material receipts, issue of material for installation, in-process inspections and final inspections.

11.2.2 Documented information containing all the complete original QCPs, Inspection and test Reports and FICs shall be submitted to the Engineer and form part of the DP.

11.3 Inspection and Test Status

11.3.1 Inspection release:

11.3.1.1 Upon completion of the scope of work and contractor/supplier verification that the work is conformant, either in total or in phases, the Engineer may issue an IRR after their own inspection, or may decide, subject to submission for review of the Contractor/Supplier verification documents, to issue an inspection waiver.

11.3.1.2 The issue of either an inspection release or inspection waiver does not relieve the Contractor of any of their obligations under the Contract.

11.3.1.3 The Contractor shall ensure that a copy of the release note and final expediting release note for transport, where appropriate, is attached to the delivery docket and accompanies the Work to the designated destination indicated in the Contract.

11.3.1.4 Items delivered to the Engineer without a copy of these documents shall be rejected.

11.3.1.5 A copy of the inspection release or inspection waiver shall be included in the DP.

11.4 Inspection and Testing Laboratories Services

11.4.1 The Contractor shall appoint and pay for the required inspection and testing to be provided by testing laboratories.

- 11.4.2 The independent inspection and testing laboratory services shall comply with the following:
- Testing laboratories shall be accredited by a recognised accreditation body to ISO 17025: 2017 as competent to conduct the required testing
 - Reports shall be submitted to the Engineer indicating all observations and test results in compliance or non-compliance with the Contract requirements
 - The Contractor shall provide samples of materials, design mix, equipment, tools, storage and assistance as requested
 - Re-testing due to non-compliance with the specified requirements shall be performed by the same independent laboratory and the Contractor shall bear the cost of all such re-testing at no additional cost to the Client.
- 11.4.3 Identification and traceability:
- 11.4.3.1 The Contractor shall develop and implement a process for traceability of material and equipment for incorporation of the works to the extent required by the Contract, specification and/or codes and shall maintain the same as documented information.
- 11.4.3.2 Where traceability is a requirement, the Contractor shall control the unique identification of the product and source material.
- 11.4.3.3 Material traceability:
- Where and to the extent that material traceability is required, the Contractor shall implement processes for the maintenance of material identification throughout all phases of manufacture and construction, as applicable
 - Methods of identification, labelling and routines for re-labelling as appropriate shall be defined and agreed with the Engineer
 - Adequate records shall be maintained throughout construction enabling traceability of key materials from final product back to original material certificates. The material traceability records shall form part of the DP
 - The Contractor shall prepare a schedule of materials and equipment that are subject to traceability requirements for approval by the Engineer.
- 11.4.4 Material certification:
- 11.4.4.1 When specified in the Contract, the following certificates shall be provided to the Engineer and included in the DP:
- Type A: Vendor's or contractor's certificate of compliance with the Contract. This certifies that the goods or services are supplied in compliance with the Contract without inclusion of any test results (EN10204: 2004 – Declaration of compliance with the order "type 2.1")

- Type B: A certificate issued by a laboratory or test facility independent of the Contractor's works. It shall quote test results carried out on the product supplied and the relevant technical standard and code against which the compliance has been checked (EN10204: 2004 – Inspection certificate “type 3.1”)
- Type C: The same as Type B, the tests are to be witnessed by a third party (EN10204: 2004 – Inspection certificate “type 3.2”).

11.5 Control of Monitoring and Measuring Devices

11.5.1 The Contractor shall maintain an equipment list of all measuring and test equipment that requires calibration. This list shall detail the following as appropriate:

- Instrument/device number
- Instrument make/type
- Calibration date
- Calibration expiry date.

11.5.2 A file containing calibration certificates for all listed equipment shall be maintained and provided upon request.

11.6 Storage and Preservation of Product

11.6.1 The Contractor shall determine and maintain the documented information of any special requirements for equipment/material storage/preservation for the Engineer's approval including:

- Identification
- Handling and packing
- Storage and protection
- Shelf-life duration
- Safe handling.

