

# ADNOC GROUP PROJECTS & ENGINEERING

## PROCUREMENT INSPECTION AND CERTIFICATION REQUIREMENT IN PROJECTS

### Specification

APPROVED BY:



15/12/2021

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**EFFECTIVE DATE:**

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**GROUP PROJECTS & ENGINEERING FUNCTION/ PT&CS DIRECTORATE**

<b>CUSTODIAN</b>	Group Projects & Engineering / PT&CS
<b>DISTRIBUTION</b>	Specification applicable to ADNOC & ADNOC Group Companies

**REVISION HISTORY**

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10-Nov-2021	01	Hossam El Batali / Quality Eng. Project <i>H.C.BATALI</i>	Hussain Al Harthi / HOD QA/QC- GPE	Najem Qambar / VP Group Eng.-GPE	Ebraheem AlRomaithi / SVP-GPE <i>EALROMAITHI</i> 15/12/2021

The Group Projects & Engineering Function is the owner of this Specification and responsible for its custody, maintenance and periodic update.

In addition, Group Projects & Engineering Function is responsible for communication and distribution of any changes to this specification and its version control.

This document will be reviewed and updated in case of any changes affecting the activities described in this document.

## INTER-RELATIONSHIPS AND STAKEHOLDERS

- 1.1 The following are inter-relationships for implementation of this Specification:
  - (a) ADNOC Upstream and ADNOC Downstream Industry, Marketing & Trading Directorate.
  - (b) ADNOC Onshore, COMPANY, ADNOC Sour Gas, ADNOG Gas Processing, ADNOC LNG, ADNOC Refining, ADNOC Fertilisers, Boreuge, Al Dhafra Petroleum, Al Yasat
- 1.2 The following are stakeholders for the purpose of this Specification:
  - (a) ADNOC PT&CS Directorate
  - 1.3 This Specification has been approved by the ADNOC PT&CS is to be implemented by each ADNOC Group COMPANY included above subject to and in accordance with their Delegation of Authority and other governance-related processes to ensure compliance.
  - 1.4 Each ADNOC Group COMPANY must establish/nominate a Technical Authority responsible for compliance with this Specification.

### Definitions:

**'ADNOC'** means Abu Dhabi National Oil COMPANY.

**'ADNOC Group'** means ADNOC together with each COMPANY in which ADNOC, directly or indirectly, controls fifty percent (50%) or more of the share capital.

**'Approving Authority'** means the decision-making body or employee with the required authority to approve Policies and Procedures or any changes to it.

**'Business Line Directorates'** or **'BLD'** means a directorate of ADNOC which is responsible for one or more Group Companies reporting to, or operating within the same line of business as, such directorate.

**'Business Support Directorates and Functions'** or **'Non- BLD'** means all the ADNOC functions and the remaining directorates, which are not ADNOC Business Line Directorates.

**'CEO'** means chief executive officer.

**'Group COMPANY'** means any COMPANY within the ADNOC Group other than ADNOC.

**'Standard'** means normative references listed in this specification.

**'COMPANY'** means 'Abu Dhabi National Oil COMPANY or any of its group companies. It may also include an agent or consultant authorized to act for, and on behalf of the COMPANY'.

**'CONTRACTOR'** means the party which carries out the project management, design, engineering, procurement, construction, commissioning for ADNOC projects.

**'SHALL'** Indicates mandatory requirements **"Group COMPANY"** means any COMPANY within the ADNOC Group other than ADNOC.

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## 1 GENERAL

### 1.1 Introduction

This Specification describes minimum inspection, testing and certification requirements to be performed by MANUFACTURER/ VENDOR/ CONTRACTOR and/or COMPANY on the equipment and material procured for ADNOC or ADNOC Group of Companies Projects.

COMPANY may utilize the services of Third-Party Inspection Agencies (TPIA) for inspection and testing during procurement of equipment and materials in Projects.

The complete listing of inspection, tests, material certification requirements, and parties involved shall be agreed in the approved Inspection and Test Plans (ITP).

### 1.2 Purpose

The purpose of this document is to guide MANUFACTURER/ VENDOR/ CONTRACTOR and/or COMPANY, (according to supply chain) in verifying equipment and material being supplied in compliance with COMPANY requirements, and as stated in the Contract / Purchase Order (Requisition).

This specification also covers the requirements for Certification of material used in the manufacture and construction in COMPANY Projects.

The indicated "Inspection Class" (IC) shall not relieve CONTRACTOR and his assigned MANUFACTURER / VENDOR from their contractual obligations to ensure conformance to the specified Contracts or Purchase Requisition.

All inspection Interventions required by a given class of inspection, shall be included as a minimum in the ITP which is part of the MANUFACTURER'S/ VENDOR'S overall Quality Plan.

If required by COMPANY and where relevant, data collection for equipment (i.e. Works Identification Number (WIN) /Unique Tracking Commodity (UTC) / Equipment Number Inspection Data Sheets and their attachments) shall be conducted as appropriate in accordance with the relevant ADNOC data sheets and specification. Equipment Data Collection should be read in conjunction with this document.

### 1.3 Definitions and Abbreviations

The following defined terms are used throughout this specification:

**"COMPANY"** means ADNOC, ADNOC Group or an ADNOC Group COMPANY, and includes any agent or consultant authorized to act for, and on behalf of the COMPANY.

**"CONTRACTOR"** means the parties that carry out all or part of the design, engineering, procurement, construction, commissioning or management for ADNOC projects.

**'SUB-CONTRACTOR'** means any party engaged by the CONTRACTOR to undertake any assigned work on their behalf. COMPANY maintains the right to review all proposed SUB-CONTRACTORS; this right does not relieve the CONTRACTOR of their obligations under the Contract, nor does it create any contractual relationship between COMPANY and the SUB-CONTRACTOR.

**'VENDOR'** means the party entering into a Contract with CONTRACTOR and/or COMPANY, as applicable, to provide the materials, equipment, supporting technical documents and/or drawings, guarantees, warranties and/or agreed services in accordance with the requirements of the purchase order and relevant specification(s). VENDOR could be also the main assembler / skid manufacture.

**'MANUFACTURER'** means the Original Equipment MANUFACTURER (OEM) who produces or fabricates equipment or materials, or MANUFACTURER of one or more of the component(s) which make up a sub-assembly or item of equipment assembled by the main VENDOR.

**'MAY'** means a permitted option

**'SHALL'** indicates mandatory requirements

**'SHOULD'** means a recommendation

**The abbreviations used throughout this specification are shown in Table 1.**

Abbreviations	
3LPE	3-Layer Polyethylene
3LPP	3-Layer Polypropylene
AHU	Air Handling Units
API	American Petroleum Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ASU	Air Separation Units
AVL	Approved Vendor List
BS	British Standard
CCTV	Closed-Circuit Television
CMMS	Computerized Maintenance Management Systems
CR	Criticality Rating
CRA	Corrosion Resistant Alloy
CS	Carbon Steel
CV	Curriculum Vitae
DCS	Distributed Control System
DSS	Duplex Stainless Steel
DX	Direct Expansion Cooling
EDP	Emergency Depressurisation
EN	European Standard
EOT	Electric Overhead Travelling
EPC	Engineering, Procurement & Construction
ESD	Emergency Shutdown
ESDV	Emergency Shutdown Valves

Abbreviations	
F & G	Fire & Gas
FAT	Factory Acceptance Test
FBE	Fusion Bonded Epoxy
FE Test	Fugitive Emission Test
FEED	Front End Engineering and Design
FMS	Fault Monitoring System
FR	Flash Report
FRU	Field Replacement Unit
GRP	Glass Reinforced Plastic
GRE	Glass Reinforced Epoxy
GRVE	Glass-fibre Reinforced Vinyl Ester
GTG	Gas Turbine Generator
HDPE	High-density Polyethylene
HFW	High Frequency Welding
HIC	Hydrogen Induced Cracking
HIPPS	High-Integrity Pressure Protection System
HOT	Hand Operated Overhead Travelling
HP	High Pressure
HSE	Health, Safety, Environment
HSECES	Health, Safety, Environment Critical Equipment and Systems
HSS	Heat Shrink Sleeve
HSSD	High Sensitivity Smoke Detection
HVAC	Heating, Ventilation, and Air Conditioning
IAP	Inspection Assignment Package
IC	Inspection Class
ICSS	Integrated Control & Safety System
IEC	International Electrotechnical Commission
IFAT	Integrated Factory Acceptance Test
IJ	Insulating Joints
IMTE	Inspection, Measuring, and Test Equipment
IN	Inspection Notification
IR	Inspection Report
IRN	Inspection Release Note
ISO	International Organisation for Standardisation
ITP	Inspection Test Plan
LP	Low Pressure
LTCS	Low Temperature Carbon Steel

Abbreviations	
MRB	Manufacturing Record Book
MDR	Manufacturing Data Report
MPS	Manufacturing Procedure Specification
MR	Material Requisition
MSDS	Material Safety Data Sheets
MTC	Mill Test Certificate
NACE	National Association of Corrosion Engineers
NCR	Non-Conformance Report
NDE / NDT	Non-destructive Examination / Testing
OLCMS	Online Condition Monitoring System
OEM	Original Equipment Manufacturer
PAGA	Public Address and General Alarm
PFI	Pipe Fabrication Standard
PIM	Pre-Inspection Meeting
PLC	Programmable Logic Controller
PMI	Positive Material Identification
PO	Purchase Order
PPE	Personal Protective Equipment
PQP	Project Quality Plan
PQR	Procedure Qualification Record
PR	Purchase Requisition
PSA	Pressure Swing Adsorption
PWHT	Post Weld heat Treatment
QA / QC	Quality Assurance / Quality Control
QMS	Quality Management System
QR Code	Quick Response code
RFI	Request for Inspection
RTP	Reinforced Thermoplastic Pipe
RTU	Remote Terminal Unit
SAT	Site Acceptance Test
SAW	Submerged Arc Welding
SCMS	Substation Control & Monitoring System
SDH	Synchronous Digital Hierarchy
SDSS	Super Duplex Stainless Steel
SPIR	Spare Parts Interchangeability Record
SS	Stainless Steel
SSCC	Sulfide Stress Corrosion Cracking

Abbreviations	
STG	Steam Turbine Generator
TPIA	Third Party Inspection Agency
TSO	Tight Shut Off
UTC	Unique Tracking Commodity
UPS	Uninterruptible Power Source
VDRL	Vendor Document Requirement List
WHCP	Well Head Control Panel
WHHP	Well Head Hydraulic Panel
WHRU	Waste Heat Recovery Unit
WIN	Works Identification Number
WPQ	Welder Performance Qualification
WPS	Welding Procedure Specification
WQR	Welder Qualification Record

## SECTION A - GENERAL

### **2 REFERENCE DOCUMENTS**

#### **2.1 International Codes and Standards**

The following Codes and Standards shall form a part of this specification. When an edition date is not indicated for a Code or Standard, the latest edition in force at the time of the contract award shall apply.

This specification is to be read in conjunction with AGES-SP-13-001 Criticality Rating Specification.

#### **AMERICAN PETROLEUM INSTITUTE (API)**

API 588	Recommended Practice for Source Inspection and Quality Surveillance of Fixed Equipment
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#### **BRITISH STANDARDS INSTITUTION (BSI)**

BS EN 10204	Metallic products — Types of inspection documents
BS 381C	Specification for Colours for Identification, Coding and Special Purposes

#### **INTERNATIONAL ORGANISATION FOR STANDARDISATION (ISO)**

ISO 9001	Quality Management Systems –Requirements
ISO 10005	Quality Management Systems - Guidelines for Quality Plans
ISO 10006	Quality Management Systems -Guidelines for Quality Management in Projects
ISO 9004	Quality management — Quality of an organization — Guidance to achieve sustained success
ISO 19011	Guidelines for Auditing Management Systems
ISO 29001	Petroleum, petrochemical and natural gas industries — Sector-specific quality Management systems — Requirements for product and service supply organizations

#### **Pipe Fabrication Standard (PFI)**

PFI ES-22	Recommended Practice for Color Coding of Piping Materials
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## 2.2 ADNOC Group References

HSE-OS-ST29	Health Safety Environment Management System HSECES Management Standard
AGES-GL-13-001	Contractor QA/QC Requirements
AGES-GL-13-002	Positive Material Identification of Equipment and Piping
AGES-SP-13-001	Criticality Rating Specification
AGES-SP-13-003	Traceability of Shop & Field Piping Materials

## 3 DOCUMENT PRECEDENCE

The specifications and codes referred to in this specification shall, unless stated otherwise, be the latest approved issue at the time of contract award.

It shall be the CONTRACTOR's responsibility to be, or to become, knowledgeable of the requirements of the referenced Codes and Standards.

The CONTRACTOR shall notify the COMPANY of any apparent conflict between this specification, the related data sheets, the Codes and Standards and any other specifications noted herein.

Resolution and/or interpretation precedence shall be obtained from the COMPANY in writing before proceeding with the design/manufacture.

In case of conflict, the order of document precedence shall be:

- a. UAE Statutory Legislation requirements.
- b. ADNOC Standards, regulations and Codes of Practice.
- c. Equipment datasheets and drawings.
- d. Project specifications.
- e. COMPANY Specifications
- f. National/International Standards

#### 4 SPECIFICATION DEVIATION / CONCESSION CONTROL

Any deviation / concession to this Specifications and its attachments including, but not limited to, the Data Sheets, Drawings and Narrative Specifications shall be sought by the CONTRACTOR, VENDOR and MANUFACTURER only through concession / deviation request format. Deviations / concessions are requested by the CONTRACTOR either on their behalf or on behalf of their VENDOR(s) and / or MANUFACTURER(s), after receiving the award of the Contract or Purchase Order.

A Deviation/ concession require COMPANY's review and approval prior to the implementation of the proposed changes. Changes implemented prior to COMPANY approval are liable to be rejected at COMPANY's sole discretion.

## SECTION B – QUALITY MANAGEMENT SYSTEM REQUIREMENTS

### 5 GENERAL

- 5.1 CONTRACTOR / VENDOR/ MANUFACTURER's Quality Management System shall cover the organizational structure, procedures, processes interaction, resources and include all those planned and systematic actions necessary to ensure and assure project Quality, and ensure that the specified project requirements, objectives are fulfilled, and satisfy the requirements of Quality Standard ISO 9001 and/or ISO 29001 (latest edition).
- 5.2 CONTRACTOR / VENDOR/ MANUFACTURER's Quality Management System shall be certified by an internationally accredited certifying agency, MANUFACTURER/ VENDOR/ CONTRACTOR's shall keep the Certification valid for the entire duration of the project.
- 5.3 CONTRACTOR's shall develop and implement a Project Quality Management System in accordance with ISO 10006 latest - Guidelines for Quality Management in Projects or equivalent.

### 6 QUALITY ASSURANCE REQUIREMENTS

- 6.1 MANUFACTURER/ VENDOR Project Quality System and associated documents to be implemented in the project shall be subject to review and comments by CONTRACTOR and COMPANY. All applicable documentation shall be reviewed for the need of any revision before initiating or implementing any change and revised documentation shall be resubmitted for CONTRACTOR and COMPANY review for comment and subsequent approval.
- 6.2 MANUFACTURER/ VENDOR Project Quality System shall ensure that all applicable Project Specifications and COMPANY Engineering Standards, Codes of Practice, Specifications, Procedures, Manuals and Project General Specifications as referenced in the contract are fully complied with.
- 6.3 CONTRACTOR / VENDOR/ MANUFACTURER's shall maintain sufficient Inspection, testing, Quality Assurance and Quality Control personnel independent from their other divisions/ work processes to ensure adequate implementation of the project Quality requirements. CONTRACTOR shall maintain and update the records & registers of the COMPANY approval and interview of the Quality personnel.
- 6.4 CONTRACTOR shall organize Quality Induction Training and awareness of all personnel on Project including CONTRACTOR/ Sub-CONTRACTORs / VENDORS and MANUFACTURER of Package Equipment and Critical Items.
- 6.5 All activities and services associated with the scope of project shall be performed by CONTRACTOR/ Sub-CONTRACTOR/ VENDOR/ MANUFACTURER approved by COMPANY; the latest Approved Vendor List (AVL) shall be utilized.
- 6.6 COMPANY does not allow the Use of Sub-CONTRACTORs and Sub-VENDORS for any services / functions without specific written approval.

- 6.7 CONTRACTOR / VENDOR/ MANUFACTURER shall ensure that all actions and activities that impact Quality are systematically planned in advance of the start of the activity. That adequate review of contract/ P.O. and other pertinent documents is performed in order to conduct a full analysis of the tasks and requirements prior to the commencement of work.
- 6.8 CONTRACTOR is advised to seek clarification from COMPANY regarding any conflict between standards or confirm their interpretation of the requirements stated in standards, which are considered unclear. COMPANY interpretation shall be binding.
- 6.9 CONTRACTOR / VENDOR/ MANUFACTURER shall ensure that the Quality of work is to the satisfaction of COMPANY, Contractor shall inspect any work prior to proceeding to next stage.
- 6.10 Inspection and approval by the COMPANY do not absolve CONTRACTOR of their responsibility to deliver the product meeting the explicit or implicit requirements.
- 6.11 According to Material/ Equipment Criticality rating, VENDOR and/or MANUFACTURER might be required to develop Project Specific Quality Plan; the Quality Plan shall be developed in accordance with ISO 10005 (Quality Management-Guidelines for Quality Plans) and COMPANY relevant Quality requirements. CONTRACTOR shall submit the PQP within 30 DAYS from the EFFECTIVE DATE of award of Contract, and the VENDOR and/or MANUFACTURER shall submit the PQP within 15 DAYS from the EFFECTIVE DATE of placement of P.O.

## **7 RESPONSIBILITIES**

- 7.1 CONTRACTOR / VENDOR/ MANUFACTURER are responsible to maintain a documented system to ensure that required inspection activities are planned, performed, witnessed and verified and to provide adequate assurance that all equipment, materials fabrication, installation and tests fully comply with the requirements of project specification and design code requirements.
- 7.2 CONTRACTOR / VENDOR/ MANUFACTURER's QMS shall provide an auditable trail verifying that inspection and Certification requirements satisfy COMPANY standards, indicative of equipment or system criticality as determined by CONTRACTOR and approved by COMPANY.
- 7.3 CONTRACTOR shall provide the overall Procurement Inspection Plan/ Strategy covering all project's purchase orders for COMPANY review/ approval, The Plan and associated CONTRACTOR's procedures shall clearly define responsibilities within the CONTRACTOR's organization for specifying and approving inspection & test plans and performing inspection activities. CONTRACTOR shall ensure the followings as a minimum:
  - *Approval of Inspection Plans prior to manufacture, fabrication, installation and test.*
  - *Performing necessary inspection and verification activities to ensure equipment, materials and installation conform in every respect with relevant approved Project specifications and design codes.*
  - *Issue of Deviation Requests for approval, where deviations from Project Inspection requirements are requested.*
  - *Ensuring that inspection requirements are cost effective and fully comply with relevant Project specifications.*

## **8      QUALITY SURVEILLANCE/ AUDIT**

- 8.1 COMPANY performs Surveillance/ Audit visits at MANUFACTURER/ VENDOR/ Sub-VENDOR works, this is to ensure that the effectiveness of the CONTRACTOR/ VENDOR/ MANUFACTURER's Quality system and their ability to provide COMPANY an acceptable Quality level. CONTRACTOR/ MANUFACTURER/ VENDOR shall provide required access, HSE guidance and assistance including photographic permission.
- 8.2 CONTRACTOR / MANUFACTURER / VENDOR / Sub-VENDOR shall immediately rectify findings resulting from any Audit / Quality Surveillance at their own cost and without affecting project schedule. Upon receipt of COMPANY Quality Surveillance/ Audit report CONTRACTOR/ MANUFACTURER/ VENDOR / Sub-VENDOR shall respond within 2 weeks providing Corrective action and preventive measures along with target close out dates for COMPANY review and approval.

## **9      MANUFACTURER/ VENDOR SELECTION AND EVALUATION**

- 9.1 CONTRACTOR shall develop a project specific documented procedure covering procurement / sub-contract process; and coordination requirements involving Third Party Agencies. The documented system procedure shall address the requirements from MANUFACTURER / VENDOR assessment and selection through evaluation of bids to award to ensure that the bid conforms to procurement requirements and shall be submitted to COMPANY for approval.
- 9.2 All Technical bid clarifications that may affect final product specification and/ or performance shall be formally recorded as part of Purchase Order. COMPANY may determine to receive a copy of such clarifications. The bid evaluation criterion shall include Quality, technical, historical supply data, lifecycle cost, maintainability, operability, redundancy, delivery schedule and commercial aspects. CONTRACTOR shall submit the Technical Bid Tabulation for review and approval of COMPANY.
- 9.3 CONTRACTOR shall establish Procedures and methods for verification of purchased equipment, material, and services by inspection, surveillance, and compliance audit. The procedures shall provide for interfaces necessary to co-ordinate with COMPANY or COMPANY appointed THIRD PARTY as required.

## **10     QUALIFICATION AND COMPETENCY OF INSPECTION PERSONNEL**

- 10.1 Qualifications, experience, Certification and competency of CONTRACTOR/ VENDOR/ MANUFACTURER and/ or their nominated Third Party Inspection Agencies (TPIA) personnel engaged in inspection, testing and Certification activities of COMPANY equipment and material shall meet the requirements of Company Quality Personnel requirements in Projects and Project Scope of Work.
- 10.2 CONTRACTOR/ VENDOR/ MANUFACTURER's Inspection Personnel shall not be permitted to proceed on their tasks unless approval of the COMPANY is obtained. Inspections performed by unapproved Inspection personnel are subject to rejection until re-inspected by approved personnel.
- 10.3 COMPANY appointed Third Party Inspection Agencies (TPIA) will perform Inspections on behalf of COMPANY for monitoring & surveillance, this does not waive off CONTRACTOR responsibility of any Inspection requirements and monitoring their MANUFACTURER/ VENDOR / Sub-VENDOR performance.
- 10.4 CONTRACTOR/ VENDOR/ MANUFACTURER's shall maintain Competency Matrix of approved inspectors and submit to COMPANY periodically for review, record and reference.

## **11 APPROVAL OF INSPECTION PERSONNEL BY COMPANY**

- 11.1 CONTRACTOR/ VENDOR/ MANUFACTURER's proposed Quality/ Inspection personnel Curriculum Vitae (CV)'s shall be submitted for COMPANY review / approval. CV shall be accompanied with valid copy(s) of their Qualifications and Certifications.
- 11.2 CONTRACTOR/ VENDOR/ MANUFACTURER's shall ensure that 2 CVs as a minimum to be proposed 10 working days in advance for COMPANY assessment so that approved Inspectors are timely mobilized for inspection without affecting the Inspection schedule.
- 11.3 CONTRACTOR/ VENDOR/ MANUFACTURER's shall facilitate the interview for the proposed Inspectors (Telephonic or face-to-face interview) prior to their engagement in the work.
- 11.4 CONTRACTOR/ VENDOR/ MANUFACTURER's inspection personnel approval is subject to re-evaluation at any point of time of the project, if the performance found questionable, COMPANY will notify to CONTRACTOR/ VENDOR/ MANUFACTURER's for their replacement. COMPANY reserves the right to reject any CV without providing justification.
- 11.5 CONTRACTOR/ VENDOR/ MANUFACTURER's shall maintain continuity in the deployment of the approved personnel on the job and shall not change them until completion of Purchase Order. Any change in the deployment of approved personnel shall require COMPANY prior approval.
- 11.6 CONTRACTOR shall ensure that the same Third Party Inspection Agencies (TPIA) or the Inspector being utilized by the COMPANY or VENDOR or Sub-CONTRACTOR or Sub-VENDO is not employed for the same scope of work and avoid Conflict of Interest.

## **12 NON-CONFORMANCE CONTROL**

- 12.1 In case of Non-conformance due to failure or defect on equipment and material, the requirements and control specified in ADNOC/ COMPANY Procedure for Project Nonconformity Management or Scope of Work Or COMPANY Approved CONTRACTOR Nonconformity Management Procedure shall be implemented.
- 12.2 When Non-conformance is detected, CONTRACTOR shall issue NCR. Non-conformance raised by CONTRACTOR/ COMPANY personnel to MANUFACTURER/ VENDOR / Sub-VENDOR for necessary corrective action shall be reported to COMPANY Quality Control team on the same day.
- 12.3 CONTRACTOR shall ensure that NCR issued by MANUFACTURER/ VENDOR / Sub-VENDOR/ CONTRACTOR are submitted to COMPANY and shall not be closed out without obtaining COMPANY Project Quality Concurrence.
- 12.4 In case of Non-Conforming items where Inspection and testing requirements are extended for assurance to other items by COMPANY through NCR disposition approval, such Inspection and testing shall be carried out by CONTRACTOR/ MANUFACTURER/ VENDOR / Sub-VENDOR without any additional cost and impact on delivery schedule. The cost of all such additional inspections and visits of COMPANY shall be borne by CONTRACTOR /VENDOR/ Sub-VENDOR.
- 12.5 No material or equipment shall shipped from CONTRACTOR/ MANUFACTURER/ VENDOR / Sub-VENDOR premises to the Fabrication Yard and SITE with an outstanding Non Conformance without prior written approval from COMPANY.

### **13 PREVENTION AND CONTROL OF COUNTERFEIT MATERIAL**

- 13.1 It is CONTRACTOR responsibility to ensure that all the purchased material and equipment are not counterfeit material. The requirements related to prevention, detection and control of counterfeit material should be addressed in CONTRACTOR Procedure.
- 13.2 CONTRACTOR/ VENDOR/ Sub-VENDOR/ MANUFACTURER shall obtain original material certificates; in case of practical difficulty, they shall provide authenticated/ attested true copies of certificates, any alterations to the text of a certificates/ document, Corrections or overwriting is not permitted.
- 13.3 All Material Certificates shall clearly be identifiable by reference to COMPANY Project Name, CONTRACTOR's purchase order and the sub contract number, as applicable.
- 13.4 CONTRACTOR/ SUB-CONTRACTOR/ VENDOR/ SUB-VENDOR shall provide suitable training to their QC/ inspection Personnel on Counterfeit prevention and Control.
- 13.5 QC personnel from all parties shall be vigilant while inspecting stockist Materials and verifying supplied Certificates and look for any possible alteration in Material certificates and/or Material markings that raises suspicion on genuineness of material.

## SECTION C – INSPECTION AND TESTING REQUIREMENTS

### 14 CRITICALITY RATING (CR)

14.1 Criticality Rating (CR) is a formalized technique for assessing the importance of an installation or piece of equipment with respect to its design, manufacture, construction and installation and the consequences of failure during use, the Criticality Rating (CR) is used to determine the Inspection Class (IC) in order to optimize the required inspection and testing interventions on equipment and materials during procurement phase.

14.2 *TABLE 2 below establishes the relation between the Criticality Rating (CR) and Inspection Class (IC):*

Criticality Rating (CR)	RANK	Definition	Inspection class (IC)
1	<b>High Risk</b>	<ul style="list-style-type: none"> <li>Failure would result in immediate danger to life, environment and significant loss of revenue and assets.</li> <li>Non-performance would result in critical project delays.</li> </ul>	1
2	<b>Medium Risk</b>	<ul style="list-style-type: none"> <li>Failure could lead to dangerous situations to health, environment or property.</li> <li>Non-performance would have some impact on project schedule. However, at premium costs / actions, schedule will be maintained.</li> </ul>	2
3	<b>Low Risk</b>	<ul style="list-style-type: none"> <li>Allowed to remain temporarily out of service without serious effect to operations.</li> <li>Non-performance would have little impact on project schedule.</li> </ul>	3
4	<b>Little Risk</b>	<ul style="list-style-type: none"> <li>Allowed to remain temporarily out of service with no effect to operations.</li> <li>Non-performance would have no impact project schedule.</li> </ul>	4

### 15 INSPECTION CLASSES (IC):

15.1 The TABLE 2 above determines the required Inspection Class (IC) that define the minimum inspection and test requirements to be performed by MANUFACTURER/ VENDOR/ CONTRACTOR as well as by COMPANY on materials and equipment, which shall be subject to inspection and test witness at source of manufacturing/ supply. Inspection and test requirements shall be agreed in Inspection and Test Plans (ITP) and approved by COMPANY prior commencing any fabrication activities.

15.2 A Criticality Rating (CR) shall be determined based on COMPANY Criticality Rating Specification, AGES-SP-13-001, by CONTRACTOR for all project equipment and material, and shall be indicated on the Equipment Data Sheets and Material Requisition. Criticality Rating shall be reviewed and approved by COMPANY, the inspection class shall be derived based on the criticality rating and the same shall be the means for developing the overall inspection strategy.

15.3 Inspection class for procured material/ equipment is based on the Criticality Rating. The Inspection class assigned to material/ equipment on the Project is the minimum amount of inspection coverage deemed necessary to ensure that equipment and material procured conforms to the requirements.

15.4 The minimum inspection intervention requirements are based on “Inspection Class” 1 through 4, which is directly related to that of the Criticality Rating 1 through 4, (i.e. a CR of 1 will require a minimum IC of 1, a CR of 2 will require a minimum IC of 2, etc.).

15.5 COMPANY reserves the right to increase the Minimum Inspection Class (IC) already established on the Project if either the MANUFACTURER/ VENDOR recommended by the CONTRACTOR for a particular requisition has had a not-so satisfactory/ poor performance in the past or the VENDOR executing the Purchase Order is not meeting the specified performance requirements in the purchase order. The change in Inspection class to the next highest Inspection Class for the purchase order shall be without additional cost to COMPANY. In addition, inspection class may be elevated by COMPANY based on criticality of procured materials, lessons learned, performance on projects already executed and during the execution of the project, qualification of personnel etc.

15.6 The TABLE 3 below define the minimum intervention required by each concerned party against each Inspection Class (IC):

	<b>Inspection Class</b>	CLASS I				CLASS II				CLASS III				CLASS IV			
		MANUFACTURER	VENDOR*	CONTRACTOR	COMPANY												
	<b>CONCERNED PARTIES</b>																
	<b>Main Activities Vs Intervention</b>																
1	Pre-award Production Capability & Qualification Audit	-	H	H	H	-	H	H	H	-	H	H	R	-	H	R	R
2	Nominated Inspector (Residence)	H	H	H	W	H	H	W	W	H	H	W	WR	H	W	WR	R
3	Review and approve Suppliers Project Quality Plan	-	A	A	A	-	A	A	A	-	R	-	-	-	R	-	-
4	Review and approve Inspection & Test Plan	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	R
5	Approve MANUFACTURER/ VENDOR documents and procedures as per agreed VDRL**	-	A	A	A	-	A	A	A	-	A	A	A	-	A	A	R
6	Pre-inspection meeting	H	H	H	H	H	H	H	H	H	H	H	W	H	H	W	R
7	Review and approval of MANUFACTURER personnel Qualifications & certificates	H	A	A	A	H	A	A	A	H	A	A	A	H	A	A	R
8	Verify equipment and IMTE calibration	H	A	A	A	H	A	A	A	H	A	R	R	H	A	R	R
9	Inspection of material at source (Raw)	H	H	H	W	H	H	W	W	H	H	W	WR	H	W	WR	R
10	Inspection of material on receipt, sub-components and review MTC	H	H	W	W	H	H	W	W	H	H	W	WR	H	W	WR	R
11	Inspect prefabrication - layout, cutting, forming, machining and other preparations	H	H	W	W	H	H	W	W	H	H	W	WR	H	W	WR	R
12	Inspection of fit-up, alignment and assembly.	H	H	W	W	H	H	W	W	H	H	W	WR	H	W	WR	R
13	Stage Inspection (Welding, fabrication, etc.)	H	H	W	W	H	H	W	W	H	H	W	WR	H	W	WR	R

14	Welding Inspection, witness NDE inspection and other special processes	H	H	W	W	H	H	W	W	H	H	W	WR	H	W	WR	R
15	Destructive testing (as applicable)	H	H	H	W	H	H	W	W	H	H	W	WR	H	W	WR	R
16	Final visual and dimensional inspection; checks for size, location, orientation & configuration	H	H	H	W	H	H	W	W	H	H	W	WR	H	W	WR	R
17	Witnessing of all final pressure and performance tests.	H	H	H	W	H	H	W	W	H	H	W	WR	H	W	WR	R
18	Surface preparation; Coating and painting processes	H	H	W	W	H	H	W	W	H	H	W	WR	H	W	WR	R
19	Performance Test, FAT, IFAT & SAT	H	H	H	H	H	H	H	H	H	H	W	W	H	W	WR	R
20	internal and external Cleaning, flushing, drying; pickling and passivation, (as applicable)	H	H	W	W	H	H	W	W	H	H	W	WR	H	W	WR	R
21	Verification of preservation, packing and marking identification.	H	H	H	W	H	H	W	W	H	H	W	WR	H	W	WR	R
22	Issuance Certificate of Conformance	H	H	H	A	H	H	H	A	H	H	A	R	H	H	A	R
23	Inspection Release by Purchaser's inspection representative	H	H	H	A	H	H	H	A	H	H	A	R	H	H	A	R
24	Review final documentation package / Record Book	H	A	A	A	H	A	A	A	H	A	A	A	H	A	A	A

#### NOTE

- *VENDOR as applicable for the PO, this may include Sub-VENDOR if any*
- *H= HOLD, W= Witness; WR = Witness Random; R= Review; A= Approve (Please refer to sec-17)*
- *\*\* VDRL VENDOR Document Requirement List*
- *It is MANDATORY that the Inspection Interventions of MANUFACTURER/ VENDOR/ CONTRACTOR shall be at a higher level than COMPANY. Inspection Intervention shall be HOLD for all, if COMPANY Intervention is HOLD.*

#### **16 MANUFACTURER/ VENDOR/ SUB-VENDOR TECHNICAL DOCUMENTS**

- 16.1 Upon placement of Purchase Order (P.O.), CONTRACTOR and COMPANY shall approve all relevant technical documents including manufacturing procedure specification, design calculations, data sheets, drawings, calculations, and QA/QC documents.
- 16.2 MANUFACTURER/ VENDOR Quality Control shall be fully documented and approved by CONTRACTOR and COMPANY. MANUFACTURER/ VENDOR/ SUB-VENDOR deliverables shall be based on the VENDOR Document Requirement List (VDRL) issued along with the Material/ Purchase Requisition, and the following documents as a minimum shall be submitted (as applicable to P.O.):
- VENDOR Deliverable Register (mark-up of Key documents).*
  - VENDOR's fabrication including sequence/ manufacturing schedule.*
  - MANUFACTURER/ VENDOR Quality Control Organization Chart.*

- d) Data sheets, Drawings, Design calculation etc.
- e) Project Quality Plan.
- f) Inspection and Test Plan (ITP).
- g) Status of sub-orders with sub-VENDOR full name and location.
- h) Type Certification of base-stock materials (per EN 10204).
- i) Welding Procedures and Qualifications.
- j) Qualified Welders List.
- k) Calibration certificates of Inspection, measuring, and test equipment (IMTE).
- l) Material Traceability Procedure.
- m) Non-conformance Procedure
- n) NDE Procedures.
- o) NDE and Inspection Personnel Qualification and certification.
- p) Post Weld heat Treatment (PWHT) Procedure.
- q) Hardness Testing Procedure.
- r) Pressure Testing Procedure.
- s) Flushing & Drying Procedure.
- t) Positive Material Identification (PMI) procedure.
- u) Pickling & Passivation Procedure.
- v) Painting/Coating Procedures.
- w) Baseline survey procedures (If applicable).
- x) Factory Acceptance Test (FAT) Procedures.
- y) Packing, Storage and preservation procedure.

