

Technical Specifications (In-Cash Procurement)

Technical Specification for IO QCC supervision Services

This technical specification provides requirements for supplier of inspections services and quality control supervision tasks executed on behalf of ITER Organization for On site activities.

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1 Preamble

ITER is a joint international research and development project that aims to demonstrate the scientific and technical feasibility of fusion power. The partners in the project - the ITER Parties - are the People's Republic of China, the European Union (represented by EURATOM), India, the Republic of Korea, Japan, the Russian Federation and the USA.

The programmatic goal of ITER is "to demonstrate the scientific and technological feasibility of fusion power for peaceful purposes".

ITER facility is classified as Basic Nuclear Installation (Installation Nucléaire de Base (INB)) in accordance with French Regulation.

In accordance with the ITER agreement, the procurement of the major components of the ITER facility is mostly provided "in-kind" by the ITER Parties via established Domestic Agencies (DA), which enter into contract with companies for the fabrication and the supply the equipment. ITER facility is under construction in Cadarache, St Paul lez Durance, France.

ITER Organization (IO) is responsible for monitoring the quality of its supply chain. Quality supervision services are requested in the frame of this monitoring and outcomes are included in the final manufacturing files, collecting evidence that applicable requirements have been met.

Expected documentation from the contractor may be used as supporting evidences provided to the French nuclear regulator.

This Technical Specification is to be read in combination with the General Management Specification for Service and Supply (GM3S) – [Ref 1] that constitutes a full part of the technical requirements.

In case of conflict, the content of the Technical Specification supersedes the content of Ref [1].

2 Purpose

This technical specification provides requirements for supplier of inspections services and quality control supervision tasks executed on behalf of ITER Organization.

It specifies minimum requirements applicable to Contractor providing Quality Control supervision services and supervision tasks of construction activities, manufacturing, servicing, tests, preservation and storage, installation of procured fusion machine items/components.

This specification is intended to support issuance of Framework Contract, which will allow IO to request inspections services and Quality Control supervision tasks on permanent basis.

Under this Frame Contract, single Task Orders will be issued specifying, if needed, additional dedicated requirements.

The framework contract aims to provide support to QMD for managing all work that is to be performed in preparation for, and during the execution of IO Site construction. This support is intended in addition to other resources that QMD have been allocated to ensure quality supervision implementation as needed (e.g. assignment of IO staff, IPAs).

In the frame of its general scope, framework contract could be used to support inspections execution as may be requested by PE/NPE network, therefore on item for which IO is considered as manufacturer. This section of the document outlines the reason this document has been written.

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3 Acronyms & Definitions

3.1 Acronyms

The following acronyms are the main one relevant to this document.

Abbreviation	Description
CRO	Contract Responsible Officer
GM3S	General Management Specification for Service and Supply
IO	ITER Organization
QMD	Quality Management Division
QCC	Quality Control at Construction
Contractor	Firm or group of firms organized in a legal entity to provide scope of the supply
IO TRO	ITER Technical Responsible Officer of the Construction Contract requesting for service to the Contractor or IO person delegated
CRO	Contract responsible Officer
Inspector	An individual, belonging to contractor staff delivering inspections on IO behalf and holding the appropriate set of skills, competences and qualifications to perform assigned tasks in the frame of Quality Control supervision activities
IDM	ITER Documentation Management
IR	Inspection Report
ITP (also MIP)	An Inspection Plan is a sequential list of manufacturing and inspection operations affecting quality
ITR	Inspection Test Record
MCD	Mechanical Completion Dossier
MCWP	Mechanical Construction Work Package
NCR	Non-Conformance Report
NDE	Non-Destructive Examination
PED	Pressure Equipment Directive
Performer	An all-inclusive term used to cover Suppliers and Subcontractors
PIM	Pre-Inspection Meeting
PRO	Procurement Responsible Officer
Quality Plan (QP)	<p>A document describing the, contract related, operational quality system to ensure that:</p> <ul style="list-style-type: none"> • Contract requirements will be met • Evidence of such compliance is maintained It covers the whole scope of the contract including work performed by suppliers/subcontractors and addresses all activities performed in connection with the contract.
QS	Quality Supervision
Supplier	Any entity that provides goods or services to the ITER Organization