11.6.2 The Contractor shall store and preserve materials and equipment until hand-over by providing:

- An equipment/material preservation schedule identifying the type and frequency of preservation inspections
- An equipment/material preservation register (per location) wherein results of preservation inspections are recorded.

11.6.3 The preservation schedule shall be provided to the Engineer after initial issue and after every instance it is updated with additional equipment/material.

11.6.4 The Contractor's equipment/material preservation register shall be provided to the Engineer monthly on the first day of every month.

11.7 Data Books and Operating and Maintenance Manuals

- 11.7.1 The Contractor shall develop, document and implement a system for the collation of QVRs, including change management records into manufacturing, construction and commissioning data books.
- 11.7.2 The procedure shall define the format, content and structure of data books and processes of compilation and handover and shall as a minimum conform to the following:
- DPs shall be provided by the Contractor for:
 - ◆ Manufacturing – for each individual PO
 - ◆ Construction – for each geographical area for civil works and for systems/sub-systems for mechanical and electrical systems
 - ◆ Commissioning – for each commissioned system
 - The Contractor shall include documents approved by the Engineer
 - DP shall be written in English or provided with an English translation
 - The data book index shall be provided to the Engineer for approval
 - DPs shall be updated as the work progresses, shall contain the original material, installation, erection, testing, inspection and change management documents and shall be continuously verified on a weekly basis for all inspection activities performed during that week
 - Contractor shall report the status of DP compilation at agreed frequency or as determined by the Contract
 - Records shall be endorsed by stamp/signature and date by the Contractor signifying completion and accuracy
 - Each DP shall have a cover sheet of A4 size specifying the following:
 - ◆ Title of document
 - ◆ Client name
 - ◆ Project name and number
 - ◆ Asset or tag number
 - ◆ Document number
 - ◆ System number
 - ◆ System description
 - ◆ Name and address of the Contractor
 - ◆ Contractor's contact number

- ◆ Contractor's job-code/number
- ◆ Column of signature of the Contractor's representative.

11.7.3 Where items are fabricated overseas, the DP shall be completed to reflect the works performed up to shipment and the shipment departure shall be authorised only after review to the satisfaction of the Engineer.

11.7.4 Maintenance manuals and part lists shall reference the OEMs catalogue numbers

11.8 Shipping

11.8.1 The Contractor shall ensure that all components are shipped in a way that will prevent loss or damage.

11.8.2 The Contractor shall ensure that the loading of all components on the ship and release of every load is monitored by their inspector prior to departure.

11.8.3 Where applicable, loading and lashing procedure shall be specified and submitted to the Engineer for review and acceptance.

11.8.4 The Contractor shall perform an inspection of all items on docking and record any damage which may have occurred during shipping and submit an inspection report to the Engineer within 24 hrs of the inspection.

11.8.5 Similar inspection and reporting shall also be performed immediately upon off-loading at the relevant site location, and the report shall be submitted to the Engineer within 24 hrs of the inspection.

11.9 Transport

11.9.1 The Contractor shall ensure that the components are transported in a way that will prevent loss or damage.

11.9.2 The Contractor shall provide an inspector who will monitor the loading of all components and release every load prior to departure.

11.9.3 Where applicable, the process for loading and transport shall be specified as documented information and submitted to the Engineer for review and acceptance.

11.9.4 Site receipt inspection:

11.9.4.1 If required by the Engineer, the Contractor shall inspect all materials or equipment immediately upon arrival at site and prior to installation and reject damaged and defective items. The receiving report will be sent to the Engineer immediately after performing the inspection.

11.9.4.2 The Contractor shall verify that the DP substantiating conformity of the material/equipment has been completed and approved by the Engineer prior to the installation or incorporation of the material/equipment into the works.