- 16.3 The CONTRACTOR is responsible to ensure that all documents produced by MANUFACTURER/ VENDOR/ SUB-VENDOR comply with the requirements of the Contract.
- 16.4 MANUFACTURER/ VENDOR/ SUB-VENDOR shall develop Project / P.O specific Inspection and Test Plan (ITP) for the review and approval of CONTRACTOR and COMPANY. The minimum Inspection Interventions shall be based on the Criticality Rating and inspection Class as detailed in Section 15, reflecting all Contract requirements, defining responsibilities, and references in compliance with this document.

## **17 INSPECTION AND TEST PLAN (ITP)**

- 17.1 MANUFACTURER / VENDOR shall develop project specific Inspection & Test Plan (ITPs) for each equipment / material and package, complying with the minimum inspection class and submitted for CONTRACTOR and COMPANY approval.
- 17.2 Project / P.O. Specific Inspection & Test Plan (ITP) shall be developed considering the minimum inspection and testing interventions for MANUFACTURER/ VENDOR/ CONTRACTOR/ COMPANY as specified under Section 15 and the minimum inspection and testing activities as detailed in APPENDIX-A, and the material certification requirements addressed in Section 26.
- 17.3 Inspection & Test Plan (ITP) for the equipment and materials which are not listed in APPENDIX-A, the MANUFACTURER/ VENDOR shall prepare an ITP (Inspection & Test Plan) in compliance with the relevant COMPANY Standard, International/ National Standards referred in to Purchase Order description and shall be submitted for CONTRACTOR and COMPANY Approval prior to manufacturing.

- 17.4 Project specific ITP shall cover all major inspection related activities in a sequential order from review of documents, drawings through manufacturing, process controls, examination, testing, Quality documentation review, certification, pre-dispatch inspection and up to final release.
- 17.5 The content of ITPs developed in a tabulated form by MANUFACTURER/ VENDOR, and shall be address the below as a minimum;
- *Inspection and testing activities.*
  - *Responsible person.*
  - *References (applicable Project specifications/Drawings/ Data Sheets, etc.)*
  - *Characteristics to be verified.*
  - *Material Certification level.*
  - *Acceptance Criteria.*
  - *QC verified Record.*
  - *Intervention for concerned parties MANUFACTURER/ VENDOR/ CONTRACTOR/ COMPANY*
  - *Remarks.*

17.6 Any deviation in approved ITP stages and interventions shall require COMPANY Quality Control Department approval.

**17.7 *LEGEND & DEFINITION:***

**A = APPROVE**

*A point at which relevant documents or test results shall be approved by the Concerned party per the approved Inspection & Test Plan (ITP) prior to proceeding with further activities.*

**R = REVIEW**

*A point at which relevant documents or test results shall be reviewed by the Concerned party per the approved Inspection & Test Plan (ITP) prior to proceeding with further activities.*

**H = HOLD**

*An Inspection point, at which the concerned party shall perform 100% inspection & clear the activity as per the approved Inspection & Test Plan (ITP). No further activities shall proceed without prior written permission; Inspection Notification is mandatory.*

**W = WITNESS (100%)**

*An inspection point at which the concerned party shall witness the activity as per the approved Inspection & Test Plan (ITP); Inspection Notification is mandatory.*

*The MANUFACTURER/ VENDOR shall:*

- *Not proceed the activity until the notification time agreed is lapsed.*
- *Proceed with the activity if COMPANY abstained without any information. In this case, the CONTRACTOR shall inform COMPANY immediately via fax or e-mail.*

### **WR: WITNESS RANDOM**

*An inspection point at which the CONTRACTOR/ COMPANY shall witness the activities as per the approved Inspection & Test Plan (ITP). Items selected at random from the inspection lot (of each specification and dimensions) that are to be witnessed as per the approved Inspection and Test Plan (ITP), witness point (as a minimum) shall be carried out as per the following table:*

No. of items in group	2 to 4	5 to 8	9 to 12	13 to 40	Over 40
Min. number of item to be inspected	2	4	6	9	25%

*Wherever Witness Random inspection interventions are marked up in the approved ITP, it is responsibility of CONTRACTOR/ VENDOR / MANUFACTURER to ensure that sample items for random or percentage basis inspection are offered to COMPANY for selection from the lot, and such sampling lot are offered on progressive basis based on the percent completion of items manufactured.*

*For Witness Random inspection interventions, it is VENDOR / MANUFACTURER responsibility to perform internal inspection / test for total (100%) quantity and reports/ records shall be made available to CONTRACTOR and COMPANY for review prior to selection of samples for witness. WR is not applicable to MANUFACTURER/ VENDOR*

*On random or percent witness inspections if there is any failure or rejection occurs, the extent of inspection shall be doubled and in case of further failure or rejection extent of CONTRACTOR witness shall be increased to 100%. Same control may apply to COMPANY Inspection interventions.*

### **M: Monitoring**

*An Inspection point, at which the CONTRACTOR/ COMPANY will visit any work to inspect the activity during processing as per the approved Inspection & Test Plan (ITP).*

## **18 INSPECTION NOTIFICATION**

- 18.1 CONTRACTOR shall prepare inspection and test program so as to provide COMPANY with adequate notice of all such activities for which it may wish to, exercise its option to participate. CONTRACTOR shall submit 3 weeks integrated manufacturing and inspection look ahead schedule to COMPANY; and shall include look ahead schedule for PIM and FAT activities.
- 18.2 CONTRACTOR shall give COMPANY not less than 14 days' notice of planned inspection visits and not less than four (4) weeks' notice for Pre-Inspection Meeting (PIM) and Factory Acceptance tests (FAT), however re-confirmation has to be given 72 hours prior to actual activity. Any delays due to late notification or late cancellation shall be borne by CONTRACTOR.
- 18.3 CONTRACTOR's Inspection Notification (IN) format shall be developed for each project and shall contain the following information as a minimum:
  - *Project Name and logo.*
  - *Inspection notification (IN)'s unique Reference number, Date & Revision.*
  - *MANUFACTURER, VENDOR, CONTRACTOR and COMPANY details.*

- *Inspection Location, date, time & contact details of the MANUFACTURER/ VENDOR's contact persons (name, e-mail & phone number).*
- *PO / PR Number, complete detail of item to be inspected: Tag no/Description/QTY.*
- *Reference to ITP number/ step no. /ITP Intervention (H, W, and R) etc. / document.*
- *Inspection document numbers (NDT procedures, ITP, FAT procedure, etc.)*

- 18.4 CONTRACTOR shall submit "Inspection assignment package (IAP)" for each P.O. to COMPANY with Inspection Notification IN, this IAP shall contain the latest approved copies of CONTRACTOR's unpriced P.O./ Purchase Requisition(PR)/ Material requisition(MR) with attachments, Sub-VENDOR unpriced P.O. copies and the latest VENDOR documents such as data sheets, drawings, Manufacturing Procedure Specification (MPS), ITP, inspection and testing procedures etc. CONTRACTOR shall also continually update COMPANY with the latest revisions of drawings, and documents related to individual Purchase Orders throughout the course of the order life. Each update shall be Purchase Order specific.
- 18.5 CONTRACTOR shall ensure that MANUFACTURER/ VENDOR inspect and test all equipment/ material as per approved ITP prior to issuance of Inspection Notification (IN) to COMPANY, to avoid any cost implication.
- 18.6 For equipment and packages, CONTRACTOR shall submit FAT notification along with FAT readiness checklist to COMPANY to demonstrate that all prerequisite such as key document approval for FAT commencement are completed and notification will not result in abortive visits by COMPANY Representatives. CONTRACTOR shall provide the VENDOR deliverable approval status register for verification by COMPANY.

## **19 PRE-INSPECTION MEETING (PIM)**

- 19.1 CONTRACTOR shall conduct Pre-Inspection Meeting at the MANUFACTURER/ VENDOR / Sub-VENDOR facilities where the work is to be executed. The CONTRACTOR Quality Representative is the person responsible for organizing the PIM. CONTRACTOR Discipline Engineer(s) and Project Engineer/ Manager shall also attend the PIM for Engineered Items.
- 19.2 COMPANY QUALITY representative shall attend the PIM as defined in Table-3 under Section 15.6; however, COMPANY relevant disciplines shall attend in accordance with P.O.
- 19.3 CONTRACTOR shall ensure that the approval status of the key deliverables (at least Approved with Comments), and issuing PIM Notification to COMPANY at least 4 weeks prior to the PIM. The PIM Notifications shall be issued to COMPANY supported by the VENDOR Documents Status. The following documents as a minimum are considered key documents,
- a) *Sub-VENDOR Lists*
  - b) *Concession Requests, if any.*
  - c) *Inspection & Test Plan(s) – MANUFACTURER/ VENDOR / Sub-VENDOR.*
  - d) *Project Quality Plan (PQP).*
  - e) *Manufacturing Procedure Specification (MPS).*
  - f) *WPS/PQR and WPQ Records.*
  - g) *General Arrangement Drawings & Detailed Drawings.*

- h) Manufacturing Procedures and Post Weld Heat Treatment Procedures (as applicable).
- i) Weld Maps including applicable NDT (as applicable).
- jj) NDE Procedures.
- k) NDE and Inspection Personnel Qualification and certification.
- l) Positive Material Identification (PMI) Procedure.
- m) Pressure Testing Procedure.
- n) Surface Preparation and Painting Procedures.
- o) FAT, IFAT, Calibration and Other Main Procedures (as per Contract).
- p) MRB Index.

#### **19.4 PRE-INSPECTION MEETING (PIM) AGENDA**

The Following items (as a minimum) shall be discussed and concluded during the PIM. CONTRACTOR/ VENDOR shall prepare and submit the records of meeting notes to COMPANY Review and endorsement.

- a) HSE induction; HSE program, HSE policy and Safety Moment.
- b) Introduction of participants; PIM Objectives, Brief Overview about VENDOR Organization
- c) Review of Purchase Orders & Appendices to verify completeness and confirmation to contract specifications, procedures, drawings etc.
- d) Acknowledgement of P.O by VENDOR, Review Salient Sections of Purchase Order and verify scope of supply, Review specifications, codes, standards procedures.
- e) Records of formal exceptions/deviation taken and agreed to the purchase order.
- f) Review of Production Schedule, and Inspection Look Ahead Schedule.
- g) Quick Shop tour by all participant.
- h) Confirm contacts and methods of communication for Inspection Notification for Hold & Witness points, Witness Random. Discuss process of issuing Inspection Notification.
- i) Review of VDRL Documentation against VENDOR Document register and their approval. Include status review of sub VENDOR documents.
- j) Discussion on CONTRACTOR and/or COMPANY comments on PQP, if applicable.
- k) Discussion on CONTRACTOR and/or COMPANY comments on the Project specific Organization Chart for Quality.
- l) Inspection and Testing. Testing requirements vs. capabilities, Raw Materials, Sub-VENDOR processes & manufacturing / testing locations.
- m) Review of implementation of MANUFACTURER/ VENDOR'S Quality System, Organization, Control & adequacy on Sub-VENDORS, Verification of QMS/ASME/API certification as applicable.
- n) Discussion on CONTRACTOR and/or COMPANY comments on the Personnel qualifications against the applicable standards and specific project requirements if any for Welding, NDE, Painting, and IECEx Certification.

- o) Discussion on CONTRACTOR and/or COMPANY comments on the Manufacturing Procedure Specification and Qualifications (if applicable).
- p) Review & Discuss on approved sub VENDOR list against COMPANY AVL (No deviation to the AVL is permitted), Identify the communication of Project Specifications to Sub-VENDORS, Review the control exercised on Sub-VENDOR. Review Sub-VENDOR scope, ITP and release mechanism.
- q) Use of Stock items if any List of stock items, source of stock items.
- r) Certification Requirements for PO Material.
- s) Review and Final Mark Up of MANUFACTURER/ VENDOR Inspection and Test Plan, Confirm it covers full scope of supply and confirm Hold, Witness, Surveillance Points, reference and acceptance criteria including applicable reports and certifications.
- t) Discuss process in event of Concession being required/requested.
- u) Discuss Process in event of issue of Non-conformance, Disposition of any Non-Conforming Product.
- v) Repair & Information to purchaser and approvals.
- w) Project/ PO Audit at VENDOR/Sub-VENDOR Location during execution.
- x) Any language and translation issues. All documents to shall be in English.
- y) Review requirements for Manufacturing Record Book (MRB) and electronic Deliverables. MRB Index Approval Hardcopy & Soft Copy.
- z) Verify Specific Inspection and testing requirements such as NDE/PMI/Ferrite/Heat treatment/Painting/Helium leak testing/FE testing/FAT requirements, Storage, Preservation and Packing, base line survey, etc.
- aa) Third Party Inspection/ Resident Inspector and their access at VENDOR and Sub-VENDOR Location, Also provide office and communication means.
- bb) SPIR (Spare Parts Interchangeability Record) forms to be filled by VENDOR complying with COMPANY requirements.
- cc) Discuss Inspection release and Punch listing requirements and formats to be used during Inspection,
- dd) Quality surveillance tour covering manufacturing facilities, testing facilities, Material traceability, handling and storage, and checking of Calibration status of Measuring and test instruments.
- ee) Review of latest QMS Audit Report, Review of Lessons Learned etc.
- ff) Areas of Concern, and any Other business
- gg) Produce Report/Minutes Recording Pre-Inspection Meeting and forward to Project Office

## **20 ACCESS TO MANUFACTURER/ VENDOR / SUB-VENDOR FACILITIES**

- 20.1 In order to facilitate the COMPANY representative(s) involvement, the MANUFACTURER/ VENDOR / Sub-VENDOR and/ or CONTRACTOR shall allow free access to production facilities at all times and, when applicable, they shall arrange similar access at their Sub-VENDOR facilities including lower tier Sub-VENDORS. This shall include permit to take photographs conforming to applicable security requirements.
- 20.2 MANUFACTURER/ VENDOR / Sub-VENDOR shall provide HSE induction and subsequent guidance / support to COMPANY/ CONTRACTOR at the time of visit and/ or inspection.

## **21 PACKAGES/ SKIDS**

- 21.1 For packaged items and skids, while preparing ITP, VENDOR/CONTRACTOR shall ensure that all items covered in P.O; along with each MANUFACTURER/ Sub-VENDOR name and location covered are included in the Master ITP along with Inspection interventions of all parties.
- 21.2 Main Package VENDOR shall ensure that this master ITP is available at all MANUFACTURER/ Sub-VENDOR locations at the time of inspection and shall be the basis for all inspection interventions of CONTRACTOR and COMPANY.
- 21.3 For items inspected at MANUFACTURER/ Sub-VENDOR locations, CONTRACTOR shall issue IRN for each Sub-VENDOR items covered in the Master ITP approved by COMPANY.
- 21.4 CONTRACTOR/VENDOR proposal for IRN exemption for the equipment manufacturing at MANUFACTURER/ sub-VENDOR works shall be approved by COMPANY and shall be described in Master ITP.
- 21.5 VENDOR shall follow project specific punch list system, unless otherwise agreed with COMPANY, all punch lists shall be closed at the MANUFACTURER/ Sub-VENDORS works prior to dispatch of items to main VENDOR location or Site.

### **SUB-VENDOR CONTROL:**

- 21.6.1 VENDOR shall ensure that inspection testing and certification requirements applicable in this document including extent of testing and inspection interventions by COMPANY and all Project approved documents are communicated to each MANUFACTURER/ Sub-VENDOR and are complied.
- 21.6.2 VENDOR shall also ensure that necessary project documents and their status of COMPANY approval shall be available for COMPANY nominated TPIA verification at MANUFACTURER/ Sub-VENDOR location.
- 21.6.3 During inspections and verification of documents, VENDOR QC personnel and CONTRACTOR personnel shall ensure compliance to all the above.

## **22 EXAMINATION OF THE EQUIPMENT/ MATERIAL DURING PRODUCTION/ MANUFACTURING**

- 22.1 Concerned parties shall conduct inspection and confirmatory checks as per ITP inspection interventions during various stages of manufacturing at MANUFACTURER/ VENDOR/ SUB-VENDOR premises to check implementation of Project specification and procedure and to confirm that there are no deviations from the specifications and approved documents.
- 22.2 Non-destructive examinations (NDE) conducted by MANUFACTURER/ VENDOR/ SUB-VENDOR shall be witnessed by concerned parties to the extent required in approved ITP, and the relevant reports will be endorsed by concerned Inspectors who shall also verify calibration of NDE instruments and check the qualifications and certifications of NDE personnel.
- 22.3 Concerned parties shall also examine the testing bed; instruments etc. and verify the accuracy of the testing equipment.
- 22.4 Concerned parties shall witness functional, performance, tests on the equipment/material and endorse the testing report.
- 22.5 MANUFACTURER/ VENDOR/ SUB-VENDOR shall carryout Baseline survey of pressurized equipment as per project approved Baseline survey procedure under CONTRACTOR and COMPANY witness.
- 22.6 During inspection, findings/ outstanding works observed by CONTRACTOR/ COMPANY shall be notified to the MANUFACTURER/ VENDOR/ SUB-VENDOR for rectification. In this regard, the observations shall be recorded in Joint inspection report / Minutes of Meetings for action and signed off by all parties at the inspection location.
- 22.7 During inspection, CONTRACTOR/ COMPANY inspectors shall confirm that comments on MANUFACTURER/ VENDOR/ SUB-VENDOR documents have been implemented on the work and shall reflect confirmatory statement along with deliverable approval status of key VENDOR/Sub-VENDOR documents in their Inspection reports.
- 22.8 FAT and final inspection shall be carried out only with COMPANY final approved documents. If any deviations are observed against the approved documents, Non-conformance report shall be issued directly to CONTRACTOR/ MANUFACTURER/ VENDOR/ SUB-VENDOR during the inspection visit and copy shall be sent to COMPANY on the same day.
- 22.9 Upon final inspection, concerned parties shall also identify, categorize punch list items and agree with COMPANY prior to dispatch. All Category A punch list items shall be closed and accepted by CONTRACTOR and COMPANY prior to dispatch, and CONTRACTOR shall ensure this prior to issue Inspection Release Note (IRN). CONTRACTOR shall be responsible for tracking CONDITIONAL INSPECTION RELEASE NOTE.

## 23 EXAMINATION OF THE EQUIPMENT/MATERIAL FOR DISPATCH

23.1 Prior to material/ equipment dispatch, CONTRACTOR and COMPANY shall additionally check the following aspects as a minimum:

- Verify NCR close outs acceptance by COMPANY.
- Verify all previous inspection reports including those attended by other inspectors to ensure that there are no pending action by MANUFACTURER/ VENDOR or unresolved issues / observations.
- Verify Marking, nameplates and colour coding as applicable.
- Verify Regulatory requirements and Code stamp where required.
- Preparation for shipping and stocking: i.e. greasing, immobilize moving parts, plugging of holes, packing, etc.
- Preservation in accordance with project approved procedure/VENDOR recommendations.
- MANUFACTURER/ VENDOR Data Books/WIN/UTC/Equipment Number/CMMS Data Sheets have been completed.
- All punch list items have been completed except those specifically agreed with COMPANY to be carried over to Fabrication yard/Offshore.
- Inspection and Testing documentation is reviewed and endorsed by all concerned Inspectors.
- All MANUFACTURER/ VENDOR work has been deemed acceptable by the CONTRACTOR/ COMPANY inspection personnel in accordance with the requirements of Codes, Standards and Project specifications.

## 24 SPARE PARTS

24.1 All purchase orders issued by CONTRACTOR for equipment shall contain a clause as follows "Vendor shall undertake to continue to manufacture, or in lieu of manufacture to stock pile, all components, Field Replacement Units (FRUs) or spare parts required to maintain the supplied systems and equipment in proper service for the design life years after the purchase date for the equipment." Or otherwise specified by the Company.

24.2 All purchase orders issued by CONTRACTOR shall request vendors to provide a spare parts escalation formula for a period of 5 years beyond the initial validity period for direct purchase by COMPANY or CONTRACTOR from the VENDOR.

24.3 The CONTRACTOR shall submit the Spare Parts Document package that include as a minimum the following:

- Relevant Material and Test Certificates as applicable to each type of material i.e. the Spares shall be subjected to the same level of Inspection as the Original Equipment/ Material. The ITP's shall also include a stage for Spare Parts Inspection, wherever applicable.
- Preservation and maintenance actions carried out until the time of Hand Over.
- Packing lists with shipping and inspection certificates. All OPERATING SPARES supplied by VENDOR to provide conformity certificates from MANUFACTURER.

## 25 REPORTING, RELEASE AND DOCUMENTATION

- 25.1 CONTRACTOR shall issue their inspection report to COMPANY within maximum of Three (03) working days.
- 25.2 Inspection reporting format shall be agreed with COMPANY. CONTRACTOR shall include the following information as a minimum in the inspection reports;
- *Identification to Purchase Order.*
  - *Project Specification/Standards applicable.*
  - *MANUFACTURER / VENDOR (including all Sub-VENDORS/Suppliers including location).*
  - *Item detail and Qty.*
  - *Document approvals and their COMPANY approval status including a confirmatory statement that approval condition/Comments on documents have been verified on the Job at the time of inspection and do not impact the inspection acceptance given during the visit.*
  - *Inspection activities carried out (including activity reference no. and intervention) including a statement on the result of the inspection.*
  - *Next inspection due.*
  - *Observations, NCRs & Deviations.*
  - *Area of concern.*
  - *Pictures of Inspection activities (with date and time).*
  - *Reviewed, endorsed and stamped copies of Material certificates, Test reports, must be attached with proper traceability to the report, etc.*
- 25.3 Report number shall be made up of COMPANY Project number/PO No. /Report type (flash report FR/Inspection report IR/Inspection release note IRN) /Sequential no. (While transmitting electronically. The report number shall be used as file name).
- 25.4 All inspection documents issued by the MANUFACTURER/ VENDOR/ SUB-VENDOR shall be reviewed and endorsed (with full name and dated) by CONTRACTOR and COMPANY. These documents include: material certification, works test certificates, FAT report, compliance certificates, PMI, NDT records, and heat treatment charts.
- 25.5 All inspection documents issued by the MANUFACTURER/ VENDOR/ SUB-VENDOR, CONTRACTOR and TPA shall be legible and in English language only.
- 25.6 CONTRACTOR inspection personnel shall issue Inspection release notes (IRN) duly endorsed by COMPANY. IRN submitted by CONTRACTOR without COMPANY endorsement shall not be accepted. Exemptions for minor items may be agreed with COMPANY at the beginning of project.
- 25.7 CONTRACTOR and COMPANY shall ensure that at the time of issuance of IRN all Key VENDOR documents are approved with COMPANY final approval Code (approved with no comments).
- 25.8 CONTRACTOR Inspection personnel shall verify that all Category 'A' Punch list items are attended to by MANUFACTURER/ VENDOR/Sub-VENDOR. In case of outstanding engineering related Punch 'A' items CONTRACTOR shall verify and confirm that appropriate COMPANY approved Technical Query / Concession Request has been presented by MANUFACTURER/ VENDOR/SUB-VENDOR.

- 25.9 CONTRACTOR shall put in place a release note/Inspection completion scheme which identifies for all P.O documents are approved, there are no outstanding technical queries, Concession requests, that all non-conformances are closed out and that the Inspector is fully aware of the updated status prior to release of material and equipment.
- 25.10 CONTRACTOR shall maintain a Tracking Register to monitor closeout of all Observations / Open issues raised in CONTRACTOR/ COMPANY/ VENDOR Inspection Reports and Inspection Release Notes.
- 25.11 CONTRACTOR shall submit a duly endorsed Pre-IRN check list supported by necessary back up documents that include but not limited to VENDOR document approval status, ITP activities completion, closure of NCRs / Concession requests / Area of concerns / Observation from Inspection reports, Punch lists status etc.to COMPANY along with final inspection release RFI, for review and acceptance.
- 25.12 CONTRACTOR Inspection personnel shall issue IRN for Sub-VENDOR items to be delivered to main VENDOR works or directly dispatched to site, and such IRN's shall also be endorsed by COMPANY prior to shipping.
- 25.13 The Sub-VENDOR items requiring IRN shall be to the extent required by COMPANY approved ITP and as agreed at PIM.
- 25.14 Final Inspection Report shall be followed up with Inspection Release note.
- 25.15 Inspection Release Note format shall be agreed with COMPANY. However, CONTRACTOR and Inspector and COMPANY (As required) shall include following information as a minimum in their Inspection Release Notes;
- *Identification to Purchase Order.*
  - *Project Specification/ Standards applicable.*
  - *MANUFACTURER (including all sub-VENDORS/ suppliers including location)*
  - *Item detail and qty.*
  - *Item Completion status (Yes/No.) and P.O. completion status (Yes/No).*
  - *Key Document references along with final (Code1) approval status of CONTRACTOR and COMPANY.*
- 25.16 Certificates, inspection reports and records shall be signed and dated by inspection personnel, whose name and position, including his/her COMPANY name shall be clearly indicated in the document.
- 25.17 VENDOR shall prepare and provide 'dispatch dossier' at the time of issue of IRN. The dossier shall contain Material test certificates summary, NDT completion summary, Heat treatment reports, Pressure test reports corrosion test summary, FAT reports, Painting reports, ASME data reports, NCR close out summary, Punch list close out summary.
- 25.18 VENDOR shall compile the Manufacturing data Report (MDR) in line with a preapproved Index and submit to COMPANY within the time frame as per CONTRACTOR. In order to facilitate this, the VENDOR shall progressively compile a Manufacturing data Report (MDR) during manufacturing and this should be made readily available to the CONTRACTOR and COMPANY inspectors for verification during regular routine visits to the VENDORS works or upon request.

25.19 Inspection release at MANUFACTURER/ VENDOR/Sub-VENDOR works by CONTRACTOR shall not relieve the MANUFACTURER/ VENDOR/Sub-VENDOR from responsibilities for repairing or replacing any defective material or workmanship that may be subsequently discovered at site, the repair and replacement of the equipment/materials shall be made at the cost of the MANUFACTURER/ VENDOR/Sub-VENDOR without any impact on the Project schedule.

- *Confirmatory statement that approval condition/Comments on documents have been verified on the Job at the time of inspection and do not impact the inspection acceptance given during the visit.*
- *Inspection activities carried out (including activity reference no. and intervention)*
- *Including a statement on the result of the inspection.*
- *Next inspection due.*
- *Observations, NCRs & Deviations.*
- *Area of concern.*
- *Pictures of Inspection activities (with date and time).*
- *Reviewed, endorsed and stamped copies of Material certificates, Test reports, must be attached with proper traceability to the report.*

## SECTION D – MATERIAL CERTIFICATION REQUIREMENTS

### **26 MATERIAL CERTIFICATION**

#### **26.1 INTRODUCTION**

- 26.1.1 This section defines the minimum Project requirements for Material Certificates as they pertain to equipment and materials. MANUFACTURER/ VENDORS shall furnish material certificates in accordance with the requirements of EN 10204, and any additional requirements of this document. All such material shall be fully traceable to the certification through all stages of manufacture.
- 26.1.2 For material certification, refer to Table A1.1 to A1.11 of this document. In case of conflict in Material Certification between this document and the individual ADNOC Business Unit specifications for various components – the most stringent certification requirement shall be applied; however where these are not defined in COMPANY standards, these shall be identified in define (FEED) phase of Project and approved by COMPANY.
- 26.1.3 The correct identification of materials of construction is essential. The fundamental requirement is that all materials used to form the pressure envelope of any piping systems, and equipment, shall be traceable to material test certificates.
- 26.1.4 Material certificates referred to in this specification are those issued by the material producer (mill), material processor, MANUFACTURER, VENDOR, or in combination shall attest to the correctness of materials.

#### **26.2 REQUIREMENTS FOR CERTIFICATES**

- 26.2.1 Certificates shall be written in the English language and shall be complete, unambiguous, legible and suitable for electronic scanning. Certificates in other languages will only be accepted if they are supplied with an endorsed English translation by an authority acceptable to the COMPANY.
- 26.2.2 All data shall be shown in SI units, in accordance with ISO 1000 International System of Units ("SI") and its application.
- 26.2.3 Certificates shall state compliance to the latest editions of the Code / Standard or the editions applicable to the Purchase Order, Material Certification to Obsolete editions, unspecified editions etc. of the Code / Standard are unacceptable.
- 26.2.4 Material Certificates with the QR Code are preferred, as they facilitate verification of the Certificate and thereby eliminate the concerns related to counterfeit material.
- 26.2.5 Stockiest Material Certificates shall not substitute the Manufacture (Origin/ Mill) Certificates and shall be unacceptable.
- 26.2.6 VENDOR/ CONTRACTOR shall maintain the Original Material Certificate or its Certified True Copy for COMPANY Verification upon request.

- 26.2.7 Where sour service is required, the certificate shall explicitly mention compliance with NACE MR-0175/ISO 15156 or NACE MR-0103, as applicable, for process wetted or pressure retaining parts.
- 26.2.8 Certificates shall be signed and dated by an authorized person, whose name and position including that of his/ her Agency, shall be clearly indicated on the document.
- 26.2.9 VENDOR/ CONTRACTOR shall ensure that material certification documents do not contain any alterations.
- 26.2.10 Where the item supplied has been manufactured from certified, semi-finished, material supplied by a different MANUFACTURER (i.e. welded fittings made from plate or pipe), the certificate for the semi-finished material shall be attached to the certificate for the finished item. The MANUFACTURER shall ensure that the certificate supplied for the base or parent material complies with this specification.

### 26.3 TYPES OF CERTIFICATE

- 26.3.1 Inspection is commonly related to be one of two types: non-specific or specific.

#### **DEFINITIONS ACCORDING TO BS EN 10204:**

a) **NON-SPECIFIC INSPECTION:** Defined as an inspection carried out by the MANUFACTURER in accordance with their own procedures to assess whether products defined by the same product specification and made by the same manufacturing process, are in compliance with the requirements of the order or not.

Under the basis of non-specific inspection, there are two differing inspection document options:

- **Type 2.1.** Declaration of compliance with the order without test results
- **Type 2.2.** Statement of compliance with the order and indicate of test results of non-specific inspection.

Note that under non-specific inspection, the products inspected are not necessarily the products actually being supplied. This is not batch specific and only gives average values for that material produced by MANUFACTURER (Mill) over a manufacturing period.

b) **SPECIFIC INSPECTION:** Defined as an inspection carried out, before delivery, according to the product specification, on the products to be supplied or on test, units of which the products supplied are part, in order to verify that these products comply with the requirements of the order.

- 26.3.2 When considering specific product inspection (on a batch specific basis), the inspection document options are:

- **Type 3.1.** Statement of compliance with the order with indication of results of specific inspection including test results. Validated by a MANUFACTURERs authorized inspection representative, independent of manufacturing and based on inspections before delivery.
- **Type 3.2.** Statement of compliance with the order with indication of results of specific inspection including test results. Validated by a MANUFACTURERs authorized inspection representative independent of manufacturing and a third party such as the PURCHASER's authorized inspection representative or an inspector designated by official regulations.

26.3.3 For material covered under 3.2 certification, PURCHASER's authorized inspection representative in addition to mechanical testing, shall also verify traceability, witness and verify other critical inspection and testing activities such as applicable NDE, HIC/ SSCC, Corrosion tests, PMI etc. to validate compliance to Project specification, Standards and Material requisition referred in Purchase order.

#### **26.4 TYPE 3.2 'INTENT' - STOCKIEST MATERIAL**

26.4.1 Where Type 3.2 certification is required but, to meet critical project schedule for small quantities, it is only possible to obtain materials from STOCKIEST with a Type 3.1 certification – Type 3.2 'Intent' may be proposed by CONTRACTOR for review & approval of COMPANY.

26.4.2 It is also essential to confirm the basis of testing is 'true' Certification for stockiest material to complement existing Type 3.1 certification with additional testing. Simply, a paperwork review of certification at STOCKIEST by PURCHASER's authorized inspection representative (or TPI approved by COMPANY) does not permit re-certification of inspection documents Type 3.1 to Type 3.2. Neither does test house update based on any additional testing, as the test house is not classed as a MANUFACTURER.