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Supervision	Quality Control duties performed by the provider that will involve the checking, evaluating, witnessing, monitoring, validating, verification, review, reporting, or a combination of any of these activities, to determine and document conformance with given process and product requirements. It could include also other activities as may be decided for monitoring quality of supply (e.g. kick off/ manufacturing readiness meeting, follow up NCR, etc.)
SOR	Site Observation Report
SSC	Systems, Structures or Components
IPA	ITER Project Associate
QCC Coordinator	Quality Control at Construction Coordinator coordinates the whole construction Project divided in different programs

3.2 Definitions

Contractor: shall mean an economic operator who have signed the Contract in which this document is referenced.

4 Applicable Documents & Codes and standards**4.1 Applicable Documents**

This is the responsibility of the Contractor to identify and request for any documents that would not have been transmitted by IO, including the below list of reference documents.

This Technical Specification takes precedence over the referenced documents. In case of conflicting information, this is the responsibility of the contractor to seek clarification from IO.

Upon notification of any revision of the applicable document transmitted officially to the contractor, the contractor shall advise within 4 weeks of any impact on the execution of the contract. Without any response after this period, no impact will be considered.

Ref	Title	IDM Doc ID	Version
1	General Management Specification for Service and Supply (GM3S)	82MXQK	1.4
2	Order dated & February 2012 relating to general technical regulation applicable to INB-EN	7M2YKF	1.7
3	ITER Procurement Quality Requirements	22MFG4	6.2
4	Procurement Requirements for Producing a Quality Plan	22MFMW	4.0
5	Construction Quality Supervision Certification Working Instruction	UY2876	3.1
6	Working Instruction for Processing Construction Non-Conformity	U8VPSS	6.2
7	Manufacturing and Inspection Plan	22MDZD	3.7

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8	Work Instruction for producing an Inspection and Test Plan for construction	UEL9F	5.0
9	Mechanical Completion Procedure	UFATL8	8.0
10	Working Instruction for Processing Site Observation	AKGU8E	1.1
11	Inspection Report Template	TVUQWY	1.3
12	Working Instruction for Processing Construction Non-Conformity	U8VPSS	6.2

4.2 Applicable Codes and Standards

This is the responsibility of the contractor to procure the relevant Codes and Standards applicable to that scope of work.

Ref	Title	Doc Ref.	Version
CS1	Essais non destructifs — Qualification et certification du personnel END	ISO 9712	2021
CS2	Quality Management System	ISO 9001	2015
CS3	Evaluation de la conformité	ISO 17020	2012
CS4			
CS5			
CS6			
CS7			

5 Scope of Work

The scope of this contract is to supply to the IO inspection and Quality Control supervision services to ensure compliance with applicable requirements and approved reference documents. This includes assessment, monitoring, reviewing and reporting on activities listed in the ITP/MIP for which Intervention Points have been marked up by IO QCC.

This service may include also any other activities as may be decided for monitoring quality of supply (e.g. kick off meeting) and supervision on NCR follow up, pre-fabrication activities, qualification of processes related to mock-up, prototype manufacturing and testing in the frame of IO construction activities.

This includes:

- o Execute witness of inspections and control of hold points release in accordance with the project quality control plan based on the technical and regulatory requirements.
- o Review of Inspection and Test Plan (ITP-onsite), Manufacturing and Inspection Plan (MIP-offsite).
- o Prepare Site Observation Reports and ensure follow-up of QS findings recorded in such reports.

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- o Review of construction contractors' procedures and work instructions.
- o Review of construction NCRs and IO/transversal NCRs, assessment for remedial and corrective actions of NCRs; verification of evidence associated with remedial and corrective actions for NCR closure
- o Review of ITRs, mechanical completion, work package and mechanical completion dossiers.
- o Organisation and attendance to quality supervision coordination and pre-inspection meetings.
- o Participate in construction Surveillance activities.
- o Escalate any potential Safety issues or critical Quality issues through management line
- o Report construction inspection status, trends and issues. assessment, monitoring, reviewing and reporting on activities listed in the ITP/MIP for which Intervention Points have been marked up by IO.