11.10 Final Hand-over/Take-over and Acceptance

- 11.10.1 Final hand-over and acceptance shall take place on completion of commissioning in compliance with the Contractual requirements and upon final acceptance of the DP by the Engineer.
- 11.10.2 Contractor initiated hand-over:
- The Contractor shall develop, document and implement a process for effective hand-over of the works as set forth in the Contract
 - The Contractor shall, upon completion of the contractual works:
 - ◆ Verify that work is complete and conformant
 - ◆ Ensure that a complete DP demonstrating compliance with the Contract is compiled
 - ◆ Produce an index of all hand-over quality records
 - ◆ Formally apply to the Engineer to issue a hand-over certificate for Works
 - The Engineer shall, upon application, perform a review of the:
 - ◆ DPs
 - ◆ Completed as-built records
 - ◆ Change management documentation (if applicable)
 - ◆ Defect management documentation (if applicable)
 - Based on the results of the review, the Engineer shall either accept or reject the request for hand-over
 - Where hand-over is rejected, the Contractor shall undertake the necessary re-work and re-apply for hand-over as per the Contract
 - When the hand-over is accepted, the Engineer shall issue a hand-over certificate.
- 11.10.3 Engineer initiated take-over:
- Where the Engineer requires taking over the works or a portion of the works, the Engineer shall identify the work or portion thereof
 - When the agreed portion of the work is complete and conformant, the Contractor shall proceed as per the Section 11.10.2 above and the Engineer shall issue the relevant certificate.

12. Monitoring, Measurement, Analysis, Evaluation and Improvement

12.1 Monitoring, Measurement, Analysis and Evaluation

12.1.1 The Contractor shall develop and maintain documented information of the process for the Engineer approval and thereafter implementation of a monitoring, measurement, analysis and evaluation specifying:

- What needs to be monitored and measured
- The methods for monitoring, measurement, analysis and evaluation needed to ensure valid results
- When the monitoring and measuring shall be performed
- When the results from monitoring and measurement shall be analysed and evaluated to ensure the conformity of the Works.

12.1.2 This shall include determination of the applicable methods, including statistical techniques and the extent of their use.

12.1.3 The Contractor shall ensure that suitable (competent) resources, infrastructure and environment are available to implement the processes and shall implement the monitoring and measurement activities at appropriate stages of the Project to verify that the criteria for process/output control and the acceptance have been met.

12.2 Improvement

12.2.1 The Contractor shall develop and maintain documented information of the processes to ensure that outputs that do not conform to their requirements are identified and controlled to prevent their unintended use or delivery.

12.2.2 Any defective product/non-conforming systems identified by the Contractor:

12.2.2.1 Defective product and system non-conformances shall be documented via NCR disposition. Contractor may use the NCR form as provided in Appendix C.

12.2.2.2 A copy of the Contractor NCR shall be issued to the Engineer within 24 hrs of initiation for information and thereafter re-issued within 7-days detailing the proposed correction and risk ranking for:

- Information where non-conforming product is scrapped or re-worked to conformity
- Approval where non-conforming product is to be repaired or used as is.

12.2.2.3 The Contractor NCR shall:

- Be uniquely numbered
- Trace the non-conforming product by unit, area and item description
- Be dispositioned as re-work, scrap, repair or use-as-is statement