26.4.3 With safety and reliability being a key concern for certain applications, there is a requirement to further validate the properties and traceability of the materials being utilized. To provide this additional surety and 'intent of' Type 3.2 certification, the CONTRACTOR shall repeat all specified mechanical testing of the material by taking a new test sample from cut-off or from a sacrificial part of the actual lot of material. The CONTRACTOR shall utilize a COMPANY approved third party organization to witness the test sampling and the new/additional testing, confirm markings, and afterwards to countersign and issue a report stating the basis of the 'intent of' certification and clearly label it as such. This typically includes a review of the steelmaker's certificate of origin and verification of marking including a review of traceability back to ladle chemical analysis. This will also typically include sample dimensional checks.

#### **26.4.4 CERTIFICATION SELECTION**

##### **26.4.5 GENERAL NOTES:**

- i. Type 3.2 Certificate issued by MANUFACTURER might be endorsed by PURCHASER (CONTRACTOR/ VENDOR) Representative and does not require deputation of an exclusive Third Party in addition to the PURCHASER Representative. In this case, for inspection Class 1 & 2, the Inspection & Test Plan (ITP) shall identify the inspection interventions points including Material Traceability, Destructive & Non-Destructive Testing, and Chemical Composition & Corrosion Tests etc. as Hold Points for the PURCHASER (CONTRACTOR/ VENDOR).
- ii. The required type of Certificate listed on the below tables for the equipment / material shall be the minimum requirement. However It is the CONTRACTOR responsibility to propose the required type of certificate and shall submit Technical Query for clarification and approval by COMPANY under the following condition:-

- When the requirements are not shown in this specification or project specifications.
  - When the higher class of material Certificate type than those specified herein is required, based on criticality assessment agreed by CONTRACTOR / COMPANY or due to lack of confidence in MANUFACTURERs Quality capabilities / implementation.
  - When other applicable project specification, data sheet, and / or requisition specify more stringent or specific requirement, it shall prevail.
- iii. Where the item supplied has been manufactured from certified, semi-finished, material supplied by a different MANUFACTURER (e.g. welded pipes, fittings made from plate or pipe, etc.) the Certificate Type for the semi-finished material shall be same Type as that indicated for the final product and shall be attached to the certificate for the finished item. The MANUFACTURER shall ensure that the certificate supplied for the base or parent material complies with this specification.
- iv. **IECEx** Certification shall apply for Material/ Equipment in Hazardous Areas, and for Non-hazardous areas, the Certification requirement shall be as stated in the respective Specifications and/or Datasheets. Type Test, Routine Test, and Performance Test Reports shall be submitted, as stated in the respective Specifications and/or Datasheets.
- v. Material / items marked as Type 3.1 Certification and not covered within BS EN 10204 scope, hence the manufacturer shall declare that; the supply complies with the purchase requisition (specification / datasheet) and includes the test results / reports of the material / component specific to the purchase order. The manufacturer's Inspection department validates test results, which is independent of the manufacturing department.
- vi. Inspection Class and Certification level specified for Material/ Components / Items in the below Tables shall be applicable for Material/ Components / Items within Packages / Skids as well.

### A1.1. PIPING

A1.1 Piping				
#	Equipment / Item Description	Minimum Criticality Rating	Inspection Class	Material Certification to BS EN 10204
1	Manual Valves	1	1	3.2 (Note a)
	a) All services: 600# and above for all sizes; 300# 18' and above			
	b) Critical Service (Sour/Cryogenic/Amine/Steam) CS / LTCS $\geq$ 6" and / or $\geq$ 150#			
	c) CRA valves Critical service (Sour /Cryogenic): all sizes			
	d) CRA Non sour (e.g. Chemical injection, Utility, etc.) for sizes $>$ 4"			
	e) Valves for TSO, Hot Tap, stoppling: all sizes and ratings			
	f) Valves in Cyclic Service: all sizes and ratings			
2	Manual Valves: other rating & sizes not covered in (1) above	2	2	3.1
3	Seamless Pipe (CS, LTCS & SS) - Non sour	2	2	3.1
3.1	Seamless Pipe (CS, LTCS & SS) Sour & Severe, Lethal Service	1	1	3.2
4	Seamless Pipe in CRA other than SS (i.e. SDSS, Ni alloy, alloy steel, Monel, etc.)	1	1	3.2
5	Cladded Pipes / Fittings / Flanges	1	1	3.2
6	Welded Pipe (CS, LTCS & SS)- Non sour	2	2	3.1
6.1	Welded Pipe (CS, LTCS & SS)- Sour & Severe, Lethal Service	1	1	3.2
6.2	Welded Pipe (CS, LTCS & SS) Cyclic Service	1	1	3.2
7	CRA Welded Pipe other than SS (e.g. SDSS, DSS, Ni alloy ...etc.)	1	1	3.2
8	Fittings & Flanges (CS LTCS & SS)- Non sour	2	2	3.1
8.1	Fittings & Flanges (CS LTCS & SS)- Sour & Severe, Lethal Service Sour & Severe Service	1	1	3.2
8.2	Fittings & Flanges (CS LTCS & SS)- Cyclic Service	1	1	3.2
9	CRA Fitting & Flanges other than SS (e.g. DSS, SDSS, Ni alloy, etc.)	1	1	3.2
10	GRE, GRVE & HDPE Pipes, Flanges & Fittings (all Non-metal material)	1	1	3.2
11	Flame Arrestors	2	2	3.1
12	Insulating Gaskets / Kits	2	2 (Note b)	3.1
13	Gaskets (metallic)	2	2 (Note b)	3.1
14	Gaskets (non-metallic)	3	3	3.1
15	Fasteners	2	2 (Note b)	3.1
16	Mechanical Valve Interlocking System	2	2 (Note b)	3.1
17	Hub Connectors & Compact Flanges	1	1	3.2

### A1.1 Piping

#	Equipment / Item Description	Minimum Criticality Rating	Inspection Class	Material Certification to BS EN 10204
18	Strainers Critical service (Sour/Cryogenic/Amine/Steam)	2	2	3.2
19	Strainers ( not covered above)	2	2 (Note b)	3.1
20	Chemical Injection Quill	2	2 (Note b)	3.1
21	Hose & Hose Couplings* (Note b)	3	3	3.1
22	Pipe Support Material (Spring Supports)	3	3 (Note d)	3.1
23	Pipe Support Material (Sliding Plate)	3	3	3.1
24	Pipe Support Material (Rolled Sections)	3	3	3.1

**NOTE:**

- a) *Type 3.2 Certification is applicable for Pressure containing parts to Casting or Forging, Type 3.1 is applicable for Trim, and Type 2.2 for fasteners, packing etc.*
- b) *Means that Inspection Class could be reduced to (3) after assessment & approval by COMPANY (Case by Case).*
- c) *For Marine hoses (Under buoy and floating) and Expansion Bellow – not included in the table above – Type 3.2 Certification is applicable.*

*Means that Inspection Class could be increased to (2) after assessment & approval by Company (Case by Case)*

## A1.2. PIPELINE

A1.2 Pipeline				
#	Equipment / Item Description	Minimum Criticality Rating	Inspection Class	Material Certification to BS EN 10204
1	Welded Line Pipe (SAW)	1	1	3.2
2	Seamless Line pipe (CS, all sizes)	1	1	3.2
3	High Frequency Electric Welded (HFW) Line Pipe	1	1	3.2
4	CRA MLP and Metallurgical bond Internal Lined Pipes	1	1	3.2
5	Non-Metallic Line Pipe (GRE, HDPE & RTP)	1	1	3.2
6	Barred Tee (Body & Bars)	1	1 (Note b)	3.2
7	Coatings (3LPP, 3LPE, FBE, Shrink sleeves, etc.) of Line pipes, Bends, & Fittings External & Internal.	1	1	3.2
8	Pipeline Field Joint Coating HSS Sleeves	1	1 (Note b)	3.1
9	All Flanges and Fittings	1	1 (Note b)	3.2
10	Pipeline Induction Bend	1	1 (Note b)	3.2
11	Pipeline Isolating / Insulating Joints (IJ)	1	1 (Note b)	3.2
12	Pipeline Pig Signaller	2	2 (Note a)	3.1
13	Pipeline Positive Seal Coupling Groove Coupling	1	1 (Note a)	3.1
14	Pipeline Valves	1	1 (Note b)	3.2
15	Pipeline Pig Traps (Receivers & Launchers) & End Enclosures	1	1 (Note b)	3.2
16	Hot Tap Split Tees, Sandwich Valve and Plugs	1	1 (Note b)	3.2
17	Pipeline Anchor Flanges	1	1 (Note b)	3.2
18	Welding Consumables	3	3 (Note c)	3.1

### NOTE:

- a) Means that Inspection Class could be reduced to (3) after assessment & approval by Company (Case by Case).
- b) Means that Inspection Class could be reduced to (2) after assessment & approval by Company (Case by Case).
- c) Means that Inspection Class could be reduced to (4) after assessment & approval by Company (Case by Case).

### A1.3. STATIC EQUIPMENT

A1.3 Static Equipment (Note c)				
#	Equipment / Item Description	Minimum Criticality Rating	Inspection Class	Material Certification to BS EN 10204
1	Pressure vessels (including all Vessels, Filters, Columns), Heat exchangers, Air coolers fabricated from carbon steel	2	2 (Note a)	3.2
2	Pressure vessels (Including all Vessels, Filters, Columns, Air coolers, Heat exchangers) – SS and CRA	1	1	3.2
3	Column Internals	2	2 (Note b)	3.1
4	Separator: - Production - Test	1	1	3.2
5	Separator Internals	2	2 (Note b)	3.1
6	Slug Catchers	1	1	3.2
7	Vessel Internals	2	2 (Note b)	3.1
8	Scrubber	1	1	3.2
9	Tanks (Shop & Field Fabricated)	2	2	3.1
10	Cryogenic Tanks	1	1	3.2
11	Spheres	1	1	3.2
12	Pressure vessels - Cladded	1	1	3.2

**NOTE:**

- a) Means that Inspection Class could be increased to (1) after assessment & approval by Company (Case by Case)
- b) Means that Inspection Class could be reduced to (3) after assessment & approval by Company (Case by Case)
- c) National Board registration requirement has been defined in the relevant ADNOC Specification.

#### A1.4. ROTATING EQUIPMENT

A1.4 Rotating Equipment				
#	Equipment / Item Description	Minimum Criticality Rating	Inspection Class	Material Certification to BS EN 10204
1	Centrifugal Pumps – production and process critical	1	1	3.1 / 3.2 (Note a)
2	Centrifugal Pumps - utility applications, production and process non-critical.	2	2	3.1
3	Fire Water Pumps and Fire Water Jockey Pumps.	1	1	3.1 / 3.2 (Note a)
4	Pumps - Reciprocating and Rotary Positive Displacement	2	2	3.1
5	Centrifugal Compressors, Expanders, Rotary Positive Displacement Compressors, Reciprocating Compressor Packages handling Hydrocarbon gases including CO2, N2 and auxiliaries	1	1	3.1 / 3.2 (Note a)
6	Centrifugal, Screw, Reciprocating Compressors in utility, air service and air dryer packages	2	2	3.1
7	Turbine (Steam, Gas)	1	1	3.1 / 3.2 (Note a)
8	Emergency Diesel Generator Packages	1	1	3.1
9	Power Generation - STG / GTG	1	1	3.1

**NOTE:**

- a) Type 3.2 Certification is applicable for the casing only (casting or forging).

**A1.5. EQUIPMENT PACKAGES**

<b>A1.5 Equipment Packages</b>				
#	Equipment / Item Description	Minimum Criticality Rating (Note b)	Inspection Class	Material Certification to BS EN 10204
1	Flare Package (HP and / or Cold)	2	2	3.2
2	Flare Package (LP)	2	2	3.2
3	De-Salter Package	1	1	3.2
4	Gas Dehydration Package, Glycol Regeneration (or injection), Chlorination Package	2	2	3.2
5	Fired Heaters	1	1	3.2
6	Storage Tanks - GRP	2	2	3.1
7	Boiler Package	1	1	3.2
8	Reaction furnace	2	2	3.2
9	Incinerators	1	1	3.2
10	Nitrogen Bottle Rack Package	2	2	3.1
11	Refrigeration Units	2	2	3.1
12	Waste Heat Recovery Units (WHRUs)	1	1	3.2
13	Water Treatment Packages	2	2	3.1
14	Nitrogen Generation Package (Membrane, Pressure Swing Adsorption (PSA) or Air Separation Units (ASUs))	2	2	3.1
15	Chemical Injection Packages	2	2	3.1
16	Electric or Hand operated Overhead Travelling (EOT / HOT) Cranes, Hoists (Manual, electrical), Gantry cranes etc.	3	3	3.1
17	Solid Handling Equipment for Sulphur granules.	(Note a)	(Note a)	3.1
18	Loading Arms for products (handling, HC)	1	1	3.2
19	Process and Utility Refrigeration Packages (water / glycol mixture cooling for process applications, VFD cooling etc.)	2	2	3.1
20	Chillers & Air Handling Units (AHU), DX Units (HVAC items). CR = 2 or 3 based on complexity	3	3	3.1

**NOTE:**

- a) To be decided based on production criticality of that component.
- b) If a package component has a higher criticality rating, then the higher value shall be used for that component.

**General**

- *National Board registration requirement for pressure vessels within the packages has been defined in the relevant ADNOC Specification.*
- *Type 3.2 Certification shall apply for Chain for Marine service, shackles, Mooring hawser, Marine Breakaway Coupling.*
- *Type 3.2 Certification shall apply for all wetted / pressure / stress bearing parts / Body / shell plate and arm piping. And for CRA material.*
- *Type 3.1 Certification shall apply for flange bolting, non-pressure/ non-stress bearing parts, structural parts and spare parts.*

## A1.6. INSTRUMENTATION

A1.6 Instrumentation				
#	Equipment / Item Description	Minimum Criticality Rating	Inspection Class	Material Certification to BS EN 10204
1	Choke Valves	1	1 (Note a)	3.1
	Emergency Shutdown Valves (ESDV), HIPPS & EDPs			
	Surface Safety Valve			
2	Motor/ Remote Operated & ON / OFF Valves	1	1 (Note a)	3.1
	Manual Valves Retrofitted with Electric Actuators			
	Control Valves			
	V-type Actuated Valves			
3	Pressure Relief Valves / Safety Valves & Rupture discs/ Safety Relief Devices	1	1 (Note a)	3.1
4	Analyzer System	2	2	3.1
5	Fiscal Metering (Custody Transfer Instrumentation)	2	2	3.1
6	Integrated Control & Safety System (ICSS) Cabinets and other package control system.	1	1	3.1
	ICSS- DCS			
	ICSS- ESD			
	ICSS- F&G			
	ICSS- RTU & PLC			
7	Well Head Control Panel (WHCP)	2	2	3.1
	Well Head Hydraulic Panel (WHHP)			
8	High Integrity Pressure Protection System (HIPPS) Equipment	1	1	3.1
9	Control Panel ( Not covered above)	2	2	3.1
10	ECMS system	2	2	3.1
11	Hydraulic Panel	2	2	3.1
12	DCS Configuration	1	1	3.1
13	Turbine Control System / Tank Gauging System / Custody Transfer Metering / Package Unit PLC / Machine Monitoring system - Hardware Configuration	1	1	3.1
14	Electronic Transmitter (SMART & FF) & Loop Powered Indicator Level Transmitters (Interface /Radar)	3	3	3.1
15	Multi-Phase Flow Meters Coriolis Mass Flow Meter	2	2	3.1

### A1.6 Instrumentation

#	Equipment / Item Description	Minimum Criticality Rating	Inspection Class	Material Certification to BS EN 10204
	Elector-Magnetic Flow Meters			
16	All IPF instrumentation	1	1	3.1
17	Turbine Flow Meter Ultrasonic Flow Meter V-Cone Flow Meter Rotameter & Purge Assembly	2	2	3.1
18	Gas Chromatograph	2	2	3.1
19	Self-Acting Regulators	3	3	3.1
20	Hydraulic Package Unit	2	2	3.1
21	FND Field BUS / Barrier Junction Boxes & Connectors	2	2	3.1
22	Condition & Vibration Monitoring System	2	2	3.1
23	Flow Orifice Assembly / Plate & Restriction Orifice / Plate	2	2	3.1
24	Averaging Pitot Tubes (Annubars)	3	3	3.1
25	Venturi Meters	2	2	3.1
26	Instrument Cables	3	3 (Note b)	3.1
27	Fire & Gas Detectors	1	1	3.1
28	Fire & Gas Detectors (Acoustic Leak Detectors)	1	1	3.1
29	Control Valve Retrofitted with new FF Positioner	3	3	3.1
30	Tubes (SS, Ni alloys ...etc.)	3	3	3.1
31	Tube Fittings	3	3	3.1
32	Air Distribution & other Manifolds	3	3	3.1
33	Drip Rings	3	3	3.1
34	Emergency Shutdown Push button	2	2	3.1
35	Unistrut	3	3	3.1
36	Tube Clamps	3	3	3.1
37	Multi-cable Transit	4	4	3.1
38	Cable Tray	3	3	3.1
39	Cable Gland	2	2 (Note c)	3.1
40	Fibre Optic cables	2	2	3.1
41	Multiport Selector Manifold	1	1	3.1
42	Metering Skid	2	2	3.1
43	Passive Cooling Shelter	2	2	3.1
44	New ECMS/ Existing ECMS System Modification	1	1	3.1

### A1.6 Instrumentation

#	Equipment / Item Description	Minimum Criticality Rating	Inspection Class	Material Certification to BS EN 10204
45	Pressure Gauges & Differential Pressure Gauges	3	3	3.1
46	Temperature Gauges	3	3	3.1
47	Temperature Elements / Thermowells	3	3	3.1
48	Level Gauges- Transparent /Glass	3	3	3.1
49	Level Gauges- Magnetic	3	3	3.1
50	Multipoint Thermocouples & Resistance Temperature Detectors (RTDs)	3	3	3.1
51	Displacer /Radar LVL TXS	3	3	3.1
52	High Sensitivity Smoke Detection (HSSD)	1	1	3.1
53	Dissolved Gas Analysis Monitors	3	3	3.1
54	Instrument Sunshades	4	4	3.1

**NOTES:**

- a) Means that Inspection Class could be reduced to (2) after assessment & approval by Company (Case by Case)
- b) Means that Inspection Class could be increased to (2) after assessment & approval by Company (Case by Case).
- c) Means that Inspection Class could be reduced to (3) after assessment & approval by Company (Case by Case).

## A1.7. ELECTRICAL

A1.7 Electrical				
#	Equipment / Item Description	Minimum Criticality Rating	Inspection Class	Material Certification to BS EN 10204
1	Power Transformer - 105 MVA and above	1	1 (Note a)	3.1
2	Distribution Transformers /	2	2	3.1
	Phase Shift Transformer			
3	Process Electric Heater	2	2	3.1
4	33KV Switchgear	2	2	3.1
5	33KV Switchgear Modification	2	2	3.1
6	132KV Switch Gear Modification	2	2	3.1
7	132KV GIS Switchgear	1	1	3.1
8	11KV & 3.3KV Switchgear	2	2	3.1
	11KV Ring Main Unit			
9	415V /LV Switchgear	2	2	3.1
	LV Switchgear Modification			
10	33KV Switch Board	2	2	3.1
11	11KV Switch Board	2	2	3.1
12	Harmonic Filters and Power Factor Equipment	2	2	3.1
	33Kv - 2.5 MVAR Capacitor Banks & Harmonic Filter			
13	415V Main Distribution Boards	2	2	3.1
	LV Distribution Board			
14	Online Condition Monitoring System (OLCMS-T and OLCMS-M)	2	2	3.1
15	UPS (AC, DC, & AC-DC) with Batteries	1	1 (Note a)	3.1
16	Substation Control & Monitoring System (SCMS)	2	2	3.1
	SCMS Modification			
17	Local Control Station & Switch	2	2	3.1
18	Power Supply Skid - Packaged Substation	2	2	3.1
19	Solar Power System & Batteries	2	2	3.1
20	Electric Motors (HV and LV)	2	2	3.1
21	Adjustable Speed Drives	2	2	3.1
22	Neutral Earthing Transformer Package	3	3	3.1
23	Low Voltage Bus Duct	2	2	3.1
24	Fault Monitoring System (FMS)	3	3	3.1

### A1.7 Electrical

#	Equipment / Item Description	Minimum Criticality Rating	Inspection Class	Material Certification to BS EN 10204
25	HV Cables	2	2	3.1
26	HV Cable Termination Kit	2	2 (Note b)	3.1
27	LV Power Control and Earthing Cables	3	3	3.1
28	33KV Subsea Composite Cable	2	2	3.1
29	Earthing and Lightning Materials	3	3	3.1
30	Electrical Cable Glands	2	2 (Note b)	3.1
31	Power Receptacles and Switches	3	3	3.1
32	Capacitors (Lights & AC ... etc.)	4	4	3.1
33	Cable Trays and Accessories for E&I	3	3	3.1
34	Electrical Junction Boxes	3	3	3.1
35	Trefoil Cleats, Cable Clamps, Cable Tags, and Route Marker	3	3	3.1
36	Overhead Lines (OHL) 132 kV and 33 kV Lattice Steel Towers OPGW 132 kV and 33 kV Surge Arresters 132 kV and 33 kV Load Break Switches 132 kV and 33 kV XLPE cable	2	2	3.1
37	Fault Limiting Reactor	2	2	3.1
38	Hazardous Bulk Materials	2	2 (Note b)	3.1
39	Non-Hazardous Bulk Materials	3	3	3.1
40	Small Power, Lighting, UPS Distribution Board	3	3	3.1
41	Heat Tracing	3	3	3.1

**NOTES:**

- a) Means that Inspection Class could be reduced to (2) after assessment & approval by Company (Case by Case).
- b) Means that Inspection Class could be reduced to (3) after assessment & approval by Company (Case by Case).

#### A1.8. TELECOMS

A1.8 Telecom				
#	Equipment / Item Description	Minimum Criticality Rating	Inspection Class	Material Certification to BS EN 10204
1	Telecoms Systems (SDH, CCTV, PAGA, Radio, Well site)	3	3	3.1
2	Telecom System Package	3	3	3.1
3	Fibre Optic Cables	2	2	3.1
4	Fibre Optic Accessories	3	3	3.1
5	Telecoms Bulk Materials	3	3	3.1

#### A1.9. CIVIL / STRUCTURAL

A1.9 Structure/Civil				
#	Equipment / Item Description	Minimum Criticality Rating	Inspection Class	Material Certification to BS EN 10204
1	Supply, Fabrication and painting / Galvanizing of Structural Steel Support for Process Items (Beams, ladders, stairs, platforms, handrails, checkered plates, etc.)	1	1	N/A (a)
2	Supply, Fabrication and painting / Galvanizing of Structural Steel Support for other structures (Beams, ladders, stairs, platforms, handrails, checkered plates, etc.)	2	2	N/A (a)
3	Reinforcement Steel	2	2	3.1
4	Anchor and Structural bolts & nuts	1	1 (Note b)	3.1
5	Hot dip Galvanised Items	3	3	3.1
6	Concrete Aggregates & admixtures	4	4	N/A (a)
7	Cements	4	4	N/A (a)
8	Asphalt based materials	4	4	N/A (a)
9	Cast Iron Covers	4	4 (Note c)	3.1
10	Floor Gratings	4	4 (Note c)	3.1
11	Fencing	4	4 (Note c)	3.1
12	Architectural - Fire Rated Assemblies	1	1	N/A (a)
13	Architectural - Blast Resistant Doors	1	1	N/A (a)

14	Architectural - Water Proofing Materials	3	3	N/A (a)
15	Architectural - Security and Vault Equipment	3	3	N/A (a)
16	Architectural - Cable Support and Fabric Structures	3	3	N/A (a)
17	Architectural – Pre-Engineered Structures/Building/Shelters	3	3	N/A (a)
18	Architectural - HVAC, Plumbing, Electrical Specialities/Systems	3	3	N/A (a)
19	Architectural - Fire Retardant and Intumescent Seals	4	4	N/A (a)
20	Architectural - Solar Energy Systems/Collectors & Solar Control Devices	4	4	N/A (a)
21	Architectural - Floor and Wall Tiles, Natural Stone and Ceramic Tiles	4	4	N/A (a)
22	Architectural - Artwork, Signage and Graphics	4	4	N/A (a)
23	Architectural - Pre-Finished Furniture/Systems and Pre-assembled Systems	4	4	N/A (a)
24	Architectural - Hollow Block Work, Ironmongery, Architectural Metal Work	4	4	N/A (a)
25	Architectural - Window Washing & Building Facade Maintenance Equipment	4	4	N/A (a)
26	Architectural - Aluminium Window Doors	4	4	N/A (a)
27	Architectural - Sloping Glazing Systems, Glazing and Door Assemblies	4	4	N/A (a)
28	Architectural - Sanitary	4	4	N/A (a)

**NOTE:**

- a) Certification is not applicable however for material / item other than steel means that the manufacturer declares that the supply complies with the purchase requisition (specification / datasheet) and includes the test results / reports. The manufacturer's Inspection department validates test results, which is independent of the manufacturing department.
- b) Means that Inspection Class could be reduced to (3) after assessment & approval by Company (Case by Case).
- c) Means that Inspection Class could be increased to (3) after assessment & approval by Company (Case by Case).

**General:**

- Type 3.2 Certification is applicable to Special and Primary Category Structural Steel that include the Plates, Beams, and Tubulars.
- Type 3.1 Certification is applicable to Secondary and Tertiary Category Structural Steel that include the Plates, Beams, Tubulars, Pipes, and Angle etc.

#### A1.10. CORROSION PROTECTION

A1.10 Corrosion Protection				
#	Equipment / Item Description	Minimum Criticality Rating	Inspection Class	Material Certification to BS EN 10204
1	Cathodic Protection	3	3	3.1
2	Pipeline Corrosion Monitoring & Access Fittings	3	3	3.1

#### A1.11. HSE

A1.11 HSE				
#	Equipment / Item Description	Minimum Criticality Rating	Inspection Class	Material Certification to BS EN 10204
1	Deluge valves Skid and Spray Nozzles	1	1	3.1
2	Clean Agent system	1	1	3.1
3	Fire Fighting Equipment - Fire Extinguishers, Fire Blankets, Hose Reels, etc.	2	2 (Note a)	3.1
4	Personal Protective Equipment (PPE)	3	3 (Note b)	3.1
5	Safety Signs	4	4	3.1
6	Lifeboats	1	1 (Note a)	3.1

#### NOTES:

- a) Means that Inspection Class could be reduced to (3) after assessment & approval by Company (Case by Case).
- b) Means that Inspection Class could be reduced to (4) after assessment & approval by Company (Case by Case).

## SECTION E – MINIMUM INSPECTION AND TESTING ACTIVITIES

### APPENDIX A

## APPENDIX A

### MINIMUM INSPECTION AND TESTING ACTIVITIES

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## SECTION-A: GENERAL

- a) This APPENDIX-A defines the minimum inspection and testing activities that shall be considered and addressed by MANUFACTURER/ VENDOR/ Sub-VENDOR while developing related Inspection & Test Plan (ITP), the minimum inspection and testing interventions concerned parties are specified under Section 15, and the minimum Material Certification requirements are addressed in Section 26 of this specification.
- b) The project specific requirements and any additional inspection and testing requirements addressed in the technical contractual documents shall be included in the ITP.
- c) For equipment and material which do not have an Inspection & Test Plan (ITP) listed under this APPENDIX-A, MANUFACTURER/ VENDOR shall prepare an ITP (Inspection & Test Plan) in compliance with the relevant COMPANY Standard, International/ National Standards referred in to Purchase Order description and shall be submitted for CONTRACTOR and COMPANY Approval prior to manufacturing.
- d) ITP shall cover all major inspection related activities in a sequential order from review of documents, drawings through manufacturing, process controls, examination, testing, Quality documentation review, certification, pre-dispatch inspection and up to final release.
- e) The content of ITPs developed in a tabulated form by MANUFACTURER/ VENDOR, and shall address the below as a minimum.
  - *Inspection and testing activities.*
  - *Responsible person.*
  - *References (applicable Project specifications/Drawings/ Data Sheets, etc.)*
  - *Characteristics to be verified.*
  - *Material Certification level.*
  - *Acceptance Criteria.*
  - *QC verified Record.*
  - *Intervention for concerned parties MANUFACTURER/ VENDOR/ CONTRACTOR/ COMPANY*
  - *Remarks.*
- f) Any deviation from the approved ITP stages and interventions shall require COMPANY Quality Control Department approval.

## SECTION-B: ABBREVIATION

Abbreviation	Description
<b>ADNOC</b>	Abu Dhabi National Oil Company
<b>AIS</b>	Air Insulated Switchgear
<b>API</b>	American Petroleum Institute
<b>ASME</b>	American Society of Mechanical Engineers
<b>BASEEFA</b>	British Approvals for Electrical Equipment in Flammable Atmospheres
<b>BS</b>	British Standard
<b>CMMS</b>	Computerized Maintenance Management System
<b>CoP</b>	Code of Practice
<b>CP</b>	Cathodic Protection
<b>CPR</b>	Contract Purchase Requisition
<b>CR</b>	Concession Request
<b>CR</b>	Criticality Rating
<b>CSA</b>	Canadian Standards Association
<b>CV</b>	Curriculum Vitae
<b>DCS</b>	Distributed Control System
<b>DIN</b>	Deutsches Institut Fur Normung
<b>DFT</b>	Dry Film Thickness
<b>EEMUA</b>	Engineering Equipment and Materials Users Association
<b>ESD</b>	Emergency Shutdown System
<b>GIS</b>	Gas Insulated Switchgear
<b>FAT</b>	Factory Acceptance Test
<b>F &amp; G</b>	Fire & Gas System
<b>GRP</b>	Glass Reinforced Pipe
<b>H2S</b>	Hydrogen Sulphide
<b>HIC</b>	Hardness Induced Cracking
<b>HSE</b>	Health, Safety & Environment
<b>HV</b>	High Voltage
<b>HVAC</b>	Heating, Ventilating & Air Conditioning
<b>LAN</b>	Local Area Network
<b>LV</b>	Low Voltage
<b>ID</b>	COMPANY Asset Integrity division
<b>ITP</b>	Inspection and Test Plan
<b>KV</b>	Kilo-Volt

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

<b>Abbreviation</b>	<b>Description</b>
<b>KVA</b>	Kilo-Volt-Ampere
<b>KW</b>	kilowatt
<b>MOC</b>	Management of Change
<b>MR</b>	Material Requisition
<b>MSS SP</b>	Manufacturers Standardization Society Standard Practice
<b>NDE</b>	Non-Destructive Examination
<b>NCR</b>	Non-conformance Report
<b>NDT</b>	Non-Destructive Testing
<b>NPSH</b>	Net Positive Suction Head
<b>OCIMF</b>	Oil Companies international marine Forum
<b>PIM</b>	Pre-Inspection Meeting
<b>PLEM</b>	Pipeline End Manifold
<b>PMI</b>	Positive material Identification
<b>PMT</b>	COMPANY Project Management Team
<b>PMC</b>	COMPANY Project management Consultant
<b>PCP</b>	Project Change Proposal
<b>PO</b>	Purchase Order
<b>PQR</b>	Procedure Qualification Records
<b>QA/QC</b>	Quality Assurance/Quality Control
<b>QAS</b>	Quality Assurance System
<b>QC</b>	Quality Control
<b>QMS</b>	Quality Management Systems
<b>RFI</b>	Request for Inspection
<b>SSCC</b>	Sulphide Stress Corrosion Cracking
<b>STD</b>	Standard
<b>TEMA</b>	Tubular Exchanger Manufacturers Association
<b>TPA</b>	COMPANY appointed Third Party Inspector
<b>TPIA</b>	Third Party Inspection Agency
<b>TPI</b>	Third Party Inspector
<b>TSD</b>	Technical Standard Documents
<b>UPS</b>	Uninterruptable Power Systems
<b>UTC</b>	Unique Tracking Commodity
<b>VDRL</b>	Vendor Document Requirement List Requirement List
<b>WAN</b>	Wide Area Network
<b>WIN</b>	Work Identification Number
<b>WPS</b>	Welding Procedure Specification

## **SECTION-C: INSPECTION TEST PLANS**

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-101 Unfired Pressure Vessel & Columns