This service may include also any other activities as may be decided for monitoring quality (e.g. PIM/kick off meeting) and supervision on NCR follow up, pre-fabrication activities, qualification of processes related to mock-up, prototype manufacturing and testing.

The inspection service contract does not cover execution of the IO related to surveillance of external interveners as defined on art. 2.2.1 of [1]. It does not apply to statutory safety inspections.

5.1 Scope of work #1

5.1.1 Description

5.1.1.1 The contractor is requested to supply to the IO inspection and Quality Control supervision services as described in the scope of this document and related to installation/operation of SSC for ITER project. In particular:

5.1.1.2 The contractor shall make available qualified inspectors to:

- a. Perform supervision tasks on behalf of IO QCC.
- b. Verify that the item conforms to agreed requirements.
- c. Verify that supplier work activities are performed in accordance with the IO accepted QP to the specific work or otherwise directed in writing by IO and IO requirements.
- d. Report formally on observations and conformity following supervision.
- e. Report formally on progress.
- f. Ensure monitoring/follow up of detected findings as may be requested in the frame of his assignment, recording status (SOR Process)

Note: the contractor is not performing QC supervision inspection on behalf of the supplier. The Contractor shall ensure strict monitoring of its assigned staff and put in place measures to avoid inspector link and relationship with the supplier or its subcontractor, which may result in less effective supervision actions.

To prepare and execute the assigned tasks, the contractor shall preliminarily provide a list of potential inspectors on the base of information and requests by IO.

Information provided by the Contractor shall include updated CV of inspectors, copy of qualification certificates as may be applicable for requested assignment and documents in evidence of internal assessment of competences, which shall be described in contractor Quality Plan approved by IO [3][4]. Contractor shall make available relevant document/information to

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IO for preliminary evaluation and acceptance (e.g. anticipated by email) and uploaded on IDM exchange area.

The contractor shall propose inspectors who are fully competent and qualified to perform the work in accordance with the inspection request from IO. In particular, Inspectors who perform review of NDE results shall have a qualification according to ISO 9712 (or equivalent) as may be applicable depending by assignment request i.e. Magnetic Testing (MT), Penetrant Testing (PT), Radiography Testing (RT), Ultrasonic Testing (UT), Eddy Current Testing (ET) and Visual Testing (VT).

Contractor shall ensure that proposed inspectors are conversant with European Pressure Equipment Directives and Nuclear regulation as may be applicable as per requested assignment. IO may require if needed further evidence, including phone interview for assessment the proposed inspector is fully suitable for the requested assignment.

Once a proposed inspector is accepted for assignment, access to exchange area on IDM will be granted to him/her for the uploading of Inspection Reports and any additional deliverable as may be requested (e.g. SOR).

Inspection report template shall be equivalent to the one used in IO [10] and it shall be included in contractor Quality Plan approved by IO [3][4].

5.1.1.3 IO may request, and Contractor shall provide availability for specific additional induction/training/qualification scheme, to be provided by IO, to confirm assignment (for instance for assignment for monitoring of pressure equipment for which IO is manufacturer as per PED regulation).

5.1.1.4 Upon signature of the Task Order (TO), each inspection request will be initiated daily with the outlook calendar notification and also within the IO QCC notification register which is gathering all notifications for all construction activities.

5.1.1.5 Off Site Supervision could be requested on-call basis for punctual inspection (half day, one or more full days) for fixed duration of time. Mission request needs to be sent to IO QCC for approval with detail description of the work to be done and estimated cost.

5.1.1.6 Inspection activities are typically detailed in a MIP/ITP [7] [8] marked up according to IO internal procedure although additional spot inspections may be requested if deemed necessary by the IO TRO or IO QCC Coordinator who may also request for unplanned inspections.