- Identify defect correction measures
 - Risk level/ranking the impact of the non-conformance on the schedule, safety, functionality, performance, operability and serviceability
 - Facilitate the Engineer:
 - ◆ To endorse of proposed defect correction
 - ◆ To verify the completion of proposed defect correction.
- 12.2.2.4 The NCR shall be signed by the technical and quality authorities of the Contractor verifying accuracy of detail and defect correction measures prior and after actioning.
- 12.2.2.5 All work shall stop immediately on any non-conforming product dispositioned as “repair” or “use as-is” or where the risk is ranked as unsafe to proceed until the Contractor’s proposed disposition and defect correction measures are accepted by the Engineer/Client and the relevant authorities.
- 12.2.2.6 The Contractor shall issue an inspection and test notification to identify the completion of the proposed defect correction. The Engineer shall verify and approve the completion of proposed defect correction measures, and this approval shall be documented on the inspection and test notification report and Contractor’s NCR.
- 12.2.2.7 The Contractor shall identify repeat defects and non-conformities as systematic failures of their QMS and shall initiate a corrective action report and undertake root cause analysis. In such cases QMS rectification measures shall be introduced immediately. Once these rectification measures are implemented, the effectiveness of these measures shall be monitored.
- 12.2.2.8 The Contractor shall maintain and provide a copy of the native file of the Contractor’s non-conformance register to the Engineer on a weekly basis.
- 12.2.2.9 The register shall account for the NCRs raised by the Contractor, Supplier and the Engineer.
- 12.2.2.10 The Contractor shall include all NCRs as part of the Quality records and include these in the manufacturing, construction and commissioning data books.
- 12.2.3 Any defective product/non-conforming systems identified by the Engineer:
- 12.2.3.1 Defective product and non-conforming systems identified by the Engineer shall be documented in NCR issued by the Engineer to the Contractor.
- 12.2.3.2 The Contractor shall investigate the matter and respond in writing to the Engineer on the original NCR within 7-days of receipt detailing:
- Proposed disposition or alternatively, document reasons why it is not a non-conformity
 - Proposed defect correction measures and proposed correction date
 - Traceability of non-conforming product by unit, area and item description

- Risk ranking of the impact of the non-conformance on schedule, safety, functionality, performance, operability and serviceability
- Technical and quality authority's verification of accuracy of detail and defect correction measures.

12.2.3.3 The Contractor shall issue an inspection and test notification to identify the completion of the proposed defect correction. The Engineer shall verify and approve the completion of proposed defect correction measures, and this approval shall be documented on the inspection and test notification report and Contractor's NCR.

13. Concession Request and Technical Queries

13.1 Concession Request

- 13.1.1 Where a Contractor requests a concession to deviate from the requirements of the Contract or specified requirements, the Supplier/Contractor shall raise a request using the format as shown in Appendix D (or Supplier/Contractor equivalent form) to the Engineer.
- 13.1.2 The concession requests shall clearly identify all elements of the proposed deviation together with any resulting technical, commercial and/or schedule impacts.
- 13.1.3 Completed original concession requests shall form a part of the DP.
- 13.1.4 The Supplier/Contractor shall maintain and provide a native file copy of their concession register to the Engineer on a weekly basis.

13.2 Technical Queries

- 13.2.1 The Contractor shall seek any clarification of construction related design changes/technical issues (only) by submitting a TQ (Appendix E) to the Engineer in accordance with the Contract.
- 13.2.2 The TQ shall clearly identify all elements of the query along with all supporting documentation including drawings, where appropriate.
- 13.2.3 Once the clarifications have been provided through TQ approval by the Engineer, changes can be implemented.
- 13.2.4 Completed original TQs shall be included in the DP.
- 13.2.5 The Contractor shall maintain and provide a native file copy of the Contractor's TQ register to the Engineer on a weekly basis.

13.3 Contractor Assessments/Audits

- 13.3.1 The Contractor shall develop and implement a process for assessments and internal and external audits for conformance to QMS, and the technical and product audits to be implemented for the full duration of the project and shall maintain a documented information of the same.

- 13.3.2 The Contractor shall develop a detailed schedule for planned internal and external audits to be undertaken during the duration of the project.
- 13.3.3 Audit reports shall be provided to the Engineer on request.
- 13.3.4 Hatch/Client/Engineer audits:
- 13.3.4.1 The Engineer shall audit the Contractor's QMS as and when required.
- 13.3.4.2 Audit findings shall be risk ranked by the auditor as high, low, medium and shall be responded to by the Contractor within 5 days from the date of issue. The response shall contain the correction, root cause analysis and corrective action to mitigate the finding. The corrective action shall be tracked for effectiveness.

13.4 Risks and Opportunities

- 13.4.1 The Contractor shall demonstrate a risk-based thinking by identifying risks and opportunities from different sources like analysis of NCRs, concessions, inspection and assessment results, internal/external complaints originating from the Client/sub-contractors/suppliers/sub-consultants.
- 13.4.2 The Contractor shall plan and implement actions to address the identified risks and opportunities, evaluate the effectiveness of these actions and integrate these actions into their QMS where appropriate.
- 13.4.3 These risks shall be incorporated into the Contractor/vendor risk register where applicable and the register shall be issued on a monthly basis to the Engineer.