SL. NO.	ACTIVITY	REFERENCE DOCUMENT (Reference Project specification)	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<p><b>Scope</b> This list covers the inspection and test requirements in a Vendor's works for unfired vessels designed and constructed in accordance with ASME Section VIII, PD 5500 or any other recognized Codes.</p> <p>Following list details COMPANY's <u>minimum requirements</u> for pressure vessel inspection &amp; certification.</p>							
1.1	Vendor approval							
2.	<b>Pre- Inspection Meeting</b>							
3.	<b>General - Preliminary Work</b>							
3.1	Data sheet							
3.2	Calculations							
3.3	GA and detailed Drawings including sub-vendors							
3.4	Vendor's fabrication schedule							
3.5	Vendor's QA Plan							
3.6	Sub-vendor approval							
3.7	Status of sub-orders							
3.8	Vendor ITP (including Sub-vendor Order activities)							
3.9	Raw Material test and certification, identification and traceability							
3.10	Welding Procedure Specification (WPS)and Procedure qualifications Record (PQR) and weld map							
3.11	Qualified welders list							
3.12	NDT Procedures - MT, PT, RT, UT, Phased Array, TOFD and etc., as applicable							
3.13	PWHT Procedures							
3.14	NDE Personnel Qualifications							
3.15	PMI, Ferrite and Hardness testing procedure (as applicable)							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-101 Unfired Pressure Vessel & Columns (cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT (Reference Project specification)	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
3.16	Internal cladding / Lining procedure							
3.17	Hydro testing and Painting procedure							
3.18	Sensitive leak test procedure							
3.19	Pickling and passivation procedure							
3.20	Base line survey procedure							
3.21	Packing, storage (including internals) and preservation Procedure							
<b>4.</b>	<b>Production</b>							
4.1	Material Traceability and Examination Chemical analysis, Mechanical, Impact test, corrosion and heat resistant properties Piping components SS, DSS, Inconel and CRA shall conform to specification	Vendor Data Book / MTC ASME Sec II & VIII,						
4.2	PMI							
4.3	Formed Head inspection (Profile, minimum Thickness after forming and NDE, Bonding check as applicable)	Project Spec./ P.O. Description Project specification						
4.4	Dished Heads forming test coupon	Drawings						
4.5	Fit-up of Long and Circular Seams	Drawings						
4.6	Fit-up of Dished Ends to shell	Drawings						
4.7	Fit-up of Nozzles, clips and supports	Drawings						
4.8	Fit-up of skirt with vessel							
4.9	Fit-up of Internal Attachments	Drawings						
4.10	Production Welding	WPS/Weld Map and Assembly drawing						
4.11	Clad vessel: weld overlay progressive inspections - PT on first layer, and Ferrite, UT for lack of fusion between weld and base metal, chemical analysis	NDE procedures and specification						
4.12	Heat Treatments (after forming / welding)	Project Spec./ P.O. Description Codes, Std. Procedure						
4.13	Vessel /Column Heat Treatment verification test coupon	ASME sec VIII						
4.14	Clad vessel: PT 100% prior to Hydrostatic test (followed by PWHT)	Project Specification						
4.15	Pickling and Passivation, and Ferroxyl testing	Project specification / ASTM A380						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-101      Unfired Pressure Vessel & Columns (cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT (Reference Project specification )	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
4.16	Internal Lining or Coating	Project Spec./ P.O. Description Codes & Std.						
4.17	Tell-tale/vent hole closure							
4.18	Impact testing Production test plates	Project specification						
4.19	Trial Assembly of Internals	Project specification/P rocedure						
<b>5.</b>	<b>Examination</b>							
5.1	Visual Dimensional Check	Approved Project Spec. Drawings Codes, Std. & Procedure						
5.2	Non-Destructive Examination before and after Heat treatment							
5.3	Clad vessel Final NDE: 100% PT and Hardness, PMI, Ferrite check							
5.4	UT for CRA Weld overlay deposited thickness check	Project specification						
5.5	Ultrasonic Test of clad plates and disbandment checks (UT 100% of the interfacial area)	ASTM SA-578						
5.6	Clad vessel: attachments /Nozzle weld area 100% UT prior to fit-up	ASTM SA-578						
5.7	Painting & Coating Examination including PQT	Project Spec./ P.O. Description						
5.8	Holiday testing / Pin hole Testing, if Applicable	Codes, Std. & Approved						
5.9	Name plate verification and Code stamping							
5.10	ASME Name Plate attachment							
5.11	Punch List close-out							
<b>6.</b>	<b>Testing</b>							
6.1	PMI (Where applicable)	Codes & Std						
6.2	Hydrostatic Test	Project Spec./ P.O. Description ASME VIII						
6.3	RF pad Pneumatic testing							
6.4	Sensitive leak test (If applicable)	Project Spec./ P.O. Description						
6.5	Pickling and Passivation, and Ferroxyl testing	Project specification / ASTM A380						
6.6	Draining, drying and internal cleanliness inspection							
6.7	Base line Survey	Project Spec./Std.						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-101 Unfired Pressure Vessel & Columns (cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT (Reference Project specification)	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
6.8	Hardness Test	Project Spec./ Codes & Std.						
6.9	Ferrite test							
<b>7.</b>	<b>Preparation for Dispatch</b>							
7.1	Marking / Name Plate	P.O Spec., Std.						
7.2	Cleaning, Preservation and Surface Treatment	P.O Spec., Std.						
7.3	Preparation for Shipment and Packing with internal and external protection	P.O Spec., Std.						
7.4	Compliance certificate by Manufacturer							
7.5	National Board Registration certification							
7.6	Inspection Release Note (IRN)	Project specification						
<b>8.</b>	<b>Reports, Test Certificates &amp; Vendor Data Book</b>							
8.1	Vendor Data Report (As specified by above activities)	Project specification						
8.2	Raw Material Test Certificates (Compliance to all Project / PO inspection and testing requirements)							
8.3	WIN / UTC / CMMSDATA Sheet (To Be Completed by Vendor wherever applicable)							
8.4	Vendor Data Books endorsement, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-102 Shell & Tube Heat Exchangers

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<b>Scope</b> This list covers shell and tube heat exchangers to TEMA class "R", refer to section "5" for the pressure containment parts e.g. shells, bonnets, channels etc.	Applicable Project Spec., P.O. Description TEMA "R"						
1.1	Vendor approval	COMPANY Pre-qualification	Q					
2.	<b>Pre-production/Pre-Inspection Meeting</b>							
3.	<b>General - Preliminary work</b>							
3.1	Data sheet							
3.2	Bundle Calculations	Applicable Project Spec., P.O. Description P.O Spec. TEMA "R"						
3.3	GA and detail Bundle Drawing	Applicable Project Spec., P.O. Description Codes, Std.						
3.4	Vendor's Fabrication Schedule	Production Plan						
3.5	Vendor's QA Plan	QA Manual						
3.6	Sub-vendor approvals	COMPANY Pre						
3.7	Status of sub-orders	Production Plan						
3.8	Material test and certification Piping components SS, DSS and CRA shall conform to ITP-122	Applicable Project Spec., P.O. Description Codes, Std. & Drawings						
3.9	WPS and PQR for Tube Welding & Welding Cladding Procedure and Qualification, and Weld map	Codes, Std. & Drawings						
3.10	Qualified welders list							
3.11	Tube Expansion Procedure specification (TEPS)	ASME Sec. VIII						
3.12	Tube sheet expansion and tube sheet welding control and repair procedure	Applicable Project Spec., P.O. Description Codes, Std.						
3.13	NDT Procedures: RT, UT for welds, plates/cladded, MT, PT (including tube to tube sheet welds)	Applicable Project Spec., P.O. Description Codes & Std.						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-102 Shell & Tube Heat Exchangers (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
3.14	Dished Head forming and NDE procedure							
3.15	PWHT Procedures	Codes, Std.						
3.16	Procedures for PMI, Ferrite, Hardness, Clad UT thickness check, as applicable							
3.17	Hydrostatic Test procedure (including draining, drying, cleaning around internals)	Applicable Project Spec., P.O. Description						
3.18	Pneumatic test procedure (for attachments, etc.,)	Codes, Std.						
3.19	Painting and assembled exchanger interior surface protection procedures (for including CRA material, Cladded internal), as applicable							
3.20	Packing and Preservation and monitoring procedure	Applicable Project Spec., P.O. Description						
3.21	Nitrogen blanketing procedure	Codes, Std.						
3.22	Baseline Survey procedure	Project specification						
3.23	Personnel Qualifications							
<b>4. Production</b>								
4.1	Material Traceability and Examination	Vendor Data Book						
4.2	Raw materials: HIC resistant materials for tube sheet, tube, shell, channel, baffle, nozzle, head, cover and ring.	Project Spec., Codes, Std.						
4.3	Raw material PMI and ferrite check for CRA and cladded on receipt of material							
4.4	Fit-up of Long seam, Circular seam							
4.5	Check MTC for tubes Eddy current tested							
4.6	Fit-up of Main Components, Supports, Lifting Device etc.	Approved Drawings						
4.7	Tube sheet and its holes (including cleanliness, surface finish and tolerance, tube ends and Baffle Inspection)							
4.8	Fit-up of Dished Head to Flange, and Shell to Tube sheets							
4.9	Tube Bundle Assembly inspection (inside visual condition of shell before insertion)							
4.10	U-Tube bundles for looseness of tubes in Bend area							
4.11	Shell Internal Inspection	Approved Drawings						
4.12	Tube Bundle insertion to shell inspection							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-102 Shell & Tube Heat Exchangers (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
4.13	Check clearance all around shell and tube sheet							
4.14	Shell and tube sheet assembly / Flange management							
4.15	Production welding of all components	WPS / Drawings						
4.16	Tube sheet expansion and welding							
4.17	Tubes Extend from the front of the tube sheet check	Approved WPS, project specification, procedures						
4.18	Tube expansion: Wall thickness reduction check (behind and in front of the tube sheet)							
4.19	PT on the tube-to-tube sheet weld							
4.20	Heat Treatments	Applicable Project Spec., Codes & Std.						
4.21	Final Machining	Drawings						
4.22	Bolting and Gasket							
<b>5.</b>	<b>Examination</b>							
5.1	Visual and Dimensional Check	Drawings						
5.2	Non-Destructive Examination	Applicable Project Spec., P.O. Description Codes, Std & Approved Procedure						
5.3	Heat Treatment charts							
5.4	Internal Visual inspection-pressure and non-pressure welds							
5.5	Flange management							
5.6	Painting & Coating Examination (including test panel)							
5.7	Internal corrosion protection/inhibitor application							
5.8	Code stamping							
<b>6.</b>	<b>Testing</b>							
6.1	PMI, Ferrite (Where applicable)	Applicable Project Spec., P.O. Description Codes, Std & Approved Procedure						
6.2	HIC Test							
6.3	Impact Testing							
6.4	Leak test of U- Bundles after bend and weld							
6.5	Helium leak testing – tube to tube sheet prior to hydrostatic test							
6.6	Hydrostatic Test / Tube Test for Leaks	Applicable Project Spec., P.O. Description TEMA Codes & Std						
6.7	Pneumatic Test for attachments/RF pads							
6.8	After Hydrostatic test: Internal Drying and cleaning							
6.9	Baseline Survey							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-102     Shell & Tube Heat Exchangers (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
6.11	Hardness Test (including wetted parts)							
6.12	Load Test and MT/PT (prior to and after testing)	Approved Procedure,						
<b>7. Preparation for Dispatch</b>								
7.1	Marking / Name Plate	TEMA &						
7.2	Cleaning, Preservation and Surface Treatment	P.O Spec., Std.&						
7.3	Compliance certificate by Manufacturer							
7.4	National Board Registration certification							
7.5	Inspection Release Note (IRN)	Project specification						
7.6	Preparation for Shipment, Packing, handling, preservation and storage	P.O Spec., Std.						
<b>8. Reports &amp; Test Certificates &amp; Vendor Data Books</b>								
8.1	Vendor Data Report							
8.2	Raw Material Test Certificates							
8.3	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)							
8.4	Vendor Data Books endorsement, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-103 Air Cooled Exchangers

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL <small>MAY NOT BE APPLICABLE**</small>	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<p><b>Scope</b>            This list covers air cooled exchangers to be used in hydrocarbon services only. Inspection and testing of fabricated pressure containment parts e.g. headers and associated pipe work will be covered by requirement for inspection by an COMPANY approved TPA. Acceptance of the exchanger will be by the TPA.</p> <p><u>This procedure is not intended to define all the duties and responsibilities of the independent TPA as these are as stated in the code requirements, and to do so is to make them less than independent.</u></p> <p>Nevertheless, for clarification, the following list details COMPANYS' <u>minimum requirements</u> for air cooled heat exchanger inspection and certification, as some items (e.g. structures, painting, packing etc.) are additional to Code requirements.</p>							
1.1	Vendor approval	COMPANY Pre-qualification						
2.	<b>Pre-production/Pre-Inspection Meeting</b>							
3.	<b>General - Preliminary work</b>							
3.1	Data sheets							
3.2	Drawings and Calculations	Codes & Std						
3.3	Vendor's Fabrication Schedule	Production Plan						
3.4	Vendor QA Plan	QA Manual						
3.5	Sub-vendor approvals							
3.6	Status of sub-orders	Production Plan						
3.7	Material test and certification Piping components SS, DSS and CRA shall conform to ITP-122	Applicable Project Spec., P.O. Description Codes, Std. &						
3.8	Tube Welding or Welding Cladding Procedure and Qualification (WPS & PQR)	Applicable Project Spec., Design Codes, Std & Drawings						
3.9	Qualified welders list							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-103 Air Cooled Exchangers (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>3.</b>	<b>General - Preliminary work (cont'd)</b>							
3.10	NDT Procedures							
3.11	PMI, Hardness procedure							
3.12	Noise level test procedure							
3.13	Hydrostatic Test Procedure (including draining, dry-out and cleaning)	Approved Project specification, procedures, Codes & Std.						
3.14	Helium leak test procedure							
3.15	PWHT Procedures							
3.16	Function /Shop Run in test procedure							
3.17	Painting procedure							
3.18	Galvanization procedure	Codes, Std. Approved Project Spec. and procedure /P.O. Description						
3.19	Preservation procedure							
3.20	Tube Expansion Procedure specification (TEPS)	ASME Sec. VIII						
3.21	Baseline Survey Procedure	Project specification						
3.22	Personnel Qualifications							
<b>4.</b>	<b>Production</b>							
4.1	Material Traceability and Examination	Vendor Data Book						
4.2	Fit Up of Main Components, Supports, Lifting Device etc.	Drawings						
4.3	U bending of Tubes (check thinning and flattening, Heat treatment if required)							
4.4	Fin tubes manufacturing Tubes and fins material certificates Visual and dimension check	P.O Spec. Approved project specification, Drawings, Codes and Stds.						
4.5	Check Tube wall thickness reduction after expansion							
4.6	Internal visual inspection prior to insertion							
4.7	Tube assembly inspection							
4.8	Tube Assembly and Insertion	Drawings						
4.9	Tube Expansion / Welding	WPS/Weld Map and Assembly drawing						
4.10	Heat Treatments	Codes & Std.						
4.11	Final Machining	Drawings						
4.12	Bolting and Gasket							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-103 Air Cooled Exchangers (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL <small>(Where applicable)*</small>	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5. Examination</b>								
5.1	Visual Dimensional Check	P.O Spec. & Approved Drawings						
5.2	Check Tube sheet holes, the tube ends and holes							
5.3	shop-air test after tube-to-tube sheet welding							
5.4	Non-Destructive Examination	Codes and Standards & Approved Procedure						
5.5	Prior to welding, PT or MT on all edges and plate bevels prepared for welding							
5.6	PT or MT on the root and final weld passes welds							
5.7	Painting & Coating Examination							
5.8	Steel Structures							
5.8.1	Review material certificates							
5.8.2	Check Hot-dip galvanization visual and thickness							
5.8.3	Welding book review							
5.8.4	NDE: MT, PT, RT, UT, as applicable	Project Specification P.O Spec. Codes and std.						
5.8.5	PT on the tube-to-tube sheet welded joints							
5.8.6	Visual and dimension							
5.8.7	U-Tube bundles bend area looseness check							
5.8.8	Painting examination							
5.8.9	Hot dip galvanizing inspection							
5.8.10	Fire proofing application and PQT, as applicable							
5.9	Bought out components, Motor, Vibration sensors, Fans etc.	Project Specification P.O Spec. Codes & Sds.						
5.9.1	Certification review							
5.9.2	Visual Examination							
<b>6. Testing</b>								
6.1	PMI (Where applicable)							
6.2	Hardness Test							
6.3	Hydrostatic Test	Project Specification/ P.O Spec. & Codes & Std						
6.4	After the final pressure test: Plug Joints and gasket joints air leak test							
6.5	Leak testing for Tube to Tube sheet							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### **ITP-103 Air Cooled Exchangers (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
6.6	Thermal Performance Test, if Specified							
6.7	Factory Acceptance Test (FAT) / Shop run test							
6.8	Vibration and Noise level check							
6.9	Baseline Survey							
6.10	Load Test (MT/PT prior to and after test)	Approved Procedure,						
<b>7.</b>	<b>Preparation for Dispatch</b>							
7.1	Marking / Name Plate	P.O Spec., Std.						
7.2	Code stamping							
7.3	Drying, Cleaning, Preservation and Surface Treatment (corrosion protection)	P.O Spec., Std						
7.4	Compliance certificate by Manufacturer							
7.5	Inspection Release Note (IRN)							
7.6	Preparation for Shipment- Packing and preservation (with internal and external protection)	P.O Spec., Std						
7.7	Inspection Release Note (IRN)	Project specification						
<b>8.</b>	<b>Reports &amp; Test Certificates &amp; Vendor Data Books</b>							
8.1	Vendor Data Report							
8.2	Raw Material Test Certificates							
8.3	WIN / UTC / CMMS DATA Sheet (To Be Completed by Vendor Wherever Applicable)							
8.4	Vendor Data Books endorsement, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-104      Shop Fabricated Pipe Work

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<b>Scope</b>  1. These lists are applicable to pipe work shop-fabricated to the requirements of applicable ANSI B31.3 / B31.1.	ANSI B31.3						
1. 1.	<b>Sub-Contractor approval</b>	COMPANY Pre-qualification						
2.	<b>Pre-production/Pre-Inspection Meeting</b>							
3.	<b>General - Preliminary work</b>							
3.1	Status of sub-orders	Production Plan						
3.2	Drwgs. & Calculations, and Baseline isometrics/drawings	CP-00						
3.3	Vendors Fabrication Schedule	Production Plan						
3.4	Vendors Quality Plan	QA Manual						
3.5	Material test and certification (Material receiving inspection)	Codes, Std. &						
3.6	Welding Procedure (WPS& PQR)	Design Codes, Std & Drawings						
3.7	Qualified welders list							
3.8	Pre-Fabrication and welding procedure							
3.9	GRE Piping Pre-fabrication and Bonding/lamination procedure							
3.10	Repair Welding procedure							
3.11	Painting procedure							
3.12	Hot dip galvanizing procedure, if applicable							
3.13	Fire Proofing procedure							
3.14	Flange Management procedure							
3.15	Instrument, Measuring and Test Equipment (IMTE) Procedure							
3.16	Material Procurement procedure							
3.17	NDT Procedures	Codes & Std.						
3.18	PWHT Procedures	Codes, Std.						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-104 Shop Fabricated Pipe Work (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>3. General - Preliminary work (cont'd)</b>								
3.19	Hydro test, Sensitive leak test (If applicable) Procedure							
3.20	Personnel Qualifications							
3.21	Procedure for spool identification	Codes, Std.						
3.22	Calculation for reinforced branch connection or pipe to pipe	Codes, Std.						
3.23	Materials /equipment Storage, Packing and preservation procedure	Codes, Std. manufacturer specification/ data sheet						
3.24	Baseline survey procedure	Project specification						
<b>4. Production</b>								
4.1	Material Traceability and Examination (receiving inspection)	Vendor Data Book						
4.2	Fit Up							
4.3	Production Welding	WPS / Weld Map and Assembly drawing						
4.4	GRE Lamination/Bonding							
4.5	Heat Treatments	Codes & Std.						
4.6	Lining and Coating/painting	Codes & Std.						
4.7	Pickling and Passivation ; Ferroxyl testing	Project specification / ASTM A380						
<b>5. Examination</b>								
5.1	Visual Dimensional Check	P.O Spec. & Approved Drawings						
5.2	Non-Destructive Examination							
5.3	UT Technique approval on the job (simulation)							
5.4	Mechanical testing - If Specified in PO.							
5.5	Bolts/studs torqueing, Hydraulic tensioning, as applicable; visual examination of Gaskets							
5.6	Special Test as Required e.g. HIC							
<b>5. Examination (cont'd)</b>								
5.7	Painting & color coding including PQT							
5.8	Hot-dip galvanizing and testing	Project spec.						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-104      Shop Fabricated Pipe Work (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
5.9	Passive Fire Proofing application and testing including PQT							
<b>6. Testing</b>								
6.1	PMI (Where applicable)	Codes & Std						
6.2	Ferrite check (where applicable)							
6.3	Hydrostatic Test	Codes, Std.						
6.	Pneumatic test (if applicable)							
6.5	Baseline Survey	Codes & Std.						
6.6	Hardness Test							
6.7	Load Test (Where applicable)	Approved PRO,						
<b>7. Preparation for Dispatch</b>								
7.1	Marking, Tagging/Stress free permanent marking & Color Coding	P.O Spec., Std						
7.2	Cleaning, Preservation and Surface Treatment, and end protection							
7.3	Bevel Protectors/ End caps							
7.4	Preparation for Shipment and Packing	P.O Spec., Std						
7.5	Inspection Release Note (IRN)	Project specification						
<b>8. Reports &amp; Test Certificates</b>								
8.1	Vendor Data Report							
8.2	Raw Material Test Certificates							
8.3	WIN/UTC/CMMSDATA Sheet (To Be Completed By Vendor Wherever Applicable)							
8.4	Vendor Data Books by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-105 Weldable Structural Steel Material

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<b>Scope</b>  This list covers weldable structural steel material (plates, welded tubular, seamless tubular, rolled & hollow sections).	Project Spec., P.O. Description Codes & Std.						
1.1	Vendor approval	COMPANY Pre-qualification						
2.	<b>Pre-production/Pre-Inspection Meeting</b>							
3.	<b>General - Preliminary work</b>							
3.1	Vendor Manufacturing Schedule	Prod. Plan						
3.2	Vendor QP	QA Manual						
3.3	Status of sub orders	Prod. Plan						
3.4	Material Test Certificates: Raw material Mill Test certificate review Visual Inspection and traceability Chemical Analysis, mechanical tests NDT reports	Project Spec., P.O. Description, Codes, Stds. &						
3.5	Welding Procedure & PQR Where Applicable	Project Spec., P.O. Description Codes, Stds, Drawings,						
3.6	Qualified Welder List Where Applicable							
3.7	NDT Procedures	Project Spec., P.O. Description						
3.8	PWHT Procedure	Codes & Std.						
3.9	Forming (Cold and Hot) and Heat treatment procedure							
3.10	Weld Repair procedure							
3.11	Shipping, storage and preservation procedure							
3.12	Non-conformance control procedure							
3.13	Personnel Qualification							
3.14	Tubular Manufacturing Procedure Specification (MPS)	Project Spec., P.O. Description						
3.15	Manufacturing Procedure Qualification Testing Record (MPQT)							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-105 Weldable Structural Steel Material (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.</b>	<b>Production Plates Only</b>							
4.1	Plates Manufacturing Procedure Qualification	Approved MPS						
4.2	Sampling, Chemical Analysis (Cast & Product)	Approved MPS, Codes & Stds.						
4.3	Heat Treatment	Approved PRO, Codes & Stds.						
4.4	Marking Test Samples & Test Specimens							
4.5	Mechanical Test	Project Spec., P.O. Description Codes & Stds.						
4.6	Calibration of UT equipment							
4.7	Visual Examination							
4.8	Dimensional Inspection							
4.9	Marking (Stenciling, Color Coding, Die Stamping for TPA, Shipping Mark)	Project Spec., P.O. Description Codes & Stds						
4.10	Documents including Mill Certificates, Laboratory Tests, NDT Records etc.	Project Spec., P.O. Description Codes & Stds						
<b>5.</b>	<b>Production Welded Tubulars (Including Piles, Cans &amp; Legs) Only</b>							
5.1	Calibration of UT Equipment at plate inspection	Project Spec., P.O. Description Codes & Stds.						
5.2	Chemical Analysis Records (Cast & Product)							
5.3	Steel plate mill certificates & NDT records							
5.4	Visual Inspection of Plates & Material traceability	Codes, Stds & Certificates						
5.5	Tubular Manufacturing Procedure Qualification (Forming, Welding, Testing)	Approved MPS						
5.6	WPS, PQR							
5.7	Welder Qualification							
5.8	Cold forming of tubulars							
5.9	Fit-up of weld joints (edge preparation, alignment)							
5.10	Welding, Repair Welding	Project Spec., Approved Procedures, Codes, Stds.						
5.11	Check dimension and ovality							

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-105 Weldable Structural Steel Material (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5. Production Welded Tubulars (Including Piles, Cans &amp; Legs) Only (cont'd)</b>								
5.12	PWHT	Approved Procedures  P.O. Description Approved project spec. Procedures, drawings Codes, Stds.						
5.13	Calibration of UT equipment (Welded seams & Tubular Ends)							
5.14	UT, RT & MPI							
5.15	Radiographic films							
5.16	Marking Test Samples & Test Specimens							
5.17	Mechanical Tests							
5.18	Visual & Dimensional Inspection including Bevel ends: bevel angle, root face							
5.19	Measuring Tubular Length							
5.20	Marking (Stenciling, Color Coding, Die Stamping for TPA, Shipping Mark)							
5.21	Bevel Protector (If Any)	P.O. Spec.						
5.22	Any other necessary Inspection & test as per ( PO ?.....)							
5.23	Dimension, visual, marking, packing and Final inspection	Approved project spec. Procedures, drawings						
5.24	Endorsement of Documents including Mill Certificates, Laboratory Tests, NDT Records etc.							
5.25	CONTRACTOR Inspection Release Note (IRN)	Project specification						
<b>6. Production Seamless Tubular only</b>								
6.1	Raw Material	Codes & Stds.						
6.2	Tubular Manufacture Procedure Qualification (MPQT)	Approved procedure						
6.3	Material Receiving Inspection Visual inspection Material certificates Dimensional inspection							
6.4	Chemical Analysis Records (Casts & Product), deoxidation method and formability	Project Spec., P.O. Description Codes & Stds.						
6.5	Manufacturing process Visual and dimensional inspection Heat Treatment MPQT sampling / marking test coupon a. chemical analysis b. Mechanical testing & impact test							

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-105 Weldable Structural Steel Material (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>6.</b>	<b>Production Seamless Tubular only (cont'd)</b>							
6.6	Calibration of NDT Equipment							
6.7	NDT Performance: Check Full body UT by longitudinal and transverse for laminar imperfections. Pipe ends Manual UT (if not scanned by automatic UT equipment)							
6.8	Marking Test Samples & Test Specimens							
6.9	Visual & Dimensional Inspection (Including Bevel)							
6.10	Measuring Tubular Length							
6.11	Marking (Stenciling, Color Coding, Die Stamping for TPA, Shipping Mark)							
6.12	Bevel Protector	P.O. Spec.						
6.13	Any other necessary Inspection & test as per							
6.14	Endorsement of Documents including Mill Certificates, Laboratory Tests, NDT Records etc.							
6.15	Inspection Release Note (IRN)							
<b>7.</b>	<b>Production Rolled Sections &amp; Hollow Sections</b>							
7.1	Raw Material Material Receiving Inspection Visual inspection Material certificates Dimensional inspection	Codes & Stds.						
7.2	Manufacture Procedure Specification (MPS) Qualification Manufacturing process Visual and dimensional inspection Heat Treatment	Approved procedure						
7.3	NDT Check Full body UT by longitudinal and transverse for laminar imperfections. Manual UT for ends (if not scanned by automatic UT equipment)	Project Spec., P.O. Description Codes & Stds.						
7.4	Visual Inspection							
7.5	Dimensional Inspection							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-105 Weldable Structural Steel Material (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>7.</b>	<b>Production Rolled Sections &amp; Hollow Sections (cont'd)</b>							
7.6	Mechanical Tests: MPQT sampling /marking test coupon a. chemical analysis b. Mechanical testing c. Impact testing	P.O. Description Project Spec., Codes & Stds.						
7.7	Length Measurement							
7.8	Marking (Stenciling, Color Coding, Die Stamping for TPA, Shipping Mark)	Codes & Stds.						
7.9	Endorsement of Documents including Mill Certificates, Laboratory Tests, NDT Records etc.	Project specification						
7.10	Inspection Release Note (IRN)							
<b>8.</b>	<b>Preparation for Dispatch</b>							
8.1	Marking & Tagging	P.O Spec., Std.&						
8.2	Protection for Shipment and storage	P.O Spec., Std.&						
8.3	Vendor Data Books endorsement, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-106 Structural Steel Work Fabrication

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<b>Scope</b>  This list covers general fabricated structural steel work	SP-,  AWS D1.1, EEMUA 158						
1.1	Vendor / Sub-Contractor approval	COMPANY Pre-qualification						
2.	<b>Pre-production/Pre-inspection Meeting</b>							
3.	<b>General - Preliminary work</b>							
3.1	Vendor fabrication schedule	Production Plan						
3.2	Vendor Q. P	QA Manual						
3.3	Status of sub orders	Production Plan						
3.4	Material test and certification	, Codes, Std. &						
3.5	Procedures for Fabrication and associated activities	Project specification, Design Codes, Std & Drawings						
3.6	Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR)							
3.7	Qualified welders list							
3.8	NDT Procedures	Codes & Std.						
3.9	PWHT Procedures	Codes, Std. &						
3.10	Personnel Qualifications							
3.11	Baseline Survey procedure	Project specification,						
4.	<b>Production</b>							
4.1	Material Traceability and Examination Material receiving inspection	Vendor Data Book						
4.2	Fit-up, Size & Root run For Main members, Sole plates, Walkways, Platforms, Bridges, Jackets, Ladders, Openings, and Drain holes.	WPS/Drawings, Project specification, Codes, Std.						
4.3	Production Welding Repair welding							
4.4	NDE operator demonstration for T, K, Y Joints (with mock-up joints)							
4.5	Stage-wise inspection release for trial assembly							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-106 Structural Steel Work Fabrication (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
4.6	Trial Fit-up and assembly (before and after welding) inspection	WPS/Drawings , Project specification, , Codes, Std.						
4.7	Final Dimensional check by surveyor							
4.8	As-Built drawings							
4.9	Fire proofing / Painting (including PQT and production test panel)	, Codes & Std.						
4.10	Bolting management							
4.11	Weighing of structural assembly prior to load out	Project specification						
<b>5. Examination</b>								
5.1	Visual and Dimensional Check	Order specification and Approved Drawings						
5.2	Non-Destructive Examination	Codes & Std.						
5.3	Baseline survey (offshore structures)	Project specification,						
5.4	Painting and Fire proofing Examination (including PQT)							
5.5	Load testing / NDE of Pad-eye as applicable (before and after load test)	HSE-100, Codes, Std.						
<b>6. Preparation for Dispatch</b>								
6.1	Marking & Tagging	P.O Spec., Std.&						
6.2	Inspection Release Note (IRN)	Project specification						
6.3	Protection for Shipment, and sea fastening and loadout (as applicable)	Project specification, P.O Spec., Std.&						
<b>7. Reports &amp; Test Certificates</b>								
7.1	Vendor Data Report							
7.2	Raw Material Test Certificates							
7.3	Vendor Data Books endorsement, and issue of release note by TPA							

**ITP-107      Valves for Pipelines and Process Units**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<b>Scope</b> This list covers test and inspection requirements (at vendor premises only) for isolation valves and check valves used in pipelines and process units. The type of these Valves are: Gate Valves Ball Valves Check Valves Butterfly Valves. Globe Valves Triple Offset Butterfly Valves Plug Valves	Project Spec., P.O. Description COMPANY						
1.1	Vendor approval status	COMPANY Pre-qualification						
2.	<b>Pre-production/Pre-inspection Meeting</b>							
3.	<b>General - Preliminary work</b>							
3.1	COMPANY Material Specification Sheet. (If applicable)	Ref. Drawing						
3.2	Data sheet	Project Spec., Design Codes & Std						
3.3	Vendor's Fabrication Schedule	Production Plan						
3.4	Vendor QA Plan	QA Manual						
3.5	Status of sub-orders	Production Plan						
3.6	Check Material test and certification for chemical analysis, mechanical properties, and traceability of:  Body, closure, Ball, Stem, Trunnion, Gland, seat units, seat insert, springs, O-rings, stem spacer, Flange and fittings drain and vent valves.	Codes, Std &						
3.7	Non-pressure parts and fasteners							
3.8	CRA overlay Welding Procedure Qualification and Welders Qualification (WPS and PQR)	Project Spec., P.O. Description, Design Codes & Std						
3.9	NDT Procedures (MT, PT, RT, UT)							
3.10	Procedure for CRA overlaying and thickness measurement							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-107      Valves for Pipelines & Process Units (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
3.11	Impact Test for LTCS							
3.12	PMI, Hardness survey procedure							
3.13	Valve Drawings (Dimensions & Materials)							
3.14	Hydrostatic test and Pneumatic Low-Pressure Test procedure							
3.15	Body and Seat Gas leak test	API 6A						
3.16	Open/close cycling dynamic pressure test	API 6A						
3.17	Functional Test procedure							
3.18	Fugitive emission test procedure							
3.19	Torque Test procedure							
3.20	Cavity Relief Test procedure							
3.21	Antistatic test procedure							
3.22	Fire proof test procedure							
3.23	Drift Test procedure (full bore valves only)							
3.24	Procedure for valve Dry-out, cleaning and rust prevention coating							
3.25	Surface preparation and Painting procedure							
3.26	Fire Safe Certification	Project specification, API 607						
3.27	FE, FM/UL, ATEX/IP certification ( as applicable)	Project specification						
<b>4. Production</b>								
4.1	Material Traceability and Examination	Project specification, GA drawing						
4.2	Body & Bonnet							
4.3	Trim, Ball, seats, gates & Plugs							
4.4	CRA weld overlay at seal housing area (seal between body – cover and body – bonnet)							
4.5	PT and PMI on overlay surfaces	Project specification, GA drawing						
4.6	Corrosion Testing, Weld overlay UT thickness measurement							
4.7	Heat Treatments	Project Specification	.					