5.1.1.7 All relevant documents needed to perform the supervision could be uploaded in IO database (IDM, Smartplant) like for instance:

- o Applicable MIP/ITP (including the control points defined by IO)
- o Technical Specification, procedures and/or relevant manufacturing drawings as applicable

5.1.2 Service Duration

The duration of the Framework Contract is for 3 years firm + 2 years optional periods. Services will be called as required by the means of Task Orders.

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5.2 Duties of inspector

The duties to be performed by the QCC inspector are largely dependent on the type of equipment and nature of the activities. A non-exhaustive list of inspector duties includes to:

- o General supervision of equipment and facilities.
- o Ensure that the correct revision of applicable documents like drawings, procedures and work instructions are being used during the execution of the activities.
- o Ensure that M&TE during testing and inspections are correct, appropriate and calibrated.
- o Identify special process issues during execution, such as welding, brazing and other manufacturing processes.
- o Witness and review tests of Production Proof Samples to the requirements specified.
- o Advise on inspection activities and support identification of issues in implementation of NDE procedures.
- o Ensure identification of Mill Certificates against material for all parts and that material complies with drawing requirements and IO material specifications.
- o Ensure that identification marks are traceable back to the material certificates and are matching with the related drawing.
- o Verify status of incoming items from suppliers and sub-contractors for workmanship, damage, contract documentation compliance and certification.
- o Verify correct use of approved filler metal for welding and brazing activities and check traceability between ID marks, labelling and certificate.
- o Review of welding/brazing procedures, welder/brazer qualifications to the specified requirements and verify correct use and witness relevant qualification/production weld test coupons as per requirements if required.
- o Check welds visually and where appropriate witness the corresponding non-destructive examinations and review results (radiographs, etc.) as the work progresses (not at the end of the contract).
- o Witness manufacturing, assembly and installation operations for compliance with approved procedures and drawings.
- o Check validity of personnel qualifications as may be applicable (NDE operators, welders, etc.)
- o Witness tests execution in compliance with applicable procedures as identified in the Inspection plan (MIP) – e.g. pressure tests, vacuum tests, type tests, leak tests, functional tests, etc. – checking acceptability of results Vs applicable specifications, codes and standards.
- o Carry out final inspections and final walk down.
- o Ensure that the Inspection Plans (e.g. MIP or ITP) are signed off by all interested parties at each point as work on the MIP/ITP progresses.
- o Ensure that all previous scheduled operations are correctly released before start execution of new operation on the ITP/MIP and report any inconsistency immediately to concerned IO QCC Coordinator/TRO.
- o Inform and advice the IO related TROs and IO QCC Coordinator immediately and no later than 1 working day of any nonconformity found during the inspections and/or supervision. SOR template to be using for reporting.

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- o Inform the IO QCC Coordinator on quality issues including feedback concerning strengths and weaknesses, if any.
- o Sign off witnessed operations in MIP/ITP acting on behalf of IO, whereas appropriate and upon satisfactory result.
- o Check nameplate and CE marking as per applicable requirements.
- o Review completion documentation (ITR, MCWP, MCD)
- o In case of special request from IO, Issue and upload on IDM a complete and exhaustive Inspection report, no later than 3 days from inspection completion. IR shall record all essential data, applicable documents/criteria and results, and having as attachment pictures as appropriate in order to provide more clear traceability of what witnessed.

5.3 Contractor's requirement

The Contractor shall ensure full technical, financial and economic capacity in relation to the technical scope and financial size of the Contract and full coverage of the professional competences necessary for the implementation of the work ensuring safe, timely and cost-efficient management.

5.3.1 The official language of the ITER Organization is English. Therefore, all input and output documentation relevant for this Contract shall be in English. The Contractor shall ensure that its team performing and supervising this Contract, including inspectors, supervisor and back office staff, have an adequate knowledge of English writing skills, to allow efficient communication and adequate drafting of deliverables. This requirement also applies to all Contractors' team staff performing inspections or participating in meetings with the ITER Organization.