13.5 Continual Improvement

- 13.5.1 Monthly quality reporting requirements:
- 13.5.1.1 The Contractor shall submit a monthly quality report from the Contract start date. The requirements for quality reporting shall include, as applicable, but not limited to the following:
- Summary of quality performance including achievements and major quality problems
 - Audits conducted on the works and summary of findings
 - List of approved QCPs/ITPs for the Works
 - Latest document register (Contractor document register)
 - Latest VDDR
 - Updated NCR register
 - Major quality problems at fabricators/manufacturers and site (as applicable)
 - TQ including and field engineering query register
 - DCN register
 - Concessions register



- Inspections performed (Inspection register)
- Inspection look-ahead schedule (least 2-weeks for local inspections and 2-months for overseas inspections)
- Photo records and logistics
- Data book status report.

13.5.2 Customer satisfaction:

13.5.2.1 The Contractor shall demonstrate processes to monitor, analyse, evaluate and take any action warranted to improve customer's perceptions of the degree their needs and expectations have been fulfilled.

13.5.2.2 The Contractor shall collate, analyse and trend, as a minimum, the complaints and feedback from any source (the Engineer/Client/Hatch) as a method for measuring customer satisfaction.

The Contractor shall provide feedback and respond to all customer complaints as per the relevant Contract requirements.



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Appendix A: Typical Quality Control Plan



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QUALITY CONTROL PLAN NO.:				REV:				DATE ISSUED :			
CONTRACT. NO.:				DESCRIPTION:				ITEM NO.:			
SUPPLIER/ CONTRACTOR:				LOCATION:							

Activity No.	Activity Description	Procedure Reference/ Code Specification	Specification Acceptance Criteria	Verifying Document/ Report Certificate	Verification/Witness						
					Contractor		Hatch		Badrakh		
					Action	Sign	Action	Sign	Action	Sign	

Rev	Date	Reason for Revision	Drawn	Checked

ACTION:

H – Hold, Mandatory Hold Point (Verify) Only R – Review

W – Witness S – Surveillance

NOTE: H&W points require formal notification to Hatch



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Appendix B: Inspection Notification Request



Section A: To be completed by Initiator (Vendor)

Inspection Notification Request No: _____

Project Name : _____

Project No : _____

Vendor Name : _____

PO/Contract No : _____

Sub-supplier (if applicable) : _____

Quality Level : _____

Inspection Date : _____

Order No : _____

Vendor Contact Name : _____

Inspection Time : _____

Vendor Email Address : _____

Vendor Tel No : _____

Inspection Address : _____

QCP No and Activity : _____

Equipment/Description of Order : _____

Severity : ☐ Critical

☐ Major

☐ Minor

Comments : _____

Initiator Name and Signature : _____

Designation : _____

Date: _____

All requests to the Responsible Hatch Package Engineer
Copy to: Quality Representative (add applicable e-mail address)

Section B: To be completed by Hatch Package Engineer Request No: _____
DocShare Document number: _____

			Acceptances	
Name of Required Attendees	Client	Discipline	Yes	No



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Appendix C: Non-conformance Report



Non-conformance Report		
Project name: _____		Project number: _____
NCR number: _____		Date: _____
Section A – Initiating a non-conformance report		Page 1 of 2
PO/Contract No: _____		Sub-contract no: (if applicable) _____
Contractor: _____		
Description of non-conformance		
Non-conformance classification		
☐ Construction	☐ Commissioning	☐ Engineering/ Design
☐ HSE	☐ Manufacture	☐ Materials
☐ Documentation	☐ System/Procedure	☐ Complaint
☐ Other		
Non-conformance severity		
☐ Minor	☐ Major	☐ Critical
Disposition: ☐ Scrap ☐ Reject ☐ Rework ☐ Repair ☐ Use as Is ☐ Re-grade ☐ Other		
Contractor rep name: _____	Signature: _____	Date: _____
Name: _____ Client/Engineer /Hatch Approval of disposition (Repair, use as-is and re-grade only)	Signature: _____	Date: _____
Section B – Contractor proposed corrective action		
Root cause: _____		
Corrective action: _____		
Action to prevent recurrence: _____		
Acknowledgement of Receipt by Contractor		
Name: _____	Signature: _____	Date: _____