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-107 Valves for Pipelines & Process Units (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4. Production (cont'd)</b>								
4.8	Gasket surface							
4.9	Hardness Test including those on RTJ grooves, as applicable							
4.10	Flanges, Bolting, Gasket Packing, etc.							
4.11	Actuators & operators (if required), the test and inspection requirements of Pneumatic and Hydraulic Actuators are covered by ITP-213 and ITP-214 for Motorized Actuators.	Project Spec., P.O. Description						
<b>5. Examination</b>								
5.1	Visual Dimensional Check including Valve body thickness verification	Project Spec., P.O. Description						
5.2	Non-Destructive Examination (UT, RT, MT, PT, PMI)	Project Spec., P.O. Description						
<b>6. Testing</b>								
6.1	PMI (Where applicable)	Codes & Std						
6.2	Hydrostatic Test & Pneumatic test: (Body & Seat including low pressure air test)	BS EN 12266 / API 598						
6.3	Strip down test	Project specification						
6.4	a. Fire Proof Test	BS EN 12266						
	b. Antistatic test	Codes & Std.						
6.5	Hardness Test	Codes & Std						
6.6	Functional Test (with or without actuator) (if with Actuator, refer to ITP 223)	Project Spec., P.O. Description						
6.7	Pneumatic Low-Pressure Test	Project Spec., P.O. Description Codes & Std.,						
6.8	Body gas test and seat gas test	Project specification,						
6.9	Dynamic cycling open/close pressure test	Data sheet						
6.10	Load Test (Where applicable)							

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-107 Valves for Pipelines & Process Units (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>6.</b>	<b>Testing (cont'd)</b>							
6.11	Fugitive Emission Type test							
6.12	Fugitive Emission Test (production test)							
6.13	Torque Test	Project spec. API 6A, API 6D, API 6DSS COMPANY Stds.						
6.14	Cavity Relief Test							
6.15	For Piggable valves (Drift Check)							
6.16	Gear Box: number of turns shall not exceed 80 (N/A for actuated valves)							
6.17	Final visual and dimensional inspection of valve and actuator assembly							
7.1	Surface Preparation and painting (including PQT panel) inspection							
7.2	Valve internal Dry-out, cleaning and rust prevention coating							
7.3	Marking / Name Plate & Tagging, marking Flow direction and actuator orientation	Project Spec., P.O. Description &						
7.4	Preparation for Shipment -Packing and preservation							
7.5	Inspection Release Note (IRN)	Project specification						
<b>8.</b>	<b>Reports &amp; Test Certificates</b>							
8.1	Vendor Data Report							
8.2	Raw Material Test Certificates and final documentation approval							
8.3	Vendor Data Books endorsement, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-108 Safety Relief Valves

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b>  This list covers test and inspection requirements (at vendor premises only) for safety relief valves	Project Spec., P.O. Description						
1.1	Vendor approval status	COMPANY Pre-qualification						
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>							
<b>3.</b>	<b>General - Preliminary work</b>							
3.1	COMPANY Material Specification Sheet. (If applicable)	Ref. Drawing						
3.2	Vendor's Fabrication Schedule	Prod. Plan						
3.3	Vendor QA Plan	QA Manual						
3.4	Status of sub-orders	Prod. Plan						
3.5	Material test and certification							
3.6	Drawings & Data Sheets							
3.7	Welding procedure specification (WPS)and Procedure qualification record (PQR)	Codes, Std & Project Spec., P.O. Description						
3.8	Valve Testing procedure							
3.9	NDE procedure							
3.10	PMI procedure							
3.11	Surface preparation and Painting procedure							
3.12	Shipping and preservation procedure							
<b>4.</b>	<b>Production</b>							
4.1	Material Traceability and chemical and mechanical properties of: Body, bonnet, Nozzle, disc, spring	Vendor Data Book, project specification						
4.2	Flange rating & surface finish							
4.3	Orifice design & area							
4.4	Heat Treatments & hardness check	Project Spec., P.O. Description						
4.5	Bellows & spring	Codes & Std						
4.6	Resilient seals	Project Spec., P.O. Description						
4.7	Alignment of springs & carriers							
4.8	Bolting & Gasket							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-108 Safety Relief Valves (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.</b>	<b>Production (cont'd)</b>							
4.9	Pilot Valve							
4.10	Surface preparation and painting, including PQT and production test panel.							
<b>5.</b>	<b>Examination</b>							
5.1	Visual and Dimensional Check	Project Spec., P.O. Description						
5.2	Non-Destructive Examination							
<b>6.</b>	<b>Testing</b>							
6.1	PMI (Where applicable)	Codes & Std  Project Spec., P.O. Description API 526 & API 527						
6.2	Hydrostatic Test							
6.3	Bellow tightness (back pressure) test							
6.4	Seat tightness test							
6.5	Bonnet tightness test							
6.6	Set pressure test / Air pressure test (pop up test)							
6.7	Load Test (Where applicable)	Approved PRO,						
<b>7.</b>	<b>Preparation for Dispatch</b>							
7.1	Surface Preparation and painting visual, DFT, colour code	Project Spec., P.O. Description & ASME VIII						
7.2	Marking / Name Plate & Tagging							
7.3	Preparation for Shipment, Packing, storage and preservation							
7.4	ASME Code Stamping							
7.5	Inspection Release Note (IRN)		Project specification					
<b>8.</b>	<b>Reports &amp; Test Certificates &amp; Vendor Data Books</b>							
8.1	Vendor Data Report	Project spec.						
8.2	Raw Material Test Certificates							
8.3	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)							
8.4	Vendor Data Books, approval and issue of inspection release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-109 Weld Overlay Pipes, Flanges and Fittings

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<b>Scope</b> This list covers test and inspection requirement for Weld Overlay Pipes with UNS N06625.	Project Spec. P.O. Description						
1. 1	Vendor approval	COMPANY Pre-qualification						
2.	<b>Pre-production/Pre-inspection Meeting</b>  Key Design Documents shall be submitted and approved by COMPANY/Contractor prior to Pre-production Meeting	Project Spec. P.O. Description,						
3.	<b>General - Preliminary work</b>							
3.1	Vendor fabrication schedule	Prod. Plan						
3.2	Vendor Q.P	QA Manual						
3.3	Status of sub orders	Prod. Plan						
3.4	Material test and certification	Project Spec. Codes, Std &						
3.5	Welding Procedure Qualification including repair welding & Welder Qualification							
3.6	NDT Procedure & NDT Personnel Qualification							
3.7	Leak Test Procedure							
3.8	Manufacturing Drawings	Project Spec. P.O. Description Codes & Std						
3.9	Pickling and Passivation, and Painting Procedure review							
3.10	PMI Procedure review							
	HIC Testing Procedure							
4.	<b>Production, Inspection &amp; Testing</b>							
4.1	<b>Receipt inspection of Carbon Steel Pipes</b>							
4.1	Pipe Material Traceability and Examination							
4.1.1	Verification of Pipe Mill Certificates and Tally Sheets	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
4.1.2	Verification of Traceability Markings							
4.1.3	Inspection of physical Condition/packing,							
4.1.4	Visual and Dimensional Checks							
4.2	Receipt inspection of Welding Consumables							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-109 Weld Overlay Pipes, Flanges and Fittings (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVE	VENDOR INTERVENTION LEVE WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVE	COMPANY INTERVENTION LEVE
<b>4.3 Verification of Process Variables</b>								
4.3.1	WPS/PQR approval against corresponding base material to be used in production.	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards ASTM G48 ASTM A 923 ASTM A 380						
4.3.2	Review and disposition of welding consumables Certificates.							
4.3.3	Review and disposition of welding gases.							
4.3.4	WPQ/WOPQ qualification for validity and range qualified.							
4.3.5	Control of inter-pass temperature							
4.3.6	Valid calibration records of instrument used for product / process measurement.							
4.3.7	Verify manufacturing requirements of weld overlay pipe for compliance to client requirements.							
4.4	Surface Preparation							
4.5	Pre-machining at Ends							
4.6	CS Wall Thickness Survey by UT							
4.7	Weld Overlay							
4.8	Chemical Analysis including Fe content and PREN							
4.9	Corrosion Tests (method as applicable)							
4.10	Visual Inspection							
4.11	Ultrasonic Testing for Disbondment							
4.12	Radiographic test							
4.13	Ultrasonic Testing – CRA Thickness							
4.14	CRA Thickness Inspection							
4.15	Liquid Penetrant Testing 100%							
4.16	Weld Repair (If required)							
4.17	Pipe end preparation							
4.18	Liquid Penetrant Testing of machined surface							
4.19	Hydrostatic Testing							
4.20	Positive Material Identification (PMI) and Ferrite content on each component							
4.21	Hardness Test (on the HAZ at unmixed zone and on weld overlay)							
4.22	Dimensional Inspection							

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-109 Weld Overlay Pipes, Flanges and Fittings (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.3 Verification of Process Variables (Cont'd)</b>								
4.23	Surface Treatment and Cleaning (Pickling, passivation and ferroxyl test)	ASTM A 380						
4.24	Final Visual Inspection	Project Spec.						
4.25	End protection, Rust Prevention, Marking,	Project spec.,						
4.26	Color coding, and Storage							
<b>5. Preparation for Dispatch</b>								
5.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drawings, procedures, International Codes & Standards						
5.2	Visual and dimensional checks, component Marking, checks							
5.3	Packing inspection and marking control of all goods							
	Inspection Release Note (IRN)							
5.4	Manufacturing Record Book							
<b>6. Reports &amp; Test Certificates</b>								
6.1	Vendor Data Reports	Vendor Document Requirement List						
6.2	Raw Material Test Certificates							
6.3	WIN/UTC/CMMS data sheet (to be completed by vendor (Wherever Applicable)							
6.4	Vendor Inspection Data Book endorsement, and Issue of Release Note by TPAA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-110 Flanges, forgings Including Hub Connectors & Fittings

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<b>Scope</b> This list covers test and inspection requirement (at vendor premises only) for carbon, alloy, stainless-steel & CRA flanges forgings including hub connectors and fittings to relevant ASTM & BSI Standards.	Project Spec./P.O. Description						
1.1	<b>Vendor approval status</b>	COMPANY Pre-qualification						
2.	<b>Pre-production/Pre-inspection Meeting</b>							
3.	<b>General - Preliminary work</b>							
3.1	Data sheets and GA drawings							
3.2	Vendor's Fabrication Schedule	Production Plan						
3.3	Vendor QA Plan	QA Manual						
3.4	Status of sub-orders	Production Plan						
3.5	Raw Material test and certification	Project spécification Codes, Std &						
3.6	Welding Procedure Qualification and Welders Qualification for CRA weld overlay	Design Codes & Std.						
3.7	Manufacturing Procedure Specification							
3.8	NDE Procedure (MT, PT, UT), as applicable							
3.9	NDE personnel approval							
3.10	Heat Treatment procedure							
3.11	Hardness Testing procedure							
3.12	Impact test procedure							
3.13	HIC Test Procedure							
3.14	Rust prevention painting procedure							
3.15	Marking, Packing, Handling, preservation, shipping and storage procedure							
3.16	HIC Test Certificates for Sour Service							

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-110 Flanges, forgings Including Hub Connectors & Fittings (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4. Production</b>								
4.1	Raw Material Traceability, chemical and mechanical properties and visual Examination	Vendor Data Book						
4.2	Forging and Heat treatment							
4.3	Hardness testing on rough forging							
4.4	Manufacturing procedure qualification test (MPQT)							
4.4.1	Chemical analysis and Mechanical testing (per heat and heat per batch)	Project specification, approved procedure, Codes & Std						
4.5	Flange groove pre-machining (prior to weld overlay) and UT check, as applicable							
4.6	RTJ Groove welding (CRA overlay), as applicable							
4.7	Final machining							
4.8	Heat Treatments & Hardness check	Codes & Std						
4.9	HUB Clamps Hot dip Galvanizing	Project specification						
4.10	HUB clamp Painting							
4.11	HUB seal ring - PTFE coating							
4.12	Flange, Forging and fitting rust preventive coating							
<b>5. Examination</b>								
5.1	Visual and Dimensional Check (Verify ID for Pipeline Bends, Barred tee etc.)	Project specification ASME Sec. V						
5.2	Formed Fittings Thickness check after forming							
5.3	Non-Destructive Examination (MT, PT, UT)							
5.4	Production hardness testing including RTJ groove							
5.5	PMI, grain size, Ferrite, Corrosion tests (as applicable)							
5.6	HUB seating area and seal ring Hardness check							
5.7	Hub connector Bolting (Hot Dipped Galvanizing)							
5.8	HUB Clamp painting visual and DFT check (ensure area to be left unpainted as per vendor recommendation applies to Compact Flanges and HUBs)							
5.9	HUB Seal Ring PTFE coating DFT, Adhesion test, cure test and final visual check							

**Procurement Inspection and Certification Requirement in Projects – APPENDIX A**

**ITP-110 Flanges, forgings including Hub Connectors & Fittings (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>6. Testing</b>								
6.1	PMI (Where applicable)							
6.2	HIC testing per Heat, as applicable							
6.3	Hydrostatic Test (if applicable) / Proof Burst Test							
6.4	Impact Tests (Material type, location, method, sample size)							
6.5	Load Test (Where applicable)							
<b>7. Preparation for Dispatch</b>								
7.1	Painting & Surface Preparation, Protective coating, end covers and packaging							
7.2	Marking & Tagging							
7.3	Preparation for Shipment, Packing and preservation coating and storage							
7.4	Inspection Release Note (IRN)							
<b>8. Reports &amp; Test Certificates &amp; Vendor Data Books</b>								
8.1	Vendor Data Report							
8.2	Raw Material Test Certificates							
8.3	Vendor Data Books endorsement, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-111 Expansion Bellow

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b>  This list covers test and inspection requirement for Expansion Bellow.	Project Specification. P.O. Description						
1. 1	Vendor approval status	COMPANY Pre- qualification						
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>							
<b>3.</b>	<b>General - Preliminary work</b>							
3.1	Drawing & Specification	Drawing & Specification						
3.2	COMPANY Material Specification Sheet (If applicable)	Approved Drg & Spec.						
3.3	Vendor Production Schedule	Prod. Plan						
3.4	Vendor QA/Plan	QA Manual						
3.5	Status of Sub Orders	Prod. Plan						
3.6	Material Test & Certificates	Codes, Std. &						
3.7	Welding Procedure Qualification & Welder Qualification (if applicable)	Project Specification . P.O. Description						
3.8	NDT Procedure & NDT Personnel Qualification (If applicable)	Design Codes & Std.						
3.9	Test Procedures							
<b>4.</b>	<b>Production</b>							
<b>4.1</b>	<b>Bellow &amp; Ring Manufacture</b>							
4.1.1	Identify Material & check Mill Certificates	Approved Drg./Project Specification. P.O. Description/ Certificates						
4.1.2	Longitudinal weld Fit up	Approved Drg./Project Specification. P.O. Description/ WPS						
4.1.3	Roll Convolution	Project Specification. P.O. Description,						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### **ITP-111 Expansion Bellow (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.2 Flange &amp; Pipes</b>								
4.2.1	Identify Material & check Mill Certificates	Approved Drg, Project Specification. Mill Certificates						
4.2.1	Butt weld Fit up in Gimble Pipe	Approved Drg./Project Specification. WPS						
<b>4.3 Hinge Restraints &amp; Keeper Plates</b>								
4.3.1	Identify Material & check Mill Certificates	Approved Drg. Project Specification. Certificates						
<b>4.4 Tie Bar Assemblies</b>								
4.4.1	Identify Material & check Mill Certificates	Approved Drg. Project Specification. P.O. Description/ Certificates						
<b>4.5 Sleeve Manufacturing</b>								
4.5.1	Identify Material & check Mill Certificates	Approved Drg. Project Specification. Certificates						
4.5.2	Butt weld Fit up in sleeve tube	Approved Drg. Project Specification. WPS						
<b>4.6 Assembly</b>								
4.6.1	Fit up Attachment Pipe to Flange	Approved Drg. Project Specification. WPS						
4.6.2	Fit up bellow to flange & pipe assembly and sleeve to pipe							
4.6.3	Fit up hinge & gimble assemblies, and support lug on to center pipe							
<b>5. Examination</b>								
5.1	Visual & dimensional Bellow & Ring prior to assembly.	Approved Drg. Project Specification. WPS						
5.2	Visual & Dimensional Flange & Pipes prior to assembly.							
5.3	Visual& Dimensional Hinge Restrains & Keeper Plate prior to assembly.							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-111 Expansion Bellow (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5. Examination (Cont'd)</b>								
5.4	Visual & Dimensional Sleeve prior to assembly.	Approved Drg. Project Specification, Procedure, WPS						
5.5	Visual & Dimensional Final Assembly							
5.6	X-Ray bellow longitudinal butt weld prior to forming							
5.7	X-Ray bellow longitudinal butt weld in gimble pipe							
5.8	MPI of fillet weld of pipe to Flange							
5.9	DP Bellows attachment welds							
5.10	MPI of load bearing fillet weld of hinge & gimble assemblies							
<b>6. Testing</b>								
6.1	Hydro Testing	Approved Test Procedure, Project Spec.,						
<b>7. Preparation for Dispatch</b>								
7.1	Marking	Project Specification. Drawing						
7.2	Cleaning, Preservation	Project Specification.						
7.3	Preparation for Shipment & Packing and storage (Including immobilizing)							
7.4	Inspection Release Note (IRN)	Project specification						
<b>8. Reports &amp; Test Certificates</b>								
8.1	Vendor Data Report	Project spec. and procedure						
8.2	Raw Material Test Certificates							
8.3	Vendor Data Book approval and Issue of Release Note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-112      Sacrificial Anodes

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b>  This list covers test and inspection requirement for Sacrificial Anodes.	Project Specification. P.O. Description						
1. 1	Vendor approval status	COMPANY Pre- qualification						
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>							
<b>3.</b>	<b>General - Preliminary work</b>							
3.1	Drawing & Specification	Drg & Spec.						
3.2	COMPANY Material Specification Sheet (If applicable)	Approved Drg & Project Specification. P.O. Description						
3.3	Vendor Production Schedule	Prod. Plan						
3.4	Vendor QA/Plan	QA Manual						
3.5	Status of Sub Orders	Prod. Plan						
3.6	Material Test & Certificates	Codes Std. &						
3.7	Welding Procedure Qualification & Welder Qualification (if applicable)							
3.8	NDT Procedures & NDT Personnel Qualification (If applicable)	Project Specification. Design Codes & Std.						
3.9	Test Procedures							
3.10	MPS							
<b>4.</b>	<b>Production</b>							
4.1	Raw Material Traceability and examination – Aluminium and steel insert	Vendor Data Book & Material Test Certificates						
4.2	Al. Element: chemical analysis by spectra every melt	Approved WPS, NDT Procedure, Project Specification.						
4.3	Steel Core chemical and mechanical properties	Description, Approved Drg						
4.4	Insert Preparation							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-112 Sacrificial Anodes (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4. Production (Cont'd)</b>								
4.5	Anode Casting	Project Specification. Drawings						
<b>5. Examination</b>								
5.1	Visual	Project Spec. Approved Drawings						
5.2	Dimension and straightness check							
5.3	Non-Destructive Examination							
5.4	Surface Preparation for Anode Insert							
5.5	Anode Weight							
<b>6. Testing</b>								
6.1	Destructive Testing – every anode type and size (sampling)	Project Spec. Approved Drawings						
6.2	Short Term Voltage Test/Open circuit Potential – 1 sample/melt	Project Spec, MPS						
6.3	Short term capacity test – 1 sample/melt							
6.4	Electro Chemical Test							
<b>7. Preparation for Dispatch</b>								
7.1	Marking	Project Spec. Drawing						
7.2	Cleaning, Preservation	Project Spec.						
7.3	Preparation for Handling, packing, Shipment and storage							
7.4	Inspection Release Note (IRN)	Project specification,						
<b>8. Reports &amp; Test Certificates &amp; Vendor Data Books</b>								
8.1	Vendor Data Report	specification						
8.2	Raw Material Test Certificates							
8.3	Vendor Data Book approval, and Issue of Release Note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-113 Storage Tanks

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL
1.	<p><b>Scope</b></p> <p>This list covers the inspection and test requirements in a Contractor's works for Storage Tanks designed and constructed in accordance with API 650 or any other recognized Codes.</p> <p>Inspection and testing will be covered by the requirements for inspection by an COMPANY approved TPA. Acceptance of the Tanks will be by the TPA.</p> <p>This procedure is not intended to define all the duties and responsibilities of the independent TPA as these are as stated in the code requirements, and to do so is to make them less than independent.</p> <p>Nevertheless, for clarification, the following list details COMPANY's minimum requirements for Storage Tanks inspection and certification, as some items (e.g. painting) are additional to Code requirements.</p>	Project Spec. P.O. Description API 650, COMPANY Specifications					
1.1	Sub-contractor / Vendor approval status						
2.	<b>Pre-production/Pre-inspection Meeting</b>						
3.	<b>General - Preliminary work</b>						
3.1	COMPANY Material Specification Sheet (If applicable)	API 650, Project Spec. P.O. Description					
3.2	Vendor Production Schedule	Prod. Plan					
3.3	Data sheets ,Design Calculations and Drawings approval	API 650, D. Sheets, Project Spec. Approved Drg.					
3.4	<b>WPS /PQR Approval</b>						
3.4.1	Review of pre-qualified WPS & PQR	API 650 ASME Sec-IX Project Spec. P.O. Description					
3.4.2	Procedure qualification and Lab testing for new procedure Qualifications (WPS & PQR)						

**Procurement Inspection and Certification Requirement in Projects – APPENDIX A**

**ITP-113 Storage Tanks (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
3.5.1	Approval of qualified welders						
3.5.2	Visual inspection and approval of welders qualification						
3.6	Vendor QA/Plan	QA Manual					
3.7	Status of Sub Orders	Prod. Plan					
3.8	Material Test & Certificates	Project Spec. P.O. Description, Codes, Std. &					
3.9	NDT Procedure & NDT Personnel Qualification						
3.10	PWHT procedure (as applicable for nozzles)						
3.11	Painting and internal lining Procedure						
3.12	Base Line survey procedure						
3.13	Under Tank leak detection sensor calibration and installation procedure	Project Spec. P.O. Description, Codes & Std. API 650					
3.14	All other relevant procedure, construction method statement etc.						
<b>4.</b>	<b>Fabrication &amp; Examination</b>						
<b>4.1</b>	<b>Material Receiving Inspection</b>						
4.1.1	Steel Plates for shell, roof and bottom,						
4.1.2	Prefabricated nozzle spools, piping spools and Pipes, Fittings, flanges,	API 650, Data sheet Project Spec. P.O. Description, Approved Drawings					
4.1.3	Tank bottom Leak detection sensors						
4.1.4	Structural Steel, Bolt & Nuts, All other miscellaneous items						
<b>4.2</b>	<b>Foundation</b>						
4.2.1	Civil material Inspection and Approval (Cement, Sand Aggregate, Crushed stone ring wall material, fill material, Erosion Protection, Geotextile, Base Course Bedding material, Water, Clean sand beneath the tank bottom etc.)						
4.2.2	Sample test for supplied material	API 650 Project Spec. P.O. Description, Approved Drawings					
4.2.3	Trial Mix design (as applicable)						
4.2.4	Sub grade preparation and related testing						
4.2.5	Filling work and related testing						
4.2.6	Final surface inspection						
4.2.7	Levelness Check of ring beam / sloping of sand fill						

**ITP-113 Storage Tanks (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
4.2.8	Dimension & Orientation						
4.2.9	Foundation release from Civil						
4.2.10	Installation of Sumps and pipes below the tank bottom						
4.2.11	CP systems installation in conjunction with leak detection						
<b>4.3</b>	<b>Fabrication Inspection for Nozzles, manholes, Sump and Cleanout Fittings (where applicable) in the Shop (Cont.'d)</b>						
4.3.1	Visual & Dimensional Inspection	API 650 Project Spec. P.O. Description, Approved Drawings, PRO					
4.3.2	MT, PT & RT, if applicable						
4.3.3	PWHT Record Review, if applicable						
4.3.4	Surface Preparation & Painting, if applicable	API 650 Project Spec. P.O. Description, Approved Drg, PRO,					
4.3.5	Water fill testing of Sump before Installation	API 650 Project Spec. P.O. Description, Approved Drg, PRO,					
<b>4.4</b>	<b>Inspection for Annular Plate &amp; Central Sketch Plates, Sumps</b>						
4.4.1	Dimensional inspection for overlap (plate to plate), Slope, Offset of three lap joints.	API 650 Project Spec. P.O. Description, Approved Drawings, PRO					
4.4.2	Weld visual inspection						
4.4.3	RT Film Review						
4.4.4	Vacuum Testing						
4.4.5	Hardness Test (if applicable)						
4.4.6	MT or PT after removal of all temporary attachment weld area						
<b>4.5</b>	<b>Marking of the Internal Radius on Annular Bottom plates</b>						
4.5.1	Visual & Dimensional Test (Marking of Inner / outer Radius)	Approved Drawings					
<b>4.6</b>	<b>Inspections on Shell Plate</b>						
4.6.1	Dimensional inspection for Plumbness, Roundness and Levelness, Staggering / offset of shell vertical joints	API 650 Project Spec. Approved Drawings, Procedures					
4.6.2	Fit-up of horizontal and vertical joints before welding	API 650 Project Spec. Approved Drawings, Procedures					

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-113 Storage Tanks (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
4.6.3	MT/ Visual inspection after back gouging to ensure sound metal before welding the second side	Project specification, Approved Drawings, Procedures					
4.6.4	Visual Inspection of shell joints welds						
4.6.5	MT or PT after removal of all temporary attachment weld area						
4.6.6	RT Film Review						
4.6.7	Hardness Test (if applicable)						
4.6.8	Peaking (vertical weld joints) and bending (horizontal weld joints) dimensional test on vertical and horizontal joints						
<b>4.7</b>	<b>Inspection for Roof Plate, Top Girder Roof Structure and Roof to Shell joint</b>						
4.7.1	Fit-up and visual Inspection for Roof Trusses / Structure and roof plates	API 650 Project Spec. P.O. Description, Approved Drawings, Procedures					
4.7.2	Weld visual inspection of roof plates, roof structure						
4.7.3	Bolt tightness of roof trusses where applicable						
4.7.4	Vacuum or Pressure Testing for roof plate welds & roof to shell plate welds, where applicable						
4.7.5	MT or PT after removal of all temporary attachment weld area						
<b>4.8</b>	<b>Internal Piping and Heating Coil Installation as applicable</b>						
4.8.1	Fit-up and dimensional Inspection	API 650 Project Spec. P.O. Description, Approved Drawings, Procedures					
4.8.2	Weld visual inspection						
4.8.3	RT Film review (where applicable)						
4.8.4	MT or PT (where applicable)						
4.8.5	Hydro testing of Heating coils						
<b>4.9</b>	<b>Nozzles and Manholes installation</b>						
4.9.1	Fit-up and dimensional Inspection for location, projection of nozzles & manholes	API 650 Project Spec. P.O. Description, Approved Drawings, Procedures					
4.9.2	Weld visual inspection of nozzles & manholes						
4.9.3	Air leak Testing of RF Pads, where applicable						
4.9.4	MT or PT of nozzle/manhole welds (where applicable)						
4.9.5	MT or PT after removal of all temporary attachment weld area						
4.9.6	Hardness Test (if applicable)						

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-113 Storage Tanks (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.10</b>	<b>Welds of Bottom to Shell</b>						
4.10.1	Fit-up and dimensional Inspection shell to bottom joint						
4.10.2	Final Survey for Verticality						
4.10.3	Weld visual inspection						
4.10.4	Shell to bottom joint Oil penetration test (Inside)						
4.10.5	Shell to bottom joint MT/PT test (Outside)						
4.10.6	MT or PT after removal of all temporary attachment weld area						
<b>4.11</b>	<b>Appurtenance, Name plate bracket, External/Internal attachments</b>						
4.11.1	Fit-up and dimensional Inspection						
4.11.2	Weld visual inspection						
4.11.3	MT or PT (where applicable)						
<b>4.12</b>	<b>Positive Material Identification for SS Tank works</b>						
4.12.1	Positive Material Identification Procedure demonstration						
4.12.2	Positive Material Identification of bulk material at ware house (where applicable)						
4.12.3	Positive Material Identification of welds						
<b>5.</b>	<b>Final Inspection</b>						
5.1	Final inspection for completeness for installation of pressure, Non-pressure, appurtenances on inside, outside tank						
5.2	Final visual inspection on tank bottom plates for erection damages / incomplete welds and internal cleanliness						
5.3	Tank Bottom leak detection sensors Installation check						
	Under tank leak detection Sensor calibration report check						
5.4	Walk down before clearance for hydro test						
<b>6.</b>	<b>Hydro test, Base Line &amp; Coating</b>						
6.1	Water Filling Test						
6.2	Air leak test of roof joint during hydrotest						
6.3	Settlement Check of Foundations						
6.4	Tank Bottom Leak detection (by drain pipe) check						

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-113 Storage Tanks (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE **	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL	
6.5	Base Line survey							
6.6	Coating Inspection including Internal Glass flake lining (Including PQT) (separate ITP for painting)	Approved Procedure						
<b>7.</b>	<b>Double Deck assembly (External Floating roof)</b>							
7.1	Fit up inspection of double deck roofs lap joints and internal assemblies (Bulkhead Rim plates, pontoon compartments	API 650 Project Spec. P.O. Description, Approved Drawings, Procedures, Weld Map						
7.2	Visual inspection of weld of pontoon compartments and rim plates joints, double deck roofs lap joints							
7.3	Leak testing of compartment weld and deck seams	API 650 Project Spec. P.O. Description, Approved Drawings, Procedures						
7.4	Deck accessory items installation (Deck support legs, still well & accessory installation							
<b>8.</b>	<b>Hydro test of external floating Roof Tank</b>							
8.1	Leak Detection Test for Lower Deck Plate Joints	API 650 Project Spec. P.O. Description, Approved Drawings, Procedures						
8.2	Leak Test for shell joints above water level							
8.3	Leak Test for Roof Drain Pipe							
8.4	Floatation Test							
<b>9.</b>	<b>Tank Calibration (Gauging)</b>							
<b>10.</b>	<b>Tanks internal inspection after clearance for Box up</b>							
<b>11.</b>	<b>Punch clearance and Tank Box up</b>							
<b>12.</b>	<b>Preparation for Handover</b>							
12.1	Marking / Name Plate	API 650 Project Spec. P.O. Description, Approved Drawings, Procedures. a Separate ITP Shall Be Prepared for Coating as Applicable						
12.2	Cleaning, Preservation and Surface Treatment							
12.3	Preparation for Shipment and Packing							

**Procurement Inspection and Certification Requirement in Projects – APPENDIX A**

**ITP-113      Storage Tanks (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
12.3	Inspection Release Note (IRN)	Project specification					
<b>13. Reports &amp; Test Certificates</b>							
13.1	Vendor Data Report (As specified by above activities)						
13.2	Raw Material Test Certificates	Project Spec.,					
13.3	Vendor Data Books endorsement, and issue of release note by TPA	Project Spec.,					

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-114 Column Internals

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b>  This list covers test and inspection requirements for Column Internals.	Project Spec. P.O. Description, Standards						
1. 1	Sub-contractor / Vendor approval status	COMPANY Pre-qualification						
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>  Key Design Documents shall be submitted and approved by COMPANY/Contractor prior to Pre-production Meeting	Project Spec. P.O. Description, Standards,						
<b>3.</b>	<b>General - Preliminary work</b>							
3.1	Data sheets and drawings							
3.2	Vendor fabrication schedule	Prod. Plan						
3.3	Vendor Q.P	QA Manual						
3.4	Status of sub orders if any	Prod. Plan						
3.5	Material test and certification							
3.6	Welding Procedure Qualification & Welder Qualification	Project Spec. P.O. Description, Stds,						
3.7	NDT Procedure & NDT Personnel Qualification							
3.8	Manufacturer inspection and testing procedures							
3.9	Painting Procedure, if applicable review							
3.10	PMI Procedure review							
<b>4.</b>	<b>Material Receiving</b>							
4.1	Visual & Dimensional Check	Project Spec. PApproved Drgs, Documents, Codes & Stds.						
4.2	Raw material Mill Certificate Check							
<b>5.</b>	<b>Fabrication &amp; Examination</b>							
5.1	Punching	Project Spec. Approved Drgs Documents, Codes & Stds.						
5.2	Bending							
5.3	Welding							
5.4	NDT if any							
5.5	Ferrite Test as applicable							
5.6	Verify fit up							

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-114 Column Internals (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>6. Final Inspection</b>								
6.1	Trial Assembly & Marking	Project Spec. P.O. Description & Approved Drgs Documents, International Codes & Stds.						
6.2	Visual & Dimensional Check for Internal S, Hardware, Spare Parts & Tools of any							
6.3	Hardness							
6.6	PMI							
<b>7. Preparation for Dispatch</b>								
7.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drgs Documents, Codes & Stds.						
7.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks							
7.3	Packing inspection and marking control of all goods, including spare parts							
7.4	Shipment packing, preservation and storage condition							
7.5	Manufacturing Record Book							
7.6	Inspection Release Note (IRN)	Project specification						
<b>8. Reports &amp; Test Certificates</b>								
8.1	Vendor Data Report	As per Approved Vendor Document Requirement List (VDRL)						
8.2	Raw Material Test Certificates							
8.3	WIN / UTC / CMMS DATA Sheet (To Be Completed by Vendor Wherever Applicable)	& DST-003 Part 1						
8.4	Vendor Data Books endorsement and, issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-115 Emergency Diesel Generator

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b>  This list covers test and inspection requirements for Emergency Diesel Generator.	Project Spec. P.O. Description, Standards						
1. 1	Sub-contractor / Vendor approval status	COMPANY Pre-qualification						
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>  Key Design Documents shall be submitted and approved by COMPANY/Contractor prior to Pre-production Meeting	Project Spec. P.O. Description, Standards,						
<b>3.</b>	<b>General - Preliminary work</b>							
3.1	Vendor fabrication schedule	Prod. Plan						
3.2	Vendor Q.P	QA Manual						
3.3	Status of sub orders if any	Prod. Plan						
3.4	Material test and certification							
3.5	Manufacturing Drawings							
3.6	Packing & Preservation Procedure							
3.7	Non-Destructive Examination (NDE) Procedures	Project Spec. procedures, , Codes & Stds.						
3.8	Weld Procedures Specification and Qualification Records							
3.9	Surface preparation and Painting Procedure							
	Inspection and Test Procedure							
3.11	FAT Procedure							
<b>4.</b>	<b>Production, Inspection &amp; Testing</b>							
4.1	Material receiving Inspection	Project Spec.						
4.1.1	Engine, Alternator, Radiator, Noise attenuated DG enclosure inspection	Approved Drgs Documents, International Codes & tds.						
4.1.2	Instrumentation calibration certificate							
<b>4.2</b>	<b>Engine</b>							
4.2.1	Full Load Speed 1500 RPM	Project Spec.						
4.2.2	Engine Power Step Load	Approved Drgs, Codes & stds						
4.2.3	Fuel Rate Measurement							