5.3.2 Contractor must have a well-organized, highly skilled team, with in-depth proven knowledge and experience in ALL the following technical domains:

- Civil Constructions
- Materials, structures, mechanical components and Pressure Equipment
- Machinery and rotating mechanical equipment
- Electrical Equipment
- Nuclear field

5.3.3 Contractor shall submit a Quality Plan giving details of the proposed organisational structure for delivering of inspection services under this specification, including organization chart with name of appointed CRO , roles and responsibilities of individuated functions, roadmap, and resource allocation within the anticipated time schedule, execution workflow and the proposed lines of communication together with responsibilities to ensure homogenous and effective coordination worldwide.

In particular, the contractor's Quality Plan shall include provisions regarding the assessment, verification and maintenance of inspector competencies and qualifications consistently with their assignment.

Quality Plan shall be submitted to IO for acceptance, and it shall be uploaded in IDM exchange area and Any updating of this Quality Plan shall be immediately notified to IO for acceptance.

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5.3.4 Contractor shall ensure that proposed inspectors are fully competent and qualified for the assigned tasks and conversant with European and ASME codes as applicable.

To this purpose the Contractor shall have in place a system, acceptable to IO and having as reference criteria from ISO 17020, for internal training, competency assessment and internal qualification of inspectors assigned to requested tasks.

This system has to be traceable, auditable upon request by IO, and ensure homogeneous and continuous verification of competence of assigned inspectors including technical review of deliverables and periodic monitoring.

5.3.5 In case of specific tasks like for instance review of welding or NDT process and results the contractor shall provide inspectors holding recognized external qualifications according to ISO or EN standards (for instance according to ISO 9712 for NDT). Depending by specific assignment, other external qualifications may be considered as acceptable evidence of appropriate competence (e.g. ASME (AI, AIN, AIS, ANII, ANIS), ASNT, EDF-CEIDRE, UFIP-UIC, COFREND, AWS (CWI or SCWI), CSWIP (level 2 or 3), PCN (Level 2 or 3); BGAS-CSWIP (SWI or SPI -grade 1 or 2-), ACCP (level II or III), NACE (level 2 or 3), ICORR (level 2 or 3), BGAS CSWIP (Grade 2 or 1) or equivalent). External qualifications according to main international standards (e.g. European or other international ones) are preferred to internal qualifications.

5.3.6 Contractor shall have in place a system for periodic monitoring and assessment of performance of their inspector (at least one per year) which has to be described in the QP.

5.3.7 The Contractor shall ensure that inspectors are bound by confidentiality for all IO supplied information.

5.3.8 All contractors' inspectors must observe and respect applicable safety rules when on duty at IO Site and at supplier and manufacturer's facilities, in particular when required shall wear proper safety equipment for inspections, such as helmets, safety shoes, safety vests, gloves, safety harnesses, eye protection, etc. most of which are considered to be provided by the supplier inspected. Also, on IO Site there are some cleanliness areas which required dedicated equipment (White shoes, Whites jacket...)

5.3.9 There must be no conflict of interest i.e. The Contractor should have no other commercial interest in the manufacturing contracts for which the services are required (e.g. any involvement in the processing of weld samples, production radiography or other test examinations). IO-TRO shall be timely informed of any situation of potential conflict of interest the CRO may have knowledge.

5.3.10 The Contractor shall have an ISO 9001 accredited quality system concerned by inspection requests.

5.3.11 Contractor should have accreditation as per ISO 17020 or show evidence of equivalent system is in place covering field of inspection, type and range congruent with scope of the requested service.

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5.3.12 Contractor shall nominate a CRO to ensure effective coordination and performance of this contract.

5.3.13 The Contractor shall be responsible for communicating without delays any technical difficulties which might result in deviation from contract technical specifications.

5.3.14 The Contractor shall provide daily rates for Quality supervision services per education level/experience. All these rates shall include all inspection related cost.

5.3.15 Normal inspector working time is considered 8 hrs per day (full day inspection). Travelling time is not considered as working time. Justification for overtime (working time above 8hr per day or working in weekends or public holidays) shall be sent following IO Extra Work request template provided.