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Section C – Review and recommendations			Page 2 of 2
Hatch comments/recommendations/instructions			
Name:	Signature:	Date:	
Section D – Verification			
Comments (if applicable)			
Concession required Yes ☐ No ☐			
Section E – Close-out			
Hatch – Signoff when NCR is completed			
Name: Project quality manager		Signature:	Date:



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Appendix D: Concession Request



Request for concession no: _____					
PROJECT NAME:			PROJECT No.:		
A. CONTRACTOR SUPPLIED INFORMATION					
CONTRACTOR NAME:			P/O /CONTRACT No.:		
CONTRACTOR CONCESSION No.:			DATE:		
Required concession applicable to: (Item/Material/Equipment/Area) _____ _____					
Quantity affected: Original requirements: _____ _____					
Description of concession – Revised requirements: _____ _____ _____					
Justification: _____ _____					
(NOTE: This concession will be rejected if the following information is not provided):					
(i) Value of benefit to the Client \$/₹	(ii) Agree to an extension of the warranty ☐ Yes ☐ No If "Yes", what period			(iii) Any impact on the schedule? ☐ Yes ☐ No If "Yes", what period?	
References: Original Requirements reference: Drawing No.: _____ Rev.: ____ Specification No.: _____ Rev.: ____ Drawing No.: _____ Rev.: ____ Specification No.: _____ Rev.: ____ Drawing No.: _____ Rev.: ____ Specification No.: _____ Rev.: ____ Drawing No.: _____ Rev.: ____ Specification No.: _____ Rev.: ____ Drawing No.: _____ Rev.: ____ Specification No.: _____ Rev.: ____ Attached applicable documentation:					
Requested by: (Supplier/Contractor) Name: _____ Title: _____ Signature: _____ Date: _____					



B. SITE ADMINISTERED CONTRACT: Yes ☐ No ☐ GO TO "D"		
Possible QC implications (if any): 		
☐ Recommended Recommendations with the following Conditions:	☐ Rejected	
Discipline Supervisor: _____	Signature: _____	Date: _____
Construction Manager: _____	Signature: _____	Date: _____
C. RECOMMENDATION BY CONTRACT ADMINISTRATOR:		
Name: _____ Signature _____ Date _____		
D. RECOMMENDATION BY ENGINEERING:		
☐ Recommended	☐ Rejected	☐ Conditional with the following recommendations:
Comments: 		
Package Engineer: _____	Signature: _____	Date: _____
Lead Discipline Engineer: _____	Signature: _____	Date: _____
Engineering Manager: _____	Signature: _____	Date: _____
Comments: 		
E. PROJECT QUALITY MANAGER: Accepted ☐ Rejected ☐		
Name: _____ Signature _____ Date: _____		
F. PROJECT MANAGER: Accepted ☐ Rejected ☐		
Name: _____ Signature _____ Date: _____		
G. CLIENT REPRESENTATIVE: Accepted ☐ Rejected ☐		
Name: _____ Signature _____ Date: _____		



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Appendix E: Technical Query



TECHNICAL QUERY		
Project Name:		Project Number:
Contractor:	TQ No:	Date:
Contract No:	Contract Title:	
Details of Query:		
Initiated By:		
Name: _____ Signature _____ Date: _____		
References:		
Document No.	Rev.	Title
Proposed Solution by Contractor/Initiator:		
Contractor's Engineering Representative:		
Name: _____ Signature _____ Date: _____		
Projects Response:		
Project Lead Discipline Engineer:		
Name: _____ Signature _____ Date: _____		
Project Site Supervisor:		
Name: _____ Signature _____ Date: _____		