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-115 Emergency Diesel Generator (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
4.2.4	Oil Pressure Measurement							
4.2.5	High Idle Check Measurement							
4.2.6	Governor Test Maker Spec.							
<b>4.3</b>	<b>Generator</b>							
4.3.1	Visual & Construction Inspection	Project Spec. P.O. Description & Approved Drgs/ Documents, International Codes & Stds.						
4.3.2	No load test - Magnetic curve (Incl. over speed)							
4.3.3	Measurement or Temperature rise							
4.3.4	Waveform deviation and distortion factor							
4.3.5	Voltage response with sudden load change							
4.3.6	Sudden three phase short-circuit test at residual voltage							
4.3.7	Calculation reactance $X_d$ & $X_d'$							
4.3.8	Insulation test							
4.3.9	High Voltage test							
4.3.10	Noise Test							
<b>4.4</b>	<b>Emergency Generator Set (Assembled Engine and Alternator With the Panel 1<sup>st</sup> Vender Shop)</b>							
4.4.1	Visual & Construction Inspection	Project Spec. P.O. Description & Approved Drgs/ Documents, International Codes & Stds						
4.4.2	Starting Test (Startup Time)							
4.4.3	Performance Test (Load Test)							
4.4.4	Voltage Regulation Test							
4.4.5	Frequency Regulation Test							
4.4.6	Governor Test							
4.4.7	Voltage Adjustment Range Measurement							
4.4.8	Safety Device Test							
4.4.9	Vibration measurement							
4.4.10	Painting inspection DFT, Adhesion							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-115 Emergency Diesel Generator (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.5 Control Panel</b>								
4.5.1	Visual & Construction Inspection	Project Spec. P.O. Description & Approved Drgs/ Documents, International Codes & Stds						
4.5.2	Insulation resistance test							
4.5.3	Wiring check							
4.5.4	Protection circuit							
4.5.5	Function test							
4.5.6	Painting Inspection							
<b>4.6 Fuel Tank</b>								
4.6.1	Pre-weld Fit up Inspection	Project Spec. P.O. Description & Approved Drgs/ Documents, International Codes & Stds.						
4.6.2	Final Weld/NDE (MT) for Skid Base Lifting Eyes							
4.6.3	Dimensional Check							
4.6.4	Pressure Test for Skid Base Fuel Tank							
4.6.5	Surface Preparation (Roughness/Salt Contamination)							
4.6.6	Painting Inspection DFT, Adhesion							
<b>4.7 Enclosure/Acoustic panels</b>								
4.7.1	Welding Inspection	Project Spec. P.O. Description & Approved Drgs/ Documents, International Codes & Stds						
4.7.2	Visual and Dimensional Check							
4.7.3	Surface Preparation (Roughness/Salt Contamination)							
4.7.4	Painting Inspection DFT, Adhesion							
4.7.5	Fire Proof/Surface Preparation (Salt Contamination)							
4.7.6	Fire Proof/Welding Inspection							
4.4.7	Fire Proof Painting Inspection (DFT)							
<b>4.8 CO2 System</b>								
4.8.1	Functional test for the CO2 suppression system as well as F & G detection system	Project Spec. P.O. Description & Approved Drgs/ Documents, International Codes & Stds						
4.8.2	CO2 Dump Test							
4.8.3	Final Inspection for the CO2 Suppression Skids							

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-115      Emergency Diesel Generator (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.9</b>	<b>Radiator</b>							
4.9.1	Surface Preparation (Roughness/Salt Contamination)	Project Spec. P.O. Description & Approved Drgs/ Documents, International Codes & Stds						
4.9.2	Painting inspection DFT, Adhesion							
4.9.3	Hydrostatic Inspection							
4.9.4	Visual and Dimensional Check							
<b>4.10</b>	<b>Silencer (2500kW)</b>							
4.10.1	Surface Preparation (Roughness/Salt Contamination)	Project Spec. P.O. Description & Approved Drgs, Codes & Stds						
4.10.2	Painting inspection DFT							
4.10.3	Visual and Dimensional Check							
<b>5.</b>	<b>Preparation For Dispatch</b>							
5.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drgs, Codes & Stds.						
5.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks							
5.3	Packing inspection and marking control of all goods, including spare parts							
5.4	Inspection Release Note issuance Verification of Punch list clearance							
5.5	Manufacturing Record Book							
5.6	Inspection Release Note (IRN)	Project specification						
<b>6.</b>	<b>Reports &amp; Test Certificates</b>							
6.1	Vendor Data Report	As per Approved Vendor Document Requirement List (VDRL)						
6.2	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)							
6.3	Vendor Data Books endorsement and, issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-116 Flare Package

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION LEVEL	Certification body by Manufacturer (as applicable)	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<b>Scope</b> This list covers test and inspection requirements for Flare Package.	Project Spec. P.O. Description						
1. 1	Sub-contractor / Vendor approval status	COMPANY Pre-qualification						
2.	<b>Pre-production/Pre-inspection Meeting</b> Key Design Documents shall be submitted and approved by COMPANY/Contractor prior to Pre-production Meeting	Project Spec. P.O. Description, Standards,						
3.	<b>General - Preliminary work</b>							
3.1	Data sheet	Project specification						
3.2	Vendor fabrication schedule	Prod. Plan						
3.3	Vendor Q.P	QA Manual						
3.4	Status of sub orders if any	Prod. Plan						
3.5	Material test and certification procedure (permanent and welding consumables)	Project Spec. Stds,						
3.6	GA and Manufacturing Drawings							
3.7	Packing & Preservation Procedure							
3.8	Non-Destructive Examination (NDE) Procedures							
3.9	Weld Procedures Specification and Qualification Records (WPS & PQR)							
3.10	Surface preparation and Painting Procedure							
3.11	Inspection and Test Procedure							
3.11	FAT Procedure							
4.	<b>Production, Inspection &amp; Testing</b>							
4.1	Procurement							
4.1.1	Review of Material test certificate and consumable batch certificate	Project Spec. P.O. Description, Approved Drgs						
4.1.2	Material Identification and Traceability and chemical and mechanical properties analysis (including welding consumables)	Documents, International Codes & Stds.						
4.1.3	PMI verification on material receipt							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-116 Flare Package (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	Certification body by Manufacturer (as applicable)	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.2</b>	<b>Sonic Tip</b>							
4.2.1	Weld Prep and fit-up	Project Spec. P.O. Description & Approved Drgs/ Documents, International Codes & stds						
4.2.2	Production welding per WPS							
4.2.3	Visual inspection of Welds							
4.2.4	Production welding and PT on hot pass and on all final welds (100%)							
4.2.5	RT 100% Butt Welds							
<b>4.2</b>	<b>Sonic Tip (Cont.'d)</b>							
4.2.6	UT Full Penn Branch Arm Welds	Project Spec. P.O. Description & Approved Drgs/ Documents, International Codes & stds						
4.2.7	PT 100% Fillet Welds							
4.2.8	Visual & Dimensional inspection after FAB							
4.2.9	Positive Material Identification and ferrite							
4.2.10	Hardness Testing of Weld							
4.2.11	Hydro Test – Pilot Manifold							
4.2.12	Pickle & Passivation of Tip, and ferroxyl test							
<b>4.3</b>	<b>Pilots</b>							
4.3.1	Weld Prep and fit-up	Project Spec. P.O. Description & Approved Drgs/ Documents, International Codes & Stds.						
4.3.2	Production welding per WPS							
4.3.3	PT on hot pass (100%)							
4.3.4	Visual inspection of Welds							
4.3.5	PT on all final welds (100%)							
4.3.6	Fabrication. Trial Fit up							
4.3.7	Visual & Dimensional inspection after fabrication							
4.3.8	Positive Material Identification and ferrite							
4.3.9	Hardness Testing of Welds							
4.3.10	Pickling & Passivation and ferroxyl test	Project specification, Codes & Std ASTM A 380						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-116 Flare Package (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.4</b>	<b>Continuum Ignitors</b>							
4.4.1	Weld Prep and fit-up							
4.4.2	Production welding per WPS							
4.4.3	PT on hot pass (100%)							
4.4.4	Visual inspection of Welds							
4.4.5	PT 100% on all final welds							
4.4.6	Fabrication. Trial Fit up							
4.4.7	Visual & Dimensional inspection after fabrication							
4.4.8	Positive Material Identification and ferrite							
4.4.9	Hardness Testing of Welds							
4.4.10	Pickling & Passivation and ferroxyl test							
<b>4.5</b>	<b>Ignition Controls</b>							
4.5.1	Check Explosion Proof Certificates							
4.5.2	Verify Electrical components, pressure transmitters, actuators (Including fire front Flame Generator)							
4.5.3	Fabrication. Trial Fit-up							
4.5.4	Visual & Dimensional inspection after FAB circuit							
4.5.5	Control panel assembly and wiring inspection							
4.5.6	surface preparation and painting							
4.5.7	Paint Inspection including DFT test, PQT and production test panel							
4.5.8	Factory Acceptance Test							
<b>4.6</b>	<b>Structural Control Stand</b>							
4.6.1	Weld Prep and fit-up, and welding							
4.6.2	Visual inspection of Welds							
4.6.3	Fabrication. Trial Fit up							
4.6.4	Visual & Dimensional inspection after fabrication							
4.6.5	PT Lifting Lug Welds							
4.6.6	Surface preparation and painting, including PQT and production test panel							

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-116 Flare Package (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	Certification body by Manufacturer (as applicable)	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.6</b>	<b>Structural Control Stand (cont'd)</b>							
4.6.7	Paint Inspection including DFT test and Adhesion Test.							
<b>5.</b>	<b>Preparation for Dispatch</b>							
5.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drgs, International Codes & Stds						
5.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks							
5.3	Packing inspection and marking control of all goods, including spare parts							
5.4	Inspection Release Note issuance Verification of Punch list clearance							
5.5	Manufacturing Record Book							
5.6	CONTRACTOR Inspection Release Note (IRN)	Project specification						
<b>6.</b>	<b>Reports &amp; Test Certificates</b>							
6.1	Vendor Data Report	& approved Vendor Document Requirement List						
6.2	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)							
6.3	Vendor Data Books endorsement, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-117 Glass Flake Lining

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	Certification body by Manufacturer (as applicable)	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<b>Scope</b> This list covers test and inspection requirements for Glass Flake Lining.	Project Spec. P.O. Description						
1.1	Sub-contractor / Vendor approval status	COMPANY Pre-qualification						
2.	<b>Pre-production/Pre-inspection Meeting</b>  Key Design Documents shall be submitted and approved by COMPANY/Contractor prior to Pre-production Meeting	Project Spec. P.O. Description, Standards,						
3.	<b>General - Preliminary work</b>							
3.1	Vendor fabrication schedule	Prod. Plan						
3.2	Vendor Q.P	QA Manual						
3.3	Status of sub orders if any	Prod. Plan						
3.4	Material test and certification; Lining material selection per service temperature	Project Spec. P.O. Description, Stds,						
3.5	Glass Flake Lining application and repair, and related Procedures review	Project Spec.						
3.6	Glass Procedure Qualification Test (PQT) procedure	Approved Drgs, Codes & Stds.						
3.7	Inspection and Test Procedure							
4.	<b>Pre-qualification, Production, Inspection &amp; Testing</b>							
4.1	Equipment inspection	Project specification ISO16961 Drgs, manufacturer Data sheet ISO 16961,						
4.2	<u>Material Receiving Inspection:</u> Minimum specifications glass flake filled coating/lining as per ISO 16961, Table 2. Fibre glass lining system as per ISO 16961, Table 2.							
4.3	Qualification tests shall be carried out on representative test plates as the same procedure, system and thickness							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-117 Glass Flake Lining (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	Certification body by Manufacturer (as applicable)	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
4.4	PQT shall be same the method of coating, repairs and stripping of defective							
<b>4.5 Surface Preparation for Production</b>								
4.5.1	Abrasive Material check for cleanliness (Vial test) and independent lab test for soluble chloride and conductivity.	Project Spec. P.O. Description & Approved Drgs/ Documents, International Codes & stds						
4.5.2	Cleanliness of Compressed Air (Blotter Test)							
4.5.3	Substrate shall be high pressure fresh water wash with or without emulsifying agent.							
4.5.4	Abrasive blast cleaned using grit or garnet.	Project Spec. Approved Drgs/ Documents, Codes & stds  ISO 16961						
4.5.5	Ambient conditions check to be recorded at least 3 times daily at regular intervals							
4.5.6	Substrate Condition to be checked for manufacturing or handling defects after blast cleaning							
4.5.7	Prepared surface to be re-blasted if not coated, within 4 hours of blasting or if visible rusting is evident							
4.5.8	Prior to coating, surfaces to be rendered free of dust and grit by blowing off with clean dry air - internal							
4.5.9	Surface profile check, and level cleanliness							
4.5.10	Salt Contamination Testing One test per Shift (Tanks as per )							
4.5.11	Dust Level Testing One test per Shift							
<b>4.6 Coating</b>								
4.6.1	Application of compatible and suitable for services primer	Project Spec. ISO 16961 Approved Drgs/ Codes & Stds						
4.6.2	Application shall be by airless spray, brush or roller. Stripe coat on weld area.							
4.6.3	Application of Poly-glass							
4.6.4	Application shall be airless pump equipment with motorized lance.							

**ITP-117 Glass Flake Lining (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
4.6.5	Application to nozzles and awkward areas Caulking compound shall be applied on weld seams, lap joints to provide uniform gradual transition						
4.6.6	Application by brush, trowel or scraper blade						
4.6.7	Ambient conditions check to be recorded at least 3 times daily at regular intervals	Project Spec.					
4.6.8	Glass flake lining shall be applied minimum in two (2) coats or more to specified thickness, but one coat of glass flake or reinforced vinyl ester to minimum DFT of 750 mm	ISO 16961 Approved procedures, Drgs, Codes & Stds					
4.6.9	Coating which did not meet over coating intervals shall be abraded by abrasive paper or sweep blasting' prior to application of further coat.						
4.6.10	A sample production test coupon shall be prepared simultaneously and tested (with date of application)						

**4.7 Testing Procedure Qualification on Test Plate**

4.7.1	Visual inspection						
4.7.2	Thickness measurements (SSPC-PA 2)						
4.7.3	Holiday pin hole detection test (NACE SP0188)	Project Spec.					
4.7.4	Destructive testing: 1. Adhesion test (ASTM D4541), 2. Hardness test (ASTM D 2583) 3. Bending test (ASTM D522): Machine bending guides with lining upward and lining downward	, ISO 16961 Approved Drgs/ Codes & Stds					
4.7.5	PQT reports endorsement and certification by Glass Flake Lining manufacturer						

**4.8 Testing for Production**

4.8.1	The DFT of coats/lining shall be measured	Project Spec.					
4.8.2	Visual inspection to be carried out for defects	, ISO 16961 SSPC-PA-2					
4.8.3	Holiday pin hole detection Test - high voltage spark type holiday detector	NACE SP0188					
4.8.4	Curing hardness test - barcol hardness tester	ASTM D2583 Codes & Stds					

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-117 Glass Flake Lining (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.8</b>	<b>Testing for Production</b>						
4.8.5	Adhesion test - prepared sample plate during the application immersing sample plate in water (60 °C) for 24 h or represent the different service liquid and actual immersion conditions	Project Spec.  ISO 16961 SSPC-PA-2 NACE SP0188 ASTM D2583 Codes & Stds					
<b>4.9</b>	<b>Repairs</b>						
4.9.1	Pinholes and areas with low DFT shall be repaired by using brush / trowel -	Project Spec. P.O. Description & Approved Drgs, Codes & Stds.					
4.9.2	Coated Area with pinholes throughout lining						
4.9.3	Areas in excess of 100mm x 100mm shall be repaired by spray. Areas less than 100mmx100mm shall be repaired by hand.						
4.9.4	Repair areas shall be re-tested with holiday detector as per clause 4.6.3						
<b>5.</b>	<b>Preparation for Dispatch</b>						
5.1	Punch clearance inspection and Quality records review	Project Spec. Approved Drgs/ ISO 16961 Codes & Stds					
5.2	Visual and dimensional checks, component Marking, checks						
5.3	Packing inspection and marking control of all goods						
5.4	Manufacturing Record Book						
	Stage Inspection Release Note (IRN)						
<b>6.</b>	<b>Reports &amp; Test Certificates</b>						
6.1	Vendor Data Report	and approved Vendor Document Requirement List					
6.2	Material Test Certificates						
6.3	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)						
6.4	Vendor Data Books endorsement, and issue of release note by TPA						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-118 GRE Piping & Fittings

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b>  This list covers test and inspection requirements for GRE Piping & Fittings.	Project Spec. P.O. Description					
1. 1	Vendor approval status	COMPANY Pre-qualification					
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>  Key Design Documents shall be submitted and approved by COMPANY/Contractor prior to Pre-production Meeting	Project Spec. P.O. Description, Standards,					
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Prod. Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub orders if any	Prod. Plan					
3.4	Material test and certification	Project Spec. P.O. Description, Stds.,					
3.5	Manufacturing Drawings where applicable						
3.6	Packing & Preservation Procedure						
3.7	Non-Destructive Examination (NDE) Procedures	Project Spec. P.O. Description,					
3.8	Bonding Procedures Specification and Qualification Records where applicable	Codes & Stds.					
3.9	Surface preparation and coating Procedure						
3.10	Inspection and Test Procedure (Burst test etc.)						
<b>4.</b>	<b>Production, Inspection &amp; Testing</b>						
4.1	Review of Report & Potable Water Certification	Project Spec.					
4.1.1	Coefficient of Thermal Expansion Test	Approved procedures, Drgs					
4.1.2	Tensile Test of Pipes	International Codes & Stds.					
4.1.3	Diametrical Crushing of Pipes						

**ITP-118 GRE Piping & Fittings (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.</b>	<b>Production, Inspection &amp; Testing (cont'd)</b>						
4.1.4	Potable Water Certification						
<b>4.2</b>	<b>Raw Material Testing</b>						
4.2.1	Refractive Index of Epoxy Resin-Hardener Mix	project specification BS EN ISO 14692					
4.2.2	Viscosity of Epoxy Resin						
4.2.3	Resin Gel Time, Cure Time and Peak Temperature						
4.2.4	Glass Fibres: - Moisture content - Size/Binder content - Tex properties						
4.2.5	C-Glass Veil & W/R Mat: - Moisture content - Size/Binder content and density - Gms. / Sq. Mt.						
<b>4.3</b>	<b>Design Qualification Test</b>						
4.3.1	Long Term Hydrostatic Strength Test (HDB), Maximum Hoop Strength & Pressure Rating & 1000 hr survival tests	project specification BS EN ISO 14692 ASTM D 2105-01					
4.3.2	Prototype test for Flanges						
4.3.3	Pipe Stiffness (Specific Tangential Initial Stiffness of Pipe)						
4.3.4	Beam Bending Modulus Test (Beam Strength)						
4.3.5	Short Term Rupture Strength Test of Pipe, Joint & Flange (Hydrostatic Strength)						
4.3.6	Short Term Rupture Strength Test of Elbow (Hydrostatic Strength)						
4.3.7	Short Term Rupture Strength Test of Tee (Hydrostatic Strength)						
4.3.8	Joint Integrity Test						
4.3.9	Long - Term Hydrostatic test one representative size	ASTM D 2992					
4.3.10	Axial tensile modulus of elasticity and ultimate axial tensile strength	ASTM D 2105-01					

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-118      GRE Piping & Fittings (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.4</b>	<b>Production Testing/Inspection</b>						
4.4.1	Degree of curing (Tg-Value) DSC Method						
4.4.2	Water Absorption test: 24 hours Water immersion test pipes and fittings (Destructive test)	Project specification BS EN ISO 14692 ASTM D 570					
4.4.3	Loss-on-ignition test:- Structural Glass Content of Pipe (Destructive test)	ASTM D 2587					
4.4.4	Barcol Hardness						
4.4.5	Dimensional Control						
4.4.6	Visual Inspection (Appearance)						
4.4.7	Specific Tangential Initial stiffness test of pipe	project specification BS EN ISO 14692					
4.4.8	Axial Tensile strength of the pipe	ASTM D 638					
<b>4.4</b>	<b>Production Testing/Inspection (Cont.'d)</b>						
4.4.9	Hydrostatic Pressure Test of pipes and Testable Fittings / spools (Flanged/Flanged)	project specification BS EN ISO 14692					
4.4.10	Polyurethane Top Coat Measurement						
4.4.11	Short Term Rupture Strength Test						
<b>4.5</b>	<b>Testing Equipment Calibration</b>						
<b>5.</b>	<b>Preparation for Dispatch</b>						
5.1	Punch clearance inspection and Quality records review						
5.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks	project specification BS EN ISO 14692					
5.3	Packing inspection and marking control of all goods, including spare parts						
5.4	Inspection Release Note issuance Verification of Punch list clearance						
5.5	Manufacturing Record Book						
5.6	Inspection Release Note (IRN)	Project specification,					

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-118 GRE Piping & Fittings (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>6.</b>	<b>Reports &amp; Test Certificates</b>						
6.1	Vendor Data Report	Approved Vendor Document Requirement List					
6.2	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)	Project specification					
6.3	Vendor Data Books endorsement, and issue of release note by TPA	Company std.					

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-119 GRVE- RTR Pipes & Fittings

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<b>Scope</b> This list covers test and inspection requirements for GRVE- RTR Pipes & Fittings.	Project Spec. P.O. Description						
1.1	Vendor approval	COMPANY Pre-qualification						
2.	<b>Pre-production/Pre-inspection Meeting</b> Key Design Documents shall be submitted and approved by COMPANY and CONTRACTOR prior to Pre-production Meeting	Project Spec. P.O. Description,						
3.	<b>General - Preliminary work</b>							
3.1	Vendor fabrication schedule	Prod. Plan						
3.2	Vendor Q.P	QA Manual						
3.3	Status of sub orders if any	Prod. Plan						
3.4	Material test and certification							
3.5	Manufacturing Drawings where applicable							
3.6	Packing & Preservation Procedure							
3.7	Non-Destructive Examination (NDE) Procedures	Project Spec. P.O. Description, Codes & Stds. BS EN 14692						
3.8	Bonding Procedures Specification and Qualification Records where applicable							
3.9	Surface preparation and coating Procedure							
3.10	Inspection and Test Procedures							
4.	<b>Production, Inspection &amp; Testing</b>							
4.1	<b>Raw Material Testing</b>							
4.1.1	Viscosity of Resin							
4.1.2	Resin Gel Time, Cure Time and Peak Temperature							
4.1.3	Glass Fibres: - Moisture content - Size/Binder content - Tex properties	Project Spec. P.O. Description & Approved Drgs/ Documents, International Codes & Stds.						
4.1.4	C-Glass Veil & W/R Mat: - Moisture content - Size/Binder content - Gms. / Sq. Mt.							

**ITP-119 GRV- RTR Pipes & Fittings (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVE	VENDOR INTERVENTION LEVE WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVE	COMPANY INTERVENTION LEVE
<b>4.2 Production Testing/Inspection</b>							
4.2.1	Specific Tangential Initial Stiffness (STIS) of Pipe (DN ≥ 80 mm) (Destructive Test)						
4.2.2	Axial Tensile Strength of Pipe (DN ≥ 80 mm) (Destructive Test)						
4.2.3	Hoop Tensile Strength of Pipe (DN ≥ 80 mm) (Destructive Test)						
4.2.4	Loss-on-ignition test: - Structural Glass Content of Pipe (Destructive test)						
4.2.5	Barcol Hardness						
4.2.6	Dimensional Control						
4.2.7	Visual Inspection (Appearance)						
4.2.8	1000 hr survival tests						
4.2.9	Hydrostatic pressure test of pipes and testable fittings/spools (Flanged/Flanged)						
4.2.10	Long - Term Hydrostatic test one representative size	ASTM D 2992					
4.2.11	Axial tensile modulus of elasticity and ultimate axial tensile strength	ASTM D 2105-01					
<b>4.3 Testing Equipment Calibration</b>							
<b>5. Preparation For Dispatch</b>							
5.1	Punch clearance inspection and Quality records review						
5.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks						
5.3	Packing inspection and marking control of all goods, including spare parts						
5.4	Inspection Release Note issuance Verification of Punch list clearance						
5.5	Manufacturing Record Book						
5.6	Inspection and Release Note (IRN)	Project Spec.					
<b>6. Reports &amp; Test Certificates</b>							
6.1	Vendor Data Report						
6.2	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)						
6.3	Vendor Data Books endorsement, and issue of release note by TPA						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-120 Insulating Gasket Kits

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<b>Scope</b>  1. This list covers test and inspection requirements for Insulating Gasket Kits.	Project Spec. P.O. Description						
1. 1	Vendor approval	COMPANY Pre- qualification						
2.	<b>Pre-production/Pre-inspection Meeting</b>  2. Key Design Documents shall be submitted and approved by COMPANY/Contractor prior to Pre-production Meeting	Project Spec. P.O. Description, Standards,						
<b>3. General - Preliminary work</b>								
3.1	Data sheet	Project Specification						
3.2	Vendor fabrication schedule	Prod. Plan						
3.3	Vendor Q.P	QA Manual						
3.4	Status of sub orders if any	Prod. Plan						
3.5	Material test and certification	Project Specification						
3.6	NDT Procedure & NDT Personnel Qualification if applicable							
3.7	Inspection & Test Procedure review							
3.8	Hardness and PMI Procedure review							
<b>4. Production, Inspection &amp; Testing</b>								
4.1	Raw material receiving inspection	Project specification  NEMA						
4.2	Material Testing: a. Material test for compressive strength, flexural strength, dielectric strength and low fluid absorption. b. Sealing Material lamination and suitable for service temperature, c. Insulation sleeve size and type d. Insulation Washer thickness and coating/laminate e. Metallic Washer thickness and protective coating							
4.3	Hardness testing							
4.4	Assemble Gaskets (Seal Type – single/double)							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-120      Insulating Gasket Kits (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
4.5	Inspection of Marking & Identification						
4.6	PMI where applicable						
	Salt spray test for Kit assembly						
	Fire safe ( if applicable)	API 6FB					
4.7	NDE where applicable						
4.8	Gasket color coding Electroplated /HDG for nuts /bolts. Inspection for all parts	Project specification Data sheet, ASTM B633					
4.9	Package Gaskets with Kits						
4.10	Gasket Kit Inspection						
4.11	Final Inspection Including document review, Visual and dimensional inspection						
<b>5.</b>	<b>Preparation for Dispatch</b>						
5.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drgs Documents, International Codes & Stds					
5.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks						
5.3	Packing inspection and marking control of all goods, including spare parts						
5.4	Inspection Release Note issuance Verification of Punch list clearance						
5.5	Manufacturing Record Book						
<b>6.</b>	<b>Reports &amp; Test Certificates</b>						
6.1	Vendor Data Report	VDRL					
6.2	Raw Material Test Certificates						
6.3	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)						
6.4	Vendor Data Books endorsement, and issue of release note by TPA						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-121      Austenitic Stainless Steel, DSS, SDSS, Incoloy and Inconel Pipes & Fittings

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<b>Scope</b>  This list covers test and inspection requirements for Exotic material used in ADNOC Projects	Project Spec. P.O. Description						
	Vendor approval	COMPANY Pre-qualification						
2.	<b>Pre-production/Pre-inspection Meeting</b>  Key Design Documents shall be submitted and approved by COMPANY/Contractor prior to Pre-production Meeting	Project Spec. P.O. Description, Standards,						
3.	<b>General - Preliminary work</b>							
3.1	Vendor manufacturing schedule	Prod. Plan						
3.2	Vendor Q.P	QA Manual						
3.3	Status of sub orders if any	Prod. Plan						
3.4	Raw Material test and certification	P.O. Description						
3.5	Welding Procedure Qualification & Welder Qualification	Project Spec., Codes & Stds,						
3.6	NDT Procedure (including PT, full body UT) & NDT Personnel Qualification Eddy current testing for surface and sub surface flaws per applicable ASTM std.	ASTM std as applicable, WPS ASTM A 388 ASTM A 745 ASME Sec V						
3.7	PMI Procedure review							
3.8	Manufacturing procedure specification							
3.9	Hydrostatic Test procedure							
4.	<b>Production, Inspection &amp; Testing</b>							
4.1	<b>Billets Receiving Inspection</b>							
4.1.1	Visually and Dimensional Inspection Raw material mill test certificate – visual, dimensional and traceability	Project specification ASTM G48 ASTM A923 ASTM E562 B16.25 ASTM A380						
4.1.2	Chemical Composition Analysis							
4.1.3	Mill Test Certificate of Raw Material Mechanical properties check							

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-121 Austenitic Stainless steel, Duplex stainless steel, SDSS, Incoloy and Inconel Pipes and Fittings (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.2</b>	<b>Pipe manufacturing in Process Inspection and Testing</b>						
4.2.1	Heat Treatment (Solution annealing / stabilization heat treatment), as applicable						
4.2.2	Pipe Chemical Composition Analysis per heat Dual certification, as applicable Pitting Resistance Equivalent (PREN)						
4.4	Mechanical Property Test per heat Tensile Test Harness Test Flattening Test Guided Bend Test Heat Treatment check						
4.5	Corrosion Tests - Intergranular Corrosion Test; Ferrite check & PREN verification						
	Metallographic examination (for each lot) Grain size and Ferrite content check For welded pipes – corrosion tests on weldment and HAZ						
	Repair welding, if applicable						
	Non-Destructive tests (each pipe)						
4.6	Hydrostatic Test (each pipe after all manufacturing process including repair and heat treatment completed)	Project specification ASTM G48 ASTM A923 ASTM E562 B16.25 ASTM A380					
	NDE – PT, full body UT, repair NDE (PT and UT), bevel ends						
4.7	Pipe Dimension Check Visual inspection						
4.8	Visual Check Dimensional inspection						
	Bevel ends inspection						
4.9	PMI Test (100%) on all finished pipes						
	PMI on welded pipes (100%) in addition to filler material.						
	Pickling and passivation Ferroxyl testing						
4.10	Color Coding & Marking (including Heat and heat treatment)						
	Pipe end protection						
4.11	Final inspection & Certificates Review						

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-121 Austenitic Stainless steel, Duplex stainless steel, SDSS, Incoloy and Inconel Pipes and Fittings (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5. Preparation for Dispatch</b>							
5.1	Punch clearance inspection and Quality records review						
5.2	Visual and dimensional checks, component Marking, checks						
5.3	Handling, storage and Packing inspection and marking control of all goods (protection from environment contamination (moisture, dust, water, etc.))	P.O. Description, Project Spec. procedures, Codes & Stds					
5.4	Manufacturing Record Book						
5.5	Inspection Release Note (IRN)						
<b>6. Reports &amp; Test Certificates</b>							
6.1	Vendor Data Report	Vendor Document Requirement List					
6.2	Raw Material Test Certificates						
6.3	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor (Wherever Applicable))						
6.4	Vendor Data Books endorsement, and issue of release note by TPA						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-122 Pumps

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b>  This list covers Inspection and Test requirements for centrifugal, Reciprocating & rotary pumps.	Project Spec./P.O. Description, API 674 & API 676					
1. 1	Vendor approval	COMPANY Pre-qualification					
<b>2.</b>	<b>Requirements with tender</b>						
2.1	Assessment of technical capability						
2.2	Appraisal of quality system						
<b>3.</b>	<b>Pre-production Meeting</b>						
<b>4.</b>	<b>General - Preliminary work</b>						
4.1	Design verification						
4.2	Design Validation						
4.3	Design Review						
4.4	Data sheets, Approval of Design Documentation / GA and detail drawings, performance curves						
4.5	Vendor fabrication schedule	Prod. Plan					
4.6	Vendor Q.P	QA Manual					
4.7	Status of sub orders	Prod. Plan					
4.8	Material test and certification	Codes, Std &					
4.9	Welding Procedure	Design Codes, Std & Drawings					
4.10	List of qualified welders						
4.11	Approval of HT procedures						
4.12	Approval of NDT, Hardness and PMI procedure						
4.13	Approval of handling, preservation and packaging procedure						
4.14	Performance and mechanical running test procedure						
4.15	FAT Procedure						
4.16	Surface preparation and painting procedure						
4.17	Installation, Operating and maintenance Manual						
4.18	Manufacturer spares for 2 years operation						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-122 Pumps (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5. Production</b>								
5.1	Examination and approval of manufacturing facility							
5.2	Material Traceability and Examination	Vendor Data Book						
5.3	Production welding	Codes & Std						
5.4	Casing including balance line, Seal Gland, and (Pipe Columns & Discharge Flange for Vertical pumps)							
5.5	Rotating elements	P.O Spec. & Std						
5.6	Bearings, Seals, Mechanical sealing system, Couplings & Gear box							
5.7	Driver (motor / S.T /diesel engine)							
5.8	Base plate							
5.9	Piping & piping components Piping components SS, DSS and CRA shall conform to ITP-122	Approved spec. Drawings, procedures, Data sheet ITP-122						
5.10	Cylinders & liners, Distance pieces, Valves & Pulsation dampeners (for reciprocating pumps)							
5.11	Lubrication & instrumentation							
5.12	Bolting and Gasket							
<b>6. Examination</b>								
6.1	Visual, Dimensional Check	Approved Drawings						
6.2	Lifting / Handling Proves							
6.3	Non-Destructive Examination	Codes & Std						
6.4	Painting Examination (PQT and production test panel)	Approved PRO						
6.5	Welding surveillance							
6.6	Visual examination of completed welds							
6.7	Verifying pump clearances							
6.8	Physical examination of Seals, shafts and bearings	Approved specification, WPS, Project procedures, data sheet, drawings						
6.9	Check oil system for contamination and foreign matter							
6.10	Examine protective coatings							
6.11	Check rotational direction and rotational arrow							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-122 Pumps (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>6. Examination (cont'd)</b>								
6.12	Heat treatment shall be checked. Reports and charts need to be stamped approved							
6.13	Witness equipment being weighed							
<b>7. Testing</b>								
7.1	Hardness test, PMI (Where applicable)	Codes & Std						
7.2	Hydrostatic, Mechanical run, NPSH, vibration Performance & Noise control tests							
7.3	Witness Alignment checks							
7.4	Static / Dynamic balancing & NPSH tests (for centrifugal pumps)							
7.5	Performance Test							
7.6	Complete Unit Test							
7.7	Lube oil Skid test (if applicable)							
7.8	Verify coupling							
7.9	Witness measurement and record bearing clearances							
<b>8. Preparation for Dispatch</b>								
8.1	Marking & Tagging, Bearing assembly protection	P.O Spec., Std.&						
8.2	Preservation and preparation for Shipment	P.O Spec., Std.&						
	Inspection Release Note (IRN)							
<b>9. Reports &amp; Test Certification &amp; vendor Data Books</b>								
9.1	NDT reports	Project spec.						
9.2	Vendor Data Report	Vendor Document Requirement List						
9.3	Raw Material Test Certificates							
9.4	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)							
9.5	Vendor Data Books endorsement, and issue of release note by TPA							
9.6	Review and approval of maintenance/operation manual							
9.7	Review and approval of performance /functional test data							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-123      Compressors - Centrifugal

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<b>Scope</b> This list covers test and inspection requirements for centrifugal compressors.	API 617						
1.1	Vendor approval	COMPANY Pre-qualification						
2.	<b>Requirements with tender</b>							
2.1	Assessment of technical capability							
2.2	Appraisal of quality system							
3.	<b>Pre-production Meeting</b>							
4.	<b>General - Preliminary work</b>							
4.1	Design verification	Design Codes, Std, approved data sheet, project specification, Drawings and procedures						
4.2	Design Validation							
4.3	Design Review							
4.4	Data sheets, Approval of Design Documentation /GA and detail drawings, performance curves							
4.5	Welding Procedure							
4.6	List of qualified welders							
4.7	Approval of HT procedures							
4.8	Approval of NDT procedure							
4.9	Approval of handling, preservation and packaging procedure							
4.10	Testing Procedures including Wheel shaker test, Mechanical Running Test procedure							
4.11	Gas leak Test procedure							
4.12	FAT, Performance test and post-test inspection of internal and spare parts test procedure							
4.13	Manufacturer spares for 2 years operation							
4.14	Installation, Operating and maintenance Manual							
4.15	Surface preparation and painting procedure							
5.	<b>Production</b>							
5.1	Examination and approval of manufacturing facility	Vendor Data Book						
5.2	Material Traceability and Examination							
5.3	Production welding		Codes & Std					

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-123 Compressors (Centrifugal) (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5. Production (cont'd)</b>								
5.4	Casing including headend	P.O Spec. & Std						
5.5	Rotating elements							
5.6	Seals, Dry gas seal system, Bearing, Housing & Gear box							
5.7	Driver (Elec motor /Steam Turbine/Gas Turbine )							
5.8	Base plate							
5.9	Piping & piping components Piping components SS, DSS and CRA shall conform to ITP-122	Approved specification & Drawings						
5.10	Lubrication & instrumentation							
5.11	Bolting and Gasket							
<b>6. Examination</b>								
6.1	Visual Dimensional Check	P.O Spec. & Approved Drawings  Codes and Standards						
6.2	Lifting / Handling Proves							
6.3	Non-Destructive Examination							
6.4	Welding surveillance							
6.5	Visual examination of completed welds							
6.6	Verifying Compressor clearances							
6.7	Verifying driver's direction							
6.8	Physical examination of Seals, shafts and bearings							
6.9	Check oil system for contamination and foreign matter							
6.10	Painting Examination (PQT and production test panel)		/ Approved PRO					
6.11	Examine protective coatings							
6.12	Check rotational direction and rotational arrow							
6.13	Heat treatment shall be checked. Reports and charts need to be stamped approved	Codes & Std						
6.14	Witness equipment being weighed							
<b>7. Testing</b>								
7.1	Hardness test, PMI (Where applicable)	Codes & Std						
7.2	Hydrostatic, Helium Leak Test, & Noise control tests, Impeller over speed test & Vibration reading							

**ITP-123 Compressors (Centrifugal) (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>7. Testing (cont'd)</b>							
7.3	Static / Dynamic balance tests (for centrifugal compressors)						
7.4	Performance Test (PTC-10)						
	Complete Unit Test (If applicable)						
	API 614 Lube system Test						
7.5	Verify coupling						
7.6	Witness measurement and record bearing clearances						
<b>8. Preparation for Dispatch</b>							
8.1	Marking & Tagging, packing list	P.O Spec., Std. &					
	Complete equipment Preservation checked and recorded						
	Equipment Lifting points identified and marked						
8.2	Openings covered and Protection for Shipment						
8.3	Inspection Release Note (IRN)						
<b>9. Reports &amp; Test Certification &amp; vendor Data Books</b>							
9.1	Vendor Data Report	, VDRL					
9.2	NDT reports	Project spec., procedures					
9.3	Raw Material Test Certificates	, specification					
9.4	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)						
9.5	Vendor Data Books endorsement, and issue of release note by TPA						
9.6	Review and approval of maintenance /operation manual						
9.7	Review and approval of performance / functional test data						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-124 Compressors - Reciprocating

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION LEVEL	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL	EPC CONTRACTOR INTERVENTION LEVEL**	COMPANY INTERVENTION LEVEL	TPA INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b>  This list covers test and inspection requirements for Reciprocating compressors.							
1.1	Vendor approval	COMPANY Pre-qualification						
<b>2.</b>	<b>Requirements with tender</b>							
2.1	Assessment of technical capability							
2.2	Appraisal of quality system							
<b>3.</b>	<b>Pre-production Meeting</b>							
<b>4.</b>	<b>General - Preliminary work</b>							
4.1	Design verification							
4.2	Design Validation							
4.3	Design Review							
4.4	Data sheets, Approval of Design Documentation /GA, detail drawings and performance curves							
4.5	Welding Procedure	Design Codes, Std & Drawings						
4.6	List of qualified welders							
4.7	Approval of HT procedures							
4.8	Approval of NDT, Hardness, PMI procedure							
4.9	Approval of handling, preservation and packaging procedure							
4.10	Testing Procedures including Wheel shaker test, FAT, Mechanical Running Test procedure							
4.11	Gas leak Test procedure							
4.12	Performance test and post-test inspection of internal and spare parts test procedure							
4.13	Surface preparation and painting procedure							
4.14	Manufacturer spares for 2 years operation							
4.15	Installation, Operating and maintenance Manual							
<b>5.</b>	<b>Production</b>							
5.1	Examination and approval of manufacturing facility	Pre-Qualification						
5.2	Material Traceability and Examination	Vendor Data Book						

**ITP-124 Compressors (Reciprocating) (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5.</b>	<b>Production (cont'd)</b>						
5.3	Production welding	WPS/PQR,					
5.4	Casing including headend						
5.5	Rotating elements						
5.6	Seals, Bearing, Housing & Gear box						
5.7	Driver (motor)						
5.8	Base plate						
5.9	Piping & piping components Piping components SS, DSS and CRA shall conform to ITP-122	Approved specification, procedures & Drawings					
5.10	Cylinders & liners, Distance pieces, Valves & Pulsation dampeners						
5.11	Lubrication & instrumentation						
5.12	Bolting and Gasket						
<b>6.</b>	<b>Examination</b>						
6.1	Visual Dimensional Check	Approved, spec., Drawings					
6.2	Lifting / Handling Proves						
6.3	Non-Destructive Examination	Codes and Standards					
6.4	Examine piston rods and bores after test						
6.5	Verify that relief valve tested/ reset pressure is recorded						
6.6	Welding surveillance						
6.7	Visual examination of completed welds						
6.8	Verify that the compressor rod run out is within the clearance						
6.9	Check for joint leaks during the test and examine piston bores and rods after the test						
6.10	Verifying compressor clearances						
6.11	Verify bearing clearances, Crank shaft deflection						
6.12	Verifying driver's direction						
6.13	Physical examination of Seals, shafts and bearings						
6.14	Check oil system for contamination and foreign matter						
6.15	Examine protective coatings						

**ITP-124 Compressors Reciprocating (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>6.</b>	<b>Examination (cont'd)</b>						
6.16	Painting Examination (PQT and production test panel)	Approved PRO					
6.16	Check rotational direction and rotational arrow						
6.17	Heat treatment shall be checked. Reports and charts need to be stamped approved	Specification, procedures					
6.18	Witness equipment being weighed						
<b>7.</b>	<b>Testing</b>						
7.1	Hardness test, PMI (Where applicable)	Codes & Std					
7.2	Hydrostatic, Helium Leak Test, & Noise control tests Vibration reading	API 618					
7.3	Performance Test						
	Complete Unit Test (If applicable)						
7.4	Verify coupling	Approved PRO,					
7.5	Witness measurement and record bearing clearances						
7.6	Checking alignment Details						
<b>8.</b>	<b>Preparation for Dispatch</b>						
8.1	Marking & Tagging, Packing List						
8.2	Complete equipment Preservation checked and recorded						
8.3	Equipment Lifting points identified and marked	P.O Spec., Std. &					
8.4	Openings covered, Protection for Shipment						
8.5	Inspection Release Note (IRN)						
<b>9.</b>	<b>Reports &amp; Test Certification &amp; vendor Data Books</b>						
9.1	Vendor Data Report	VDRL					
9.2	NDT reports						
9.3	Raw Material Test Certificates						
9.4	WIN / UTC / CMMS DATA Sheet (To Be Completed by Vendor Wherever Applicable)						
9.5	Vendor Data Books endorsement, and issue of release note by TPA						
9.6	Review and approval of maintenance / operation manual						
9.7	Review and approval of performance / functional test data						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-125 Gas Turbines

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b>  This list covers test and inspection requirements for Gas Turbines used as drivers or generators.	COMPANY					
1. 1	Vendor approval	COMPANY Pre-qualification					
<b>2.</b>	<b>Pre-production Meeting</b>						
2.1	Assessment of technical capability						
2.2	Appraisal of quality system						
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Design verification						
3.2	Design Validation						
3.3	Design Review						
3.4	Data sheets, Approval of Design Documentation/GA and Detail drawings, performance curves						
3.5	Vendor fabrication schedule	Prod. Plan					
3.6	Vendor QP	QA Manual					
3.7	Status of sub orders	Prod. Plan					
3.8	Material test and certification	Codes, Stds &					
3.9	Welding Procedure						
3.10	List of qualified welders	Design Codes, Stds & Drawings					
3.11	Approval of HT procedures						
3.12	Approval of NDT procedure						
3.13	Approval of handling, preservation and packaging procedure						
3.14	Approval of hydrostatic and pneumatic test procedures						
3.15	Testing procedure including FAT, Performance Test, complete unit run test, package test, over speed test						
3.16	Manufacturer spares for 2 years operation						
3.17	Installation, Operating and maintenance Manual						
3.18	Surface preparation and painting procedure						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-125 Gas Turbines (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4. Production</b>							
4.1	Examination and approval of manufacturing facility						
4.2	Material Traceability and Examination	Vendor Data Book					
4.3	Production welding	WPS & PQR					
4.4	Casings						
4.5	Rotating elements (rotor, couplings, blades & wheels)	P.O., code & Std Approved spec.					
4.6	Seals, Bearing, & Gear box	Procedure, Drawings					
4.7	Base plate						
4.8	Piping & piping components (Fuel Piping & Lube oil piping, seal air piping), Piping components SS, DSS and CRA shall conform to ITP-122	Approved project spec. & Drawings					
4.9	Combustion chambers, Nozzles/Burner						
4.10	Lifting points & lugs						
4.11	Bolting and Gasket						
<b>5. Examination</b>							
5.1	Visual Dimensional Check	P.O, Approved project Spec. Data sheet, procedures & Drawings Codes & Std					
5.2	Non-Destructive Examination						
5.3	Painting Examination (including PQT and Production test panel)						
5.4	Calibration Checks						
5.5	Contamination on oil filters and strainers						
5.6	Examine bearings, blading and gearing for damage						
5.7	Witness equipment being weighed						
5.8	Examine protective coatings						
5.9	Heat treatment shall be checked. Reports and charts need to be stamped approved						
<b>6. Testing</b>							
6.1	Hardness test, PMI (Where applicable)	Codes & Std					

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-125 Gas Turbines (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
6.4	Vibration reading / noise							
6.5	Mechanical running test, Performance test, speed regulating devices, over speed & trip valves / exhaust temperature.	API 616						
6.6	Auxiliary equipment, instrumentation and control soak test and Post-Test inspection of internals							
6.7	Load Test (Where applicable)	Approved PRO,						
<b>7.</b>	<b>Preparation for Dispatch</b>							
7.1	Marking & Tagging, packing list							
7.2	Complete equipment Preservation checked and recorded							
7.3	Equipment Lifting points identified and marked	P.O Spec., Std. &						
7.4	Openings covered, Protection for Shipment							
7.5	Inspection Release Note (IRN)							
<b>8.</b>	<b>Reports &amp; Test Certification &amp; vendor Data Books</b>							
8.1	Vendor Data Report	, Vendor Document Requirement List						
8.2	Raw Material Test Certificates							
8.3	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)							
8.4	Vendor Data Books endorsement, and issue of release note by TPA							
8.5	Flue Gas Emission (NoX)	Codes & Std.						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-126 HVAC Equipment

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This list covers test and inspection requirements for HVAC Equipment.	Project Spec. P.O. Description						
1.1	Vendor approval	COMPANY Pre-qualification						
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b> Key Design Documents shall be submitted and approved by COMPANY/Contractor prior to Pre-production Meeting	Project Spec. P.O. Description, Standards,						
<b>3.</b>	<b>General - Preliminary work</b>							
3.1	Vendor fabrication schedule	Prod. Plan						
3.2	Vendor Q.P	QA Manual						
3.3	Status of sub orders if any	Prod. Plan						
3.4	Material test and certification							
3.5	Manufacturing Drawings							
3.6	Packing & preservation Procedure							
3.7	Non-Destructive Examination (NDE) Procedures where applicable	P.O. Description approved Project Spec., project procedures, Drgs., Stds,						
3.8	Weld Procedures Specification and Qualification Records where applicable							
3.9	Surface preparation, Painting/Coating Procedure							
3.10	Inspection and Test Procedure							
3.11	Leak Test							
3.12	FAT Procedure							
<b>4.</b>	<b>Production, Inspection &amp; Testing</b>							
<b>4.1</b>	<b>Air Cooled Chillers</b>							
4.1.1	Verification Of Purchased Product	Project Spec. P.O. Description & Approved Drgs/ Documents, International Codes & Stds.						
4.1.2	Sheet Metal Fabrication							
4.1.3	Powder Coating Of Sheet Metal Sheets							
4.1.4	Production of Propeller Fan							
4.1.5	Structural Steel Fabrication							

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-126 HVAC Equipment (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.1 Air Cooled Chillers (Cont'd)</b>								
4.1.6	Painting of Structural Steel frame	P.O. Description, Project Spec. procedures, Drgs, International Codes & Stds.						
4.1.7	Insulation of Evaporator							
4.1.8	Coil Manufacturing							
4.1.9	Coil Leak Testing							
4.1.10	Electrical components Assembly & Testing							
4.1.11	Unit Assembly							
4.1.12	Production of Refrigerant Piping							
4.1.13	Leak Test of Refrigerant Piping system							
4.1.14	Evacuation & Charging							
4.1.15	Operational Run Testing							
4.1.16	Final Inspection							
<b>4.2 Air Handling Units</b>								
4.2.1	Verification of Purchased Product	P.O. Description, Project Spec. procedures, Drgs, International Codes & Stds.						
4.2.2	Sheet Metal Fabrication							
4.2.3	Powder Coating of Sheet Metal Sheets							
4.2.4	Coil Manufacturing							
4.2.5	Coil Leak Testing							
4.2.6	Insulation of the Panel							
4.2.7	Unit Assembly							
4.2.8	Operational Run Testing							
4.2.9	Motor Insulation Winding Test							
4.2.10	Final Inspection							
<b>4.3 Fan Coil Units</b>								
4.3.1	Verification of Purchased Product	P.O. Description, Project Spec. procedures, Drgs, International Codes & Stds.						
4.3.2	Sheet Metal Fabrication							
4.3.3	Powder Coating of Sheet Metal Sheets							
4.3.4	Coil Manufacturing							
4.3.5	Coil Leak Testing							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-126 HVAC Equipment (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
4.3.6	Insulation of the Panel							
4.3.7	Unit Assembly							
4.3.8	Final Inspection							
<b>4.4 Air Cooled Condensing Units</b>								
4.4.1	Verification of Purchased Product	Project Spec. P.O. Description, approved drawings, procedures, Codes & stds						
4.4.2	Sheet Metal Fabrication							
4.4.3	Powder Coating of Sheet Metal Sheets							
4.4.4	Production of Propeller Fan Blade							
4.4.5	Coil Manufacturing							
4.4.6	Coil Leak Testing							
4.4.7	Electrical Components Assembly & Testing							
4.4.8	Unit Assembly							
4.4.9	Production of Refrigerant Piping							
4.4.10	Leak Test of Refrigerant Piping System							
4.4.11	Final Assembly							
4.4.12	Final Inspection							
<b>4.5 Air Cooled Packaged Units</b>								
4.5.1	Verification of Purchased Product	Project Spec. P.O. Description, approved drawings, procedures, Codes & stds						
4.5.2	Sheet Metal Fabrication							
4.5.3	Powder Coating of Sheet Metal Sheets							
4.5.4	Production of Propeller Fan Blade							
4.5.5	Structural Steel Fabrication							
4.5.6	Painting of Structural Steel Frame							
4.5.7	Coil Manufacturing							
4.5.8	Coil Leak Testing							
4.5.9	Electrical Components Assembly & Testing							
4.5.10	Insulation of the Panel							
4.5.11	Unit Assembly							
4.5.12	Production of Refrigerant Piping							

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-126 HVAC Equipment (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.5</b>	<b>Air Cooled Packaged Units</b>							
4.5.13	Leak Test of Refrigerant Piping System							
4.5.14	Evacuation & Charging							
4.5.15	Operational Run Testing							
4.5.16	Final Inspection							
<b>5.</b>	<b>Preparation for Dispatch</b>							
5.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drgs/ Documents, International Codes & Stds						
5.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks							
5.3	Packing inspection and marking control of all goods, including spare parts							
5.4	Inspection Release Note issuance Verification of Punch list clearance							
5.5	Manufacturing Record Book							
<b>6.</b>	<b>Reports &amp; Test Certificates</b>							
6.1	Vendor Data Report	approved Vendor Document Requirement List						
6.2	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor (Wherever Applicable))							
6.3	Vendor Data Books, issue of release notes by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-201      132kV & above Power Transformers and Shunt Reactors

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<b>Scope</b> This list covers test and inspection requirements for 132kv & Above transformers and Shunt Reactors	Project Spec. P.O. Description & Approved Drawings						
1. 1	Vendor approval	COMPANY Pre-qualification						
2.	<b>Pre-production/Pre-inspection Meeting</b> Key Design Documents shall be submitted and approved by COMPANY/Contractor prior to Pre-production Meeting							
3.	<b>General - Preliminary work</b>							
3.1	Vendor fabrication schedule	Prod. Plan						
3.2	Vendor Q.P	QA Manual						
3.3	Status of sub orders	Prod. Plan						
3.4	Material test and certification	Project Spec. P.O. Description Codes, Stds &						
3.5	FAT Procedure review							
4.	<b>Production &amp; Internal Testing</b>							
4.1	Check of received material							
4.2	Core stacking check: - Critical dimensions - Gluing time							
4.3	Foil winding check: - Materials - Dimensions - Lightning Impulse-test							
4.4	Winding check: - Materials - Dimensions - Structure and other critical issues according to design and instructions	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
4.5	Winding assembly check: - Drying - Winding length - Insulation test							
4.6	Tank cover and conservator manufacturing check: (2) - Main dimensions - Visual inspection of welding seams - Leakage test with soap water or penetration liquid							

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-201 132kV & above Power Transformers and Shunt Reactors (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4. Production &amp; Internal Testing (cont'd)</b>							
4.7	Surface treatment check: - Pre-treatment - Painting conditions - Painting thickness	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards					
4.8	Sample Test Panels for Coating						
4.9	Surface treatment inspection (including welding visual)						
4.10	Intermediate coating inspection						
4.11	Final coating inspection						
4.12	Electrical quality control measurements: - Core earthing - Voltage ratio - CT ratio and polarity - Winding resistances						
4.13	Active part review: - Active part according to design and instructions						
4.14	Drying check: - Drying method, time and temperature						
4.15	Vacuum treatment and oil filling: - Pressure during oil filling - Oil type						
4.16	Oil leakage test: - Welding seams - Gaskets - Valves						
4.17	Tank vacuum & pressure test						
<b>5. Routine Test</b>							
5.1	Measurement of winding resistance	Project Spec. IEC 60076-1 (2011-04) 11.1.2.1 a)					
5.2	Measurement of voltage ratio and check of voltage vector relationship Done as pre-tanking measurement	Project Spec. IEC 60076-1 (2011-04) 11.1.2.1 b)					
5.3	Measurement of impedance voltage (principal tapping), short-circuit impedance and load loss	Project Spec. IEC 60076-1 (2011-04) 11.1.2.1 c)					

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-201 132kV & above Power Transformers and Shunt Reactors (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5. Routine Test (cont'd)</b>							
5.4	Measurement of no-load loss and current	Project Spec. P.O. Description IEC 60076-1 (2011-04) 11.1.2.1 d), 11.1.2.2 e)					
5.5	Dielectric routine tests: Induced overvoltage withstand test with PD and separate-source voltage withstand test	Project Spec. P.O. Description IEC 60076-3 (2013-07) 11.1.2.1 e)					
5.6	Tests on on-load tap-changers	IEC 60076-1 (2011-04) 11.1.2.1 f)					
5.7	Insulation resistance measurement	Project Spec. P.O. Description IEC 60076-1 (2011-04) 11.1.2.1 j), 11.1.2.2 b)					
5.8	Measurement of capacitances and dissipation factor	Project Spec. P.O. Description IEC 60076-1 (2011-04) 11.1.2.2 a), 11.1.2.2 c)					
5.9	Measurement of dissolved gasses in dielectric liquid from each separate oil compartment except diverter switch compartment	Project Spec. P.O. Description IEC 60076-1 (2011-04) 11.1.2.2 d)					
5.10	Full wave lightnings impulse test for the line terminals	Project Spec. P.O. Description IEC 60076-3 (2013-07) 7.2.1					
5.11	Operational test for control and protective devices. Insulation test of auxiliary wiring 2kV 50 Hz for 1 minute for auxiliary wiring and control equipment. Check of the ratio and polarity of built-incurrent transformers. Done as pre-tanking measurement.	Project Spec. P.O. Description IEC 60076-3 (2013-07)  IEC 60076-1, 11.1.2.1 i) (2011-04)					

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-201 132kV & above Power Transformers and Shunt Reactors (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>6. Type Test &amp; Special Test</b>								
6.1	Type Test Certificates	Project Spec. P.O. Description IEC 60076						
6.2	Special test as per IEC & Specifications: - Vibration Test - Lightning impulse test on line terminals full wave (LI) and test with chopped on tail (LIC) (HT and LT windings line terminals) - Measurement of zero-sequence impedance - Measurement of harmonics of the no-load current - Temperature-rise test - Determination of sound level - Measurement of power taken by the fan and liquid pumps "if applicable"	Project Spec. P.O. Description IEC 60076						
6.3	Tests and inspection for ATEX AND/OR IECEX certification "if applicable"	ATEX AND/OR IECEX						
6.4	Oil-filled transformer - ECMS Control & Monitoring (IEC61850 & Modbus TCP) - Electrical Asset Management System Monitoring Functions "if applicable"							
<b>7. Preparation for Dispatch</b>								
7.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
7.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks							
7.3	Packing inspection and marking control of all goods, including spare parts							
7.4	Inspection Release Note issuance Verification of Punch list clearance							
7.5	Manufacturing Record Book							

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-201 132kV & above Power Transformers and Shunt Reactors (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>8.</b>	<b>Reports &amp; Test Certificates</b>							
8.1	Vendor Data Report	Approved Vendor Document Requirement List (VDRL)						
8.2	Raw Material Test Certificates							
8.3	WIN/UTC/CMMS data sheet (to be completed by vendor (wherever applicable))							
8.4	Vendor Data Books endorsement, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-202      33kV & Below Oil Filled Power Transformers and Shunt Reactors

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<b>Scope</b> This list covers test and inspection requirements for 33kv & below oil filled transformers and Shunt Reactors	P.O. Project Spec. P.O. Description & Approved Drawings						
1.1	Vendor approval	COMPANY Pre-qualification						
2.	<b>Pre-production/Pre-inspection Meeting</b> Key Design Documents shall be submitted and approved by COMPANY/Contractor prior to Pre-production Meeting							
3.	<b>General - Preliminary work</b>							
3.1	Vendor fabrication schedule	Prod. Plan						
3.2	Vendor Q.P	QA Manual						
3.3	Status of sub orders	Prod. Plan						
3.4	Material test and certification	Project Spec. P.O. Description Codes, Stds &						
3.5	FAT Procedure review							
4.	<b>Production &amp; Internal Testing</b>							
4.1	Check of received material							
4.2	Core stacking check: - Critical dimensions - Gluing time							
4.3	Foil winding check: - Materials - Dimensions - Lightning Impulse-test							
4.4	Winding check: - Materials - Dimensions - Structure and other critical issues according to design and instructions	P.O. Spec. & Approved procedures, Drawings, International Codes & Standards						
4.5	Winding assembly check: - Drying - Winding length - Insulation test							
4.6	Tank cover and conservator manufacturing check: (2) - Main dimensions - Visual inspection of welding seams - Leakage test with soap water or penetration liquid							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-202 33kV & Below Oil Filled Power Transformers and Shunt Reactors (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
4.7	Surface treatment check: - Pre-treatment - Painting conditions - Painting thickness						
4.8	Sample Test Panels for Coating						
4.9	Surface treatment inspection (including welding visual)						
4.10	Intermediate coating inspection						
4.11	Final coating inspection						
4.12	Electrical quality control measurements: - Core earthing - Voltage ratio - CT ratio and polarity - Winding resistances	P.O. Spec. & Approved procedures, Drawings, International Codes & Standards					
4.13	Active part review: - Active part according to design and instructions						
4.14	Drying check: - Drying method, time and temperature						
4.15	Vacuum treatment and oil filling: - Pressure during oil filling - Oil type						
4.16	Oil leakage test: - Welding seams - Gaskets - Valves						
4.17	Tank vacuum & pressure test						
<b>5.</b>	<b>Routine Test</b>						
5.1	Measurement of winding resistance	Project Spec. P.O. Description IEC 60076-1 (2011-04) 11.1.2.1 a)					
5.2	Measurement of voltage ratio and check of voltage vector relationship Done as pre-tanking measurement	Project Spec. P.O. Description IEC 60076-1 (2011-04) 11.1.2.1 b)					
5.3	Measurement of impedance voltage (principal tapping), short-circuit impedance and load loss	Project Spec. P.O. Description IEC 60076-1 (2011-04) 11.1.2.1 c)					

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-202 33kV & Below Oil Filled Power Transformers and Shunt Reactors (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVE	VENDOR INTERVENTION LEVE WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVE	COMPANY INTERVENTION LEVE
5.4	Measurement of no-load loss and current	Project Spec. P.O. Description IEC 60076-1, (2011-04) 11.1.2.1 d), 11.1.2.2 e)						
5.5	Dielectric routine tests: Induced overvoltage withstand test with PD and separate-source voltage withstand test	Project Spec. P.O. Description IEC 60076-3 (2013-07) 11.1.2.1 e)						
5.6	Tests on on-load tap-changers	Project Spec. P.O. Description IEC 60076-1 (2011-04) 11.1.2.1 f)						
5.7	Insulation resistance measurement	Project Spec. P.O. Description IEC 60076-1 (2011-04) 11.1.2.1 j), 11.1.2.2 b)						
5.8	Operational test for control and protective devices. Insulation test of auxiliary wiring 2kV 50 Hz for 1 minute for auxiliary wiring and control equipment. Check of the ratio and polarity of built-incurrent transformers. Done as pre-tanking measurement.	Project Spec. P.O. Description IEC 60076-3 (2013-07) IEC 60076-1, 11.1.2.1 i) (2011-04)						
<b>6.</b>	<b>Type Test &amp; Special Test</b>							
6.1	Type Test Certificates	IEC 60076						
6.2	Special test as per IEC & Specifications: - Vibration Test - Lightning impulse test on line terminals full wave (LI) and test with chopped on tail (LIC) (HT and LT windings line terminals) - Measurement of zero-sequence impedance - Measurement of harmonics of the no-load current - Temperature-rise test - Determination of sound level - Measurement of power taken by the fan and liquid pumps "if applicable"	Project Spec. P.O. Description IEC 60076						
6.3	Tests and inspection for ATEX AND/OR IECEx certification "if applicable"	ATEX AND/OR IECEx						

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-202 33kV & Below Oil Filled Power Transformers and Shunt Reactors (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>6.</b>	<b>Type Test &amp; Special Test (Cont'd)</b>						
6.4	Oil-filled transformer - ECMS Control & Monitoring (IEC61850 & Modbus TCP) - Electrical Asset Management System Monitoring Functions "if applicable"	Project Specification , procedures, Data sheet					
<b>7.</b>	<b>Preparation for Dispatch</b>						
7.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards					
7.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks						
7.3	Packing inspection and marking control of all goods, including spare parts						
7.4	Inspection Release Note issuance Verification of Punch list clearance						
7.5	Manufacturing Record Book						
<b>8.</b>	<b>Reports &amp; Test Certificates</b>						
8.1	Vendor Data Report	Approved Vendor Document Requirement List					
8.2	Raw Material Test Certificates	Project Spec. P.O. Description					
8.3	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)						
8.4	Vendor Data Books, issue of release notes by TPA						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-203 Dry Type Power Transformers

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b>  This list covers test and inspection requirements for Dry Type Power transformers	Project Spec. P.O. Approved Drawings						
1. 1	Vendor approval	COMPANY Pre-qualification						
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>  Key Design Documents shall be submitted and approved by COMPANY/Contractor prior to Pre-production Meeting							
<b>3.</b>	<b>General - Preliminary work</b>							
3.1	Vendor fabrication schedule	Prod. Plan						
3.2	Vendor Q.P	QA Manual						
3.3	Status of sub orders	Prod. Plan						
3.4	Material test and certification	Project Spec. Codes, Stds &						
3.5	FAT Procedure review							
<b>4.</b>	<b>Production &amp; Internal Testing</b>							
4.1	Check of received material	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Stds.						
4.2	Resin Mixing Control - Gel Test							
4.3	Control "Foil-Wire Winding"							
4.4	Control "Active Part"							
4.5	Control "Final Assembly"							
4.6	Control "Ready for Test"							
<b>5.</b>	<b>Routine Test</b>							
5.1	Verification of correct wiring of auxiliary circuits	Project Spec. P.O. Description & Approved Drawings, Codes & Standards IEC60076						
5.2	Dielectric test on auxiliary circuits							
5.3	Measurement of winding Resistance							
5.4	Voltage ratio measurement and check of voltage vector relationship							
5.5	Measurement of impedance voltage, short circuit impedance and load losses							
5.6	Measurement of No-Load Losses and No-Load Current							
5.7	Induced Overvoltage withstand Test							
5.8	Separate-Source Voltage withstand Test							

**Procurement Inspection and Certification Requirement in Projects – APPENDIX A**

**ITP-203 Dry Type Power Transformers (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5.</b>	<b>Routine Test (cont'd)</b>						
5.9	Partial Discharge Test	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards IEC60076					
5.10	Visual inspection						
5.11	Temperature rise test						
5.12	Noise level measurement test						
5.13	Insulation resistance test						
5.14	Harmonics of the no-load losses test						
4.15	Zero-sequence impedance test						
<b>6.</b>	<b>Type Test &amp; Special Test</b>						
6.1	Type Test Certificates	Project Spec. P.O. Description IEC 60076					
6.2	Tests and inspection for ATEX AND/OR IECEX certification "if applicable"	ATEX AND/OR IECEX					
<b>7.</b>	<b>Preparation for Dispatch</b>						
7.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards					
7.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks						
7.3	Packing inspection and marking control of all goods, including spare parts						
7.4	Inspection Release Note issuance Verification of Punch list clearance						
7.5	Manufacturing Record Book						
<b>8.</b>	<b>Reports &amp; Test Certificates</b>						
8.1	Vendor Data Report	As per Approved Vendor Document Requirement List (VDRL)	--				
8.2	Raw Material Test Certificates						
8.3	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)						
8.4	Vendor Data Books endorsement, and issue of release note by TPA						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-204 132KV Gas Insulated Switchgear

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<b>Scope</b> This list covers test and inspection requirements for 132KV Gas Insulated Switchgear	Project Spec. P.O. Description Std & Approved Drawings						
1. 1	Vendor approval	COMPANY Pre-qualification						
2.	<b>Pre-production/Pre-inspection Meeting</b>  Key Design Documents shall be submitted and approved by COMPANY/Contractor prior to Pre-production Meeting							
3.	<b>General - Preliminary work</b>							
3.1	Vendor fabrication schedule	Prod. Plan						
3.2	Vendor Q.P	QA Manual						
3.3	Status of sub orders	Prod. Plan						
3.4	Material test and certification	Project Spec. P.O. Description Codes, Stds &						
3.5	FAT Procedure review							
4.	<b>Production &amp; Internal Testing</b>							
4.1	Check of received material/components	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
4.2	Verification of visual dimensional check, earth connections, proper terminal markings, completeness of labels, ratings and name plates							
4.3	Check of effectiveness of operating mechanism, interlocks, inter-trips, partitions and shrouds							
4.4	Check electric assembly and wiring							
4.5	Pressure tests for pressurized parts							
5.	<b>Routine Test</b>							
5.1	Design and visual inspection	Project Spec. P.O. Description IEC 62271-203						
5.2	Mechanical operation test of all switching devices	Project Spec. P.O. Description IEC 62271-100 IEC 62271-102						

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-204 132KV Gas Insulated Switchgear (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
5.3	Gas tightness test	Project Spec. P.O. Description IEC 62271- 203					
5.4	Power frequency voltage test on main circuits (phase-to-earth, across open switching devices and between phases)	Project Spec. P.O. Description IEC 62271- 203 IEC 61869-2					
5.5	Dielectric test on auxiliary circuits	Project Spec. P.O. Description IEC 62271- 200					
5.6	Measuring of resistance of the main circuits	Project Spec. P.O. Description IEC 62271- 203					
5.7	Partial discharge measurement	Project Spec. P.O. Description IEC 62271- 203 IEC 61869-1					
5.8	Checking of phase layout/sequence of phases						
5.9	Insulation resistance	Project Spec. P.O. Description IEC 62271- 200					
5.10	Voltage withstand test on auxiliary circuits						
5.11	Capacitive voltage indication during high voltage test	Project Spec. P.O. Description IEC 62271- 100					
5.12	Circuit breaker tests: -5 CLOSE operations at maximum operating pressure and maximum control voltage -5 OPEN operations at maximum operating pressure and maximum control voltage -5 CLOSE operations at minimum operating pressure and minimum control voltage -5 OPEN operations at minimum operating pressure and minimum control voltage -5 CLOSE-OPEN operations at rated operating pressure and rated control voltage -5 CLOSE-OPEN (O - t - C) operations at rated operating pressure and rated control voltage -Closing time at rated operating pressure and rated control voltage -Opening time at rated operating pressure and rated control voltage -measurement of recharging duration						

**ITP-204      132KV Gas Insulated Switchgear (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5.</b>	<b>Routine Test (Cont'd)</b>						
5.12 Cont'd	-functional performance of pressure relief valve -measurement of the resistance of the control coils -hydraulic leakage test -dielectric test on auxiliary and control circuits						
5.13	Disconnecter and earthing switch tests: - 5 CLOSE-OPEN operating cycles at minimum control voltage - 5 CLOSE-OPEN operating cycles at maximum control voltage - CLOSE operation at rated control voltage - OPEN operation at rated control voltage - CLOSE operation at minimum control voltage - OPEN operation at minimum control voltage - CLOSE operation at maximum control voltage - OPEN operation at maximum control voltage - 5 CLOSE-OPEN manual operations - dielectric test on auxiliary and control circuits	Project Spec. P.O. Description IEC 62271- 102					
5.14	Make-proof earthing switch tests: - 5 CLOSE-OPEN operating cycles at minimum control voltage - 5 CLOSE-OPEN operating cycles at maximum control voltage - CLOSE operation at rated control voltage - OPEN operation at rated control voltage - CLOSE operation at minimum control voltage - OPEN operation at minimum control voltage - CLOSE operation at maximum control voltage - OPEN operation at maximum control voltage - 5 CLOSE-OPEN manual operations - dielectric test on auxiliary and control circuits	Project Spec. P.O. Description IEC 62271- 102					

**ITP-204 132KV Gas Insulated Switchgear (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVE	VENDOR INTERVENTION LEVE WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVE	COMPANY INTERVENTION LEVE
<b>5.</b>	<b>Routine Test (Cont'd)</b>						
5.15	<p>Current transformer tests:</p> <ul style="list-style-type: none"> <li>- verification of markings</li> <li>- power frequency voltage withstands tests on secondary terminals</li> <li>- power frequency withstand voltage test between sections</li> <li>- inter-turn overvoltage test</li> <li>- tests for accuracy:           <ul style="list-style-type: none"> <li>-tests for ratio error and phase displacement</li> <li>-test for composite error (for class P and PR protective current transformers)</li> </ul> </li> <li>- determination of the instrument security factor of measuring current transformers</li> <li>- determination of the secondary winding resistance</li> <li>- recording of magnetization curves for all typical cores</li> <li>- quantity and identification</li> <li>- check of polarity</li> <li>- check of rating plate and assignment to corresponding GIS bay</li> </ul>	Project Spec. P.O. Description IEC 61869-1					
5.16	<p>Voltage transformer test:</p> <ul style="list-style-type: none"> <li>- operation of integrated isolation device (if applicable)</li> <li>- power frequency voltage withstand test on primary terminals</li> <li>- partial discharge measurement</li> <li>- power frequency voltage withstands tests on secondary terminals</li> <li>- tests for accuracy</li> <li>- enclosure tightness test at ambient temperature</li> <li>- quantity and identification</li> <li>- check of rating plate</li> </ul>	Project Spec. P.O. Description IEC 61869-3					
5.17	<p>Surge arrester tests:</p> <ul style="list-style-type: none"> <li>- measurement of reference voltage (<math>U_{ref}</math>) at reference current (<math>I_{ref}</math>)</li> <li>- residual voltage test (<math>U_{res}</math>)</li> <li>- internal partial discharge test</li> <li>- gas leakage test</li> <li>- rating plates</li> </ul>	Project Spec. P.O. Description IEC 60099-4					

**Procurement Inspection and Certification Requirement in Projects – APPENDIX A**

**ITP-204 132KV Gas Insulated Switchgear (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
5.18	Local control cubicle tests: - degree of protection of enclosures - clearances and creepage distances - protection against electric shock and integrity of protective circuits - incorporation of built-in components - internal electrical circuits and connections - terminals for external conductors - mechanical operation - dielectric properties (2kV AC) - wiring, operational performance and function - functional test of individual switching devices - functional test of interlocking in apparatus end positions - functional test of complete bay interlocking (between apparatus) - alarm signals and blockings - functional test of measuring and counting devices - visual check of assembly, wiring and appearance - visual check of preservation	Project Spec. P.O. Description IEC 61439-1 IEC 62271- 203					
5.19	Functional test of interface and primary injection of protective relays						
<b>6. Type Test &amp; Special Test</b>							
6.1	Type Test Certificates	Project Spec. P.O. Description					
6.2	Special test as per IEC & Specifications	IEC 62271					
6.3	Tests and inspection for ATEX AND/OR IECEx certification "if applicable"	ATEX AND/OR IECEx					
6.4	ECMS Control & Monitoring (IEC61850 & Modbus TCP)	Project Spec. P.O. Description IEC 61850					
6.5	EAMS Monitoring Functions						

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP–204 132KV Gas Insulated Switchgear (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>7. Preparation for Dispatch</b>								
7.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
7.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks							
7.3	Packing inspection and marking control of all goods, including spare parts							
7.4	Inspection Release Note issuance Verification of Punch list clearance							
7.5	Manufacturing Record Book							
<b>8. Reports &amp; Test Certificates</b>								
8.1	Vendor Data Report	Approved Vendor Document Requirement List						
8.2	Raw Material Test Certificates							
8.3	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)							
8.4	Vendor Data Books endorsement, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### **ITP-205 11KV & 6.6KV Air Insulated Switchgear**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b>  This list covers test and inspection requirements for 11KV & 6.6KV Air Insulated Switchgear	Project Spec. P.O. Description, Std.					
1. 1	Vendor approval	COMPANY Pre-qualification					
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>  Key Design Documents shall be submitted and approved by COMPANY/Contractor prior to Pre-production Meeting						
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Prod. Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub orders	Prod. Plan					
3.4	Material test and certification	Project Spec. P.O. Description					
3.5	FAT Procedure review	Codes, Stds &					
<b>4.</b>	<b>Production &amp; Internal Testing</b>						
4.1	Internal factory testing	Project Spec. P.O. Description IEC 62271-200 IEC 62271-1					
<b>5.</b>	<b>Routine Test</b>						
5.1	Visual inspection	Project Spec. P.O. Description					
5.2	Mechanical operation test	Project Spec. P.O. Description IEC 62271-200					
5.3	Functionality test	Project Spec. P.O. Description IEC 62271-200 IEC 62271-1					
5.4	Power frequency voltage test on the main circuit	Project Spec. P.O. Description IEC 62271-200					
5.5	Dielectric test on auxiliary circuits	IEC 62271-200 IEC 62271-1					

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-205 11KV & 6.6KV Air Insulated Switchgear (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5.</b>	<b>Routine Test (Cont'd)</b>							
5.6	Measuring of resistance of the main circuits	Project Spec. P.O. Description IEC 62271-200						
5.7	Test of measuring and protection circuits							
5.8	Painting examination	Factory painting procedure						
<b>6.</b>	<b>Type Test &amp; Special Test</b>							
6.1	Type Test Certificates	Project Spec. P.O. Description IEC 62271						
6.2	Special test as per IEC & Specifications							
6.3	Tests and inspection for ATEX AND/OR IECEX certification "if applicable"	ATEX AND/OR IECEX						
6.4	ECMS Control & Monitoring (IEC61850 & Modbus TCP)	Project Spec. P.O. Description IEC 61850						
6.5	EAMS Monitoring Functions							
<b>7.</b>	<b>Preparation for Dispatch</b>							
7.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
7.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks							
7.3	Packing inspection and marking control of all goods, including spare parts							
7.4	Inspection Release Note issuance Verification of Punch list clearance							
7.5	Manufacturing Record Book							
<b>8.</b>	<b>Reports &amp; Test Certificates</b>							
8.1	Vendor Data Report	VDRL						
8.2	Raw Material Test Certificates							
8.3	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)							
8.4	Vendor Data Books endorsement, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-206      415V SWGR

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVE	VENDOR INTERVENTION LEVE WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVE	COMPANY INTERVENTION LEVE
<b>1.</b>	<b>Scope</b>  1. This list covers test and inspection requirements for 415V switchgear	Project Spec. P.O. Description, Std.						
1. 1	Vendor approval	COMPANY Pre-qualification						
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>  2. Key Design Documents shall be submitted and approved by COMPANY/Contractor prior to Pre-production Meeting							
<b>3.</b>	<b>General - Preliminary work</b>							
3.1	Vendor fabrication schedule	Prod. Plan						
3.2	Vendor Q.P	QA Manual						
3.3	Status of sub orders	Prod. Plan						
3.4	Material test and certification	Project Spec. Codes, Stds &						
3.5	FAT Procedure review							
<b>4.</b>	<b>Production &amp; Internal Testing</b>							
4.1	Material receiving and inspection	Vendor procedures						
4.2	Verification of complete details of the assembly	Proj. Spec. P.O.						
4.3	Verification of all internal loops	Description & App. Drgs. / Documents,						
4.4	Verification of electrical components	International Codes & stds						
4.5	Functional testing							
<b>5.</b>	<b>Routine Test</b>							
5.1	Visual inspection							
5.2	Mechanical operation test							
5.3	Functionality test (Power frequency withstand test, Insulation resistance, ratio and polarity check of CTs & VTs, Dielectric routine tests, Interface and primary injection test of protective relays, Interlocking and Inter-tripping checks, Main circuit resistance measurements, Integrated FAT with ECMS (where applicable). EC Type Examination (ATEX AND/OR IECEx) Certificates (for hazardous area equipment)	Project Spec. P.O. Description & App. Drawings Project Spec. P.O. Description IEC 61439						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-206 415V SWGR (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5. Routine Test (Cont'd)</b>							
5.4	Dielectric test on auxiliary circuits	Project Spec. P.O. Description IEC 61439					
5.5	Measuring of resistance of the main circuits						
5.6	Test of measuring and protection circuits						
5.7	Painting examination	Paint manual					
<b>6. Type Test &amp; Special Test</b>							
6.1	Type Test Certificates	Project Spec. P.O. Description IEC 61439					
6.2	Special test as per IEC & Specifications						
6.3	Tests and inspection for ATEX AND/OR IECEX certification "if applicable"	ATEX AND/OR IECEX					
6.4	ECMS Control & Monitoring (IEC61850 & Modbus TCP)	Project Spec. P.O. Description IEC 61850					
6.5	EAMS Monitoring Functions						
<b>7. Preparation for Dispatch</b>							
7.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards					
7.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks						
7.3	Packing inspection and marking control of all goods, including spare parts						
7.4	Inspection Release Note issuance Verification of Punch list clearance						
7.5	Manufacturing Record Book						
<b>8. Reports &amp; Test Certificates</b>							
8.1	Vendor Data Report	Vendor Document Requirement List					
8.2	Raw Material Test Certificates						
8.3	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)						
8.4	Vendor Data Books endorsement, and issue of release note by TPA						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-207 ECMS/PMS/EAMS

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVE	VENDOR INTERVENTION LEVE WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVE	COMPANY INTERVENTION LEVE
<b>1.</b>	<b>Scope</b>  This list covers test and inspection requirements for ECMS/PMS/EAMS	Project Spec. P.O. Description, International Std.						
1. 1	Vendor approval	COMPANY Pre-qualification						
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>  Key Design Documents shall be submitted and approved by COMPANY/Contractor prior to Pre-production Meeting							
<b>3.</b>	<b>General - Preliminary work</b>							
3.1	Vendor fabrication schedule	Prod. Plan						
3.2	Vendor Q.P	QA Manual						
3.3	Status of sub orders	Prod. Plan						
3.4	Material test and certification	Project Spec. Codes, Stds &						
3.5	FAT Procedure review							
<b>4.</b>	<b>Production &amp; Internal Testing</b>							
4.1	Check of received material	Project Spec. P.O. Description & Approved Drawings/Doc uments, International Codes and standards						
4.2	Assembly & production inspection of prototype cabinets: -Marshalling cabinet -IRP DCS cabinet -IRP ESD cabinet -FMS/SOE cabinet -Load shed RIO cabinet -Server cabinets							
4.3	Cabinet hardware tests							
4.4	Software tests							
4.5	Functional testing							
<b>5.</b>	<b>Routine Test</b>							
5.1	Visual inspection	Project Spec. P.O. Description & Approved Drawings						
5.2	System start-up test							
5.3	I/O test							
5.4	Verification of displays							
5.5	ECMS, PMS & EAMS Graphics monitoring and control							
5.6	Load shedding functions							

Procurement Inspection and Certification Requirement in Projects – APPENDIX A

**ITP-207 ECMS/PMS/EAMS (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5. Routine Test (cont'd)</b>							
5.7	System functions: -Cyber security -User authority & passwords -Diagnostics	Project Spec. P.O. Description & Approved Drawings					
5.8	System performance						
5.9	ECMS & EAMS communication tests						
5.10	MAC-MEES communication tests						
5.11	ETAP real-time communication test, if applicable						
<b>6. Type Test &amp; Special Test</b>							
6.1	Type Test Certificates	Project Spec. P.O. Description IEC 61850					
6.2	General performance requirements	Project Spec. P.O. Description IEC 60255-6, Class 3					
6.3	Surge withstand capability test	Project Spec. P.O. Description IEC 60255-4					
6.4	Burst disturbance test	Project Spec. P.O. Description IEC 60255- 22-1					
6.5	Electrostatic discharge test	Project Spec. P.O. Description IEC 60255- 22-2					
6.6	Radiated electromagnetic field disturbance test	Project Spec. P.O. Description IEC 60255- 22-3					
6.7	Dielectric impulse test	Project Spec. P.O. Description IEC 60060					
6.8	Immunity to external interference	Project Spec. P.O. Description IEC 61000-4					

**Procurement Inspection and Certification Requirement in Projects – APPENDIX A**

**ITP-207      ECMS/PMS/EAMS (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>7. Preparation for Dispatch</b>							
7.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards					
7.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks						
7.3	Packing inspection and marking control of all goods, including spare parts						
7.4	Inspection Release Note issuance Verification of Punch list clearance						
7.5	Manufacturing Record Book						
<b>8. Reports &amp; Test Certificates</b>							
8.1	Vendor Data Report	, Approved Vendor Document Requirement List					
8.2	Raw Material Test Certificates						
8.3	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)						
8.4	Vendor Data Books endorsement, and issue of release note by TPA						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-208 Neutral Earthing Resistor

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVE	VENDOR INTERVENTION LEVE WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVE	COMPANY INTERVENTION LEVE
<b>1.</b>	<b>Scope</b>  1. This list covers test and inspection requirements for Neutral Earthing Resistor	Project Spec. P.O. Description						
1. 1	Vendor approval	COMPANY Pre-qualification						
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>  2. Key Design Documents shall be submitted and approved by COMPANY/Contractor prior to Pre-production Meeting							
<b>3.</b>	<b>General - Preliminary work</b>							
3.1	Vendor fabrication schedule	Prod. Plan						
3.2	Vendor Q.P	QA Manual						
3.3	Status of sub orders	Prod. Plan						
3.4	Material test and certification	Project Spec. Codes, Stds &						
3.5	FAT Procedure review							
<b>4.</b>	<b>Production &amp; Internal Testing</b>							
4.1	Check of received material							
4.2	Tank cover and conservator manufacturing: -main dimensions -visual inspection of welding seams							
4.3	Surface treatment: -pre-treatment -painting conditions -visual inspection -paint thickness	Project Spec. P.O. Description & Approved Drawings/Doc uments, International Codes and standards						
4.4	Vacuum treatment and oil filling: -process inspections							
4.5	Oil leakage test: -welding seams -gaskets valves							
<b>5.</b>	<b>Routine Test</b>							
5.1	Measurement of resistance	Project Spec. P.O.						
5.2	Applied voltage test Test voltage: 70KV Test frequency: 50Hz Test time: 60s	Description IEEE Std 32 10.1.4 IEEE Std 32 10.3						

**ITP-208 Neutral Earthing Resistor (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5.</b>	<b>Routine Test (Cont'd)</b>						
5.3	Insulation test of auxiliary wiring 2 kV 50 Hz for 1 minute on control and supervisory equipment, 2.5 kV 50 Hz for 1 minute on CT's	Project Spec. P.O. Description IEC 60076-3, 9					
5.4	Checking of the functionality of transformer protective devices						
5.5	Check of ratio and polarity of build-in current transformers	Project Spec. P.O. Description IEC 60076- 1,11.1.2.1 i					
5.6	Leak testing	Project Spec. P.O. Description IEC 60076-1, 11.8					
<b>6.</b>	<b>Type Test &amp; Special Test</b>						
6.1	Type Test Certificates	Project Spec. P.O. Description					
6.2	Special test as per IEC & Specifications	IEC 60076					
6.3	Temperature-rise test KNAN At rated continuous current 10 A Guaranteed tank max. temp. rises 60 K Measurements: - tank surface temperature rises with thermocouples - Insulation liquid temperature rises with PT-100 - Gas-in-oil analysis after temperature rise test	Project Spec. P.O. Description IEEE Std 32					
6.4	Tests and inspection for ATEX AND/OR IECEX certification "if applicable"	ATEX AND/OR IECEX					
<b>7.</b>	<b>Preparation for Dispatch</b>						
7.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards					
7.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks						
7.3	Packing inspection and marking control of all goods, including spare parts						
7.4	Inspection Release Note issuance Verification of Punch list clearance						
7.5	Manufacturing Record Book						

**ITP-208 Neutral Earthing Resistor (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>8. Reports &amp; Test Certificates</b>								
8.1	Vendor Data Report	Vendor Document Requirement List (VDRL)						
8.2	Raw Material Test Certificates							
8.3	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)							
8.4	Vendor Data Books endorsement, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-209 132KV Submarine Cable

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<b>Scope</b> This list covers test and inspection requirements for 132KV submarine cable	P.O. Project Spec.						
1.1	Vendor approval	COMPANY Pre-qualification						
2.	<b>Pre-production/Pre-inspection Meeting</b> Key Design Documents shall be submitted and approved by COMPANY/Contractor prior to Pre-production Meeting							
3.	<b>General - Preliminary work</b>							
3.1	Data sheets							
3.3	Vendor fabrication schedule	Prod. Plan						
3.3	Vendor Q. P	QA Manual						
3.4	Status of sub orders	Prod. Plan						
3.5	Material test and certification	Project Spec. P.O. Description Codes, Stds &						
3.6	Manufacturing Specification							
3.7	FAT Procedure review							
3.8	Pre-Load out and Post Loadout Test Procedure							
3.9	Post installation and Site Acceptance Test Procedure							
4.	<b>Production &amp; Internal Testing</b>							
4.1	Material / component Traceability and Examination	Vendor Data Book						
4.2	Measurement of Cu wire elongation and dimension	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
4.3	Measurement of conductor outer diameter, and degree of filling water blocking material							
4.4	Measurement of insulation concentricity							
4.5	Recording of time/temperature while De-gassing							
4.6	Measurement of lead thickness and cable diameter after lead sheath extrusion							
4.7	Measurement of sheath thickness and cable diameter after: -core PE-sheath extrusion -Inner PE-sheath extrusion							
4.8	Visual inspection and X-ray conductor joints							
4.9	Measurement of cable diameter after armoring							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP–209 132KV Submarine Cable (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5. Routine Test</b>							
5.1	Measurement of electrical resistance of conductor	Project Spec. IEC 60840 10.5					
5.2	Partial discharge test	Project Spec. IEC 60840 9.2					
5.3	Lightning impulse voltage test						
5.4	High voltage AC test						
5.5	Measurement of capacitance	Project Spec. IEC 60840 10.10					
5.6	Conductor examination	Project Spec. IEC 60840 10.4					
5.7	Electrical resistance of lead sheath	Project Spec. IEC 68040 10.5					
5.8	Thickness of insulation	Project Spec. IEC 60840 10.4					
5.9	Thickness of core sheath	Project Spec. IEC 60840 10.6					
5.10	Thickness of metallic sheath	Project Spec. IEC 60840 10.7					
5.11	Measurement of diameters	Project Spec. IEC 60840 10.8					
5.12	Hot set test for XLPE insulation	Project Spec. IEC 60840 10.9					
5.13	Volume resistivity						
<b>5. Routine Test (Cont'd)</b>							
5.14	Visual inspection of complete cable						
5.15	Number of wires in each armor layer						
5.16	Dimension of wires in each armor layer						
5.17	Thickness of inner sheath measurement	Project Spec. IEC 60840 10.6					
5.18	Volume resistivity of inner sheath						
5.19	Pitch length of armor						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-209 132KV Submarine Cable (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION LEVEL	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
5.20	Factory joints tests: -partial discharge test -high voltage AC test -lightning impulse voltage test -hot set test for XLPE insulation -tensile test	Project specification, procedures Data sheet						
<b>6. Type Test &amp; Special Test</b>								
6.1	Type Test Certificates	Project Spec. IEC 60502						
6.2	High voltage AC test	Project Spec. IEC 60502						
6.3	Electrical resistance of conductor							
6.4	TDR							
6.5	OTDR							
6.6	End to end attenuation measurement (power method)							
6.7	Chromatic dispersion test							
6.8	Polarization mode dispersion test							
<b>7. Preparation for Dispatch</b>								
7.1	Pre-Loadout inspection and Tests							
7.2	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
7.3	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks							
7.4	Packing inspection and marking control of all goods, incl spare parts							
7.5	Inspection Release Note issuance Verification of Punch list clearance							
7.6	Manufacturing Record Book							
<b>8. Reports &amp; Test Certificates</b>								
8.1	Vendor Data Report	VDRL						
8.2	Raw Material Test Certificates							
8.3	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)							
8.4	Vendor Data Books endorsement, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-210      11KV Submarine Cable

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This list covers test and inspection requirements for 11KV submarine cable	Project Spec. P.O. Description					
1. 1	Vendor approval	COMPANY Pre- qualification					
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>						
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Data sheets						
3.2	Vendor fabrication schedule	Prod. Plan					
3.3	Vendor Q.P	QA Manual					
3.4	Status of sub orders	Prod. Plan					
3.5	Material test and certification						
3.6	Manufacturing Specification	P.O. Description Project Specification , COMPANY STD Codes, Stds					
3.7	FAT Procedure review						
3.8	Pre-Load out and Post Loadout Test Procedure						
3.9	Post installation and Site Acceptance Test Procedure						
<b>4.</b>	<b>Production &amp; Internal Testing</b>						
4.1	Material / component Traceability and Examination	Vendor Data Book					
4.2	Measurement of Cu wire elongation and dimension						
4.3	Measurement of conductor outer diameter, and degree of filling water blocking material						
4.4	Recording of time/temperature while De-gassing						
4.5	Measurement of lead thickness and cable diameter after lead sheath extrusion						
4.6	Measurement of sheath thickness and cable diameter after: -core PE-sheath extrusion -Inner PE-sheath extrusion -Outer PE-sheath extrusion	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards					
4.7	Measurement of cable diameter after armoring						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-210 11KV Submarine Cable (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5. Routine Test</b>							
5.1	Measurement of electrical resistance of conductor	Project Spec. IEC 60502-2					
5.2	Partial discharge test	Project Spec. IEC 60502-2					
5.3	Lightning impulse voltage test	Project Spec. IEC 60230					
5.4	High voltage AC test						
5.5	Measurement of capacitance						
5.6	Conductor examination	Project Spec. IEC 60502-2					
5.7	Electrical resistance of lead sheath						
5.8	Thickness of insulation	Project Spec. IEC 60502-2					
5.9	Thickness of core sheath	Project Spec. IEC 60502-2					
5.10	Thickness of metallic sheath	Project Spec. IEC 60502-2					
5.11	Measurement of diameters						
5.12	Hot set test for XLPE insulation	Project Spec. IEC 60502-2					
5.13	Volume resistivity	Project Spec. IEC 60502-2					
5.14	Visual inspection of complete cable						
5.15	Number of wires in each armor layer						
5.16	Dimension of wires in each armor layer						
5.17	Thickness of inner sheath measurement	Project Spec. IEC 60502-2					
5.18	Volume resistivity of inner sheath						
5.19	Thickness of outer sheath measurement	Project Spec. IEC 60502-2					
5.20	Pitch length of armor						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-210 11KV Submarine Cable (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>6. Type Test &amp; Special Test</b>								
6.1	Type Test Certificates	Project Spec. P.O. Description IEC 60502						
6.2	High voltage AC test	Project Spec. P.O. Description IEC 60502-2						
6.3	Electrical resistance of conductor							
6.4	TDR							
6.5	OTDR							
6.6	End to end attenuation measurement (power method)							
6.7	Chromatic dispersion test							
6.8	Polarization mode dispersion test							
<b>7. Preparation for Dispatch</b>								
7.1	Pre-Loadout inspection and Tests							
7.2	Punch clearance inspection and Quality records review							
7.3	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
7.4	Packing inspection and marking control of all goods, including spare parts							
7.5	Inspection Release Note issuance Verification of Punch list clearance							
7.6	Manufacturing Record Book							
<b>8. Reports &amp; Test Certificates</b>								
8.1	Vendor Data Report	VDRL						
8.2	Raw Material Test Certificates							
8.3	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)							
8.4	Vendor Data Books endorsement, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-211 Electrical Cables

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This list covers test and inspection requirements for Electrical LV and HV Cables	Project Spec. P.O. Description					
1. 1	Vendor approval	COMPANY Pre-qualification					
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>						
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Prod. Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub orders	Prod. Plan					
3.4	Material test and certification	Project Spec. Codes					
3.5	FAT Procedure review						
<b>4.</b>	<b>Production</b>						
4.1	Material / component Traceability and Examination	Vendor Data Book					
4.2	Sealing and Drumming	Project Spec. Standards					
4.3	Laying up of conductors, insulation, armor, screening and inner & outer sheathing	Project Spec., std. & Approved Drawings					
4.4	Inner and outer sheathing identification / color coding	Project Spec. Stds & Approved Drawings					
4.5	Hoisting, transportability, pulling facilities of drums	Project Spec. Stds & Approved Drawings					
<b>5.</b>	<b>Examination</b>						
5.1	Visual Check, Checking of proper identification of drums, completeness of quantities, sizes and voltage grades.	Project Spec. Approved Drawings					
5.2	Conductor and armor resistance, measurement of insulation thickness	Project Spec.					
5.3	Insulation resistance and high voltage test (Dielectric routine tests)	Project Spec.					
5.4	Partial discharge test	Project Spec.					
5.5	Dimensional checks	Project Spec. drawings & Standards					

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

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### ITP-211 Electrical Cables (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>6. Testing</b>								
6.1	Type tests (where appropriate)	Project Spec. P.O. Description &						
6.2	Routine tests	Project Spec. P.O. Description						
6.3	Special tests (where appropriate)	Project Spec. P.O. Description						
<b>7. Preparation for Dispatch</b>								
7.1	Marking, Tagging & Name plate	Project Spec. P.O. Description,						
7.2	Protection for Shipment	Project Spec. P.O. Description,						
<b>8. Reports &amp; Test Certificates</b>								
8.1	Vendor Data Report	Vendor Document Requirement List						
8.2	Raw Material Test Certificates							
8.3	Vendor Data Books endorsement, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-212 AC UPS

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This list covers test and inspection requirements for AC UPS	Project Spec. P.O. Description					
1. 1	Vendor approval	COMPANY Pre- qualification					
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>						
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Prod. Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub orders	Prod. Plan					
3.4	Material test and certification	Project Spec. Codes, Stds &					
3.5	FAT Procedure review						
<b>4.</b>	<b>Production &amp; Internal Testing</b>						
4.1	Check of received material "Mechanical Components, Windings, Boards, electrical & Electromechanical components, Batteries, BMS Cables"	Project Spec. P.O. Description & Approved Drawings/Do cuments, International Codes and standards					
4.2	Assembly & Dimensions check						
4.3	Winding Marking with ferrules, crimping, tightness						
4.4	Final Painting colour and Tagging check						
4.5	Protective Circuit Continuity test						
4.6	Insulation resistance test						
4.7	Dielectric test						
4.8	Functional test						
4.9	Heating test						
4.10	Noise test						
<b>5.</b>	<b>Routine Test</b>						
5.1	Battery Test Certificates- Review	Project Spec. P.O. Description					
5.2	Conformity checks- Dimensional checks, wiring checks, Accessibility & IP Rating, Continuity checking						
5.3	Insulation tests						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-212 AC UPS (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5. Routine Test (Cont'd)</b>								
5.4	Load Duration tests							
5.5	Functional tests a) Rectifier Load test (constant voltage) b) Rectifier Load test (constant current)							
5.6	Auxiliary equipment and control circuit tests							
5.7	Heating test							
5.8	Noise test	Project Spec. P.O. Description						
5.9	Visual inspection EX-d Battery Protection Box and BMS (Battery Monitoring System) M-Sensors "if Applicable"	Project Spec. P.O. Description						
5.10	Redundancy check 2x100% of each UPS	Project Spec. P.O. Description						
5.11	Functional check for Online battery circuit monitoring facilities	Project Spec. P.O. Description						
5.12	Operation and mechanical checks for all circuit breakers (MCCB, MCB, etc)							
5.13	Functional checks of auxiliary circuits (heaters, redundant ventilation blowers, internal lighting, etc.).							
5.14	Verification of name plate, Tag plate, identification, labeling, marking & ferruling							
5.15	Checking of all outgoing feeders							
5.16	Transient voltage response with step load changes up to 100% load	Project Spec.						
5.17	Measurement of total transfer time, including failure detection period	Project Spec.						
5.18	Check and record voltage and current wave shapes at no load and loadings	Project Spec.						
5.19	Simulation of mains, inverter, and battery failure that would cause transfer of as per load from inverter output to bypass supply and return transfer tests	Project Spec.						
5.20	Static switch transfers and permissive verification	Project Spec.						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-212 AC UPS (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
5.21	Overload test, to verify various loading requirements, short time overload capabilities until the unit current limits. Static switch transfer at current limit values shall also be verified. The test agreed / approved current limit and time values (125% of UPS rating for 1hr, 150% of UPS rating for 1 minute, and 400% of rated load for 1 second shall be verified during test						
5.22	Total harmonics distortion (THD) input current test, under rated linear load Conditions. Input source voltage shall be set to the nominal value and THD shall be in compliance with COMPANY STD						
5.23	Full load heat run test for 48 hours at 50%, 75% & 100% of full load rating of UPS system						
5.24	Logic verification, scheme verification						
5.25	Interface and communication test and check with PMS, DCS, etc. (including redundancy check)						
5.26	Spare and space checks						
5.27	Frequency out of limits test and synchronization test						
5.28	Full battery charge and discharge test (curves to be recorded and submitted)						
5.29	Full functional test as per COMPANY STD						
5.30	Verification of I/O list hard wired						
5.31	One minute power frequency high voltage withstand (at 2kV)						
5.32	IR test before & after HV withstand test on Power, Control electronics, power electronics & auxiliary circuits						
5.33	Soak test/unit under full load for 100hr	Project Spec.					
5.34	Demonstration of supplying a minimum of 120 % of an estimated maximum load.	Project Spec.					

**Procurement Inspection and Certification Requirement in Projects – APPENDIX A**
**ITP-212 AC UPS (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5. Routine Test (Cont'd)</b>								
5.35	Demonstration of metering, alarms, and indications	Project Spec. P.O. Desc.						
5.36	Demonstration of protections	Project Spec. P.O. Descrip.						
<b>6. Type Test &amp; Special Test</b>								
6.1	Type Test Certificates							
6.2	Tests and inspection for ATEX AND/OR IECEx certification "if applicable"	ATEX AND/OR IECEx						
<b>7. Preparation for Dispatch</b>								
7.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drawings/Documents, International Codes and standards						
7.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks							
7.3	Packing inspection and marking control of all goods, including spare parts							
7.4	Inspection Release Note issuance Verification of Punch list clearance							
7.5	Manufacturing Record Book							
<b>8. Reports &amp; Test Certificates</b>								
8.1	Vendor Data Report	Vendor Document Requirement List						
8.2	Raw Material Test Certificates							
8.3	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)							
8.4	Vendor