5.3.16 It could be requested to inspectors to work in 2 or 3 shifts, Saturday and even Sunday/public holidays. The offer shall cover the rate for those cases. Also it could be requested to perform some overtime (work done before/after the normal working hours (8 hours))

5.3.17 IO QCC inspectors are requested to send their weekly time sheet (template provided by IO) on Friday for IO approval

6 Location for Scope of Work Execution

Work shall be performed at ITER Site and at Supplier/Subcontractor's premises (in case of Prefabrication or sub-contracting)

7 IO Documents

Under this scope of work, IO will deliver the following documents by the stated date:

Ref	Title	Doc ID	Expected date
1	Applicable IO procedures for construction activities	Within SPO	Start Date of the contract
2			

8 List of deliverables and due dates

The Supplier shall provide IO with the documents and data required in the application of this technical specification, the GM3S Ref [1] and any other requirement derived from the application of the contract.

A minimum, but not limited to, list of documents is available hereafter with associated due dates:

Technical Design Family (TDF)	Generic Document Title (GTD)	Further Description	Expected date (T0+x) *
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Inspection and Test Record or Report	Inspection Report for Construction		On demand
Time Sheet	Weekly Time Sheet Presence per Inspector		Every week
Monthly Report + Invoice	Monthly report about Time sheet for all inspectors and invoice associated		Every Month
Documentation Report	Exhaustive List of Documentation Review	Upon request	Every Month
Site Observation Report	Inspection Report	Upon Request	

(*) T0 = Commencement Date of the contract; X in months.

9 Quality Assurance requirements

The Quality class under this contract is QC 4, [Ref 1] GM3S section 8 applies in line with the defined Quality Class.

10 Safety requirements

“The scope under this contract covers for PIC and/or PIA and/or PE/NPE components, [Ref 1] GM3S section 5.3 applies”

10.1 Nuclear class Safety

N/A

10.2 Seismic class

N/A

11 Special Management requirements

Requirement for [Ref 1] GM3S section 6 applies in full

11.1 Contract Gates

N/A

11.2 Work Monitoring

IO QCC inspector shall update the IO QCC notification register right after performing their supervision on site.

IO QCC inspector shall raise SOR within 24h when detecting some findings which can affect the quality of the work done.

IO QCC Inspector shall review documentation within the time defined in the IO system

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IO gives itself the right to introduce KPI to assess IO QCC inspectors' performance like for instance "Average time to review", "% of inspection attendance", "Customer Satisfaction", ...

In case of results not in line with KPI expectation, IO could ask replacement of IO QCC inspectors in accordance with Article 4 of the General Conditions of the Contract.

11.3 Meeting Schedule

o IO QCC inspector shall attend the Daily Construction Quality Coordination Meeting as below agenda:

- o Daily IO QCC notifications review and appoint IO QCC inspectors following priorities
- o IO QCC inspector shall attend/manage the Weekly Construction Quality Coordination Meeting with Contractor as below agenda:
 - o Activities of Past
 - o Planning of this week
 - o Discussion of Critical Issues & Follow-up
 - o Status of pending (ITR/MCWP/MCD/NCR/FCR/SOR/RFI)

IO QCC inspector shall attend the Weekly Construction Quality Coordination Meeting with Contractor as below agenda:

- o Status of past week
- o Discussion of Critical Issues & Follow-up
- o IO direction and recommendations
- o NCR follow up
- o SOR follow up
- o Completion documentation follow up (ITR/MCWP/MCD)

11.4 IO QCC inspector certification

Management requirements related QS Inspector Certification is described in [5]

11.5 CAD design requirements

This contract does not imply CAD activities

11.6 [ANY OTHER SPECIFICITIES]

o QCC inspectors shall be trained for specific training (as for instance training at height, confined space...) depending of their scope of work

o QCC inspectors shall have their own PPE including specific one like for instance white jacket, white shoes needed for cleanliness purposes

12 Appendices

N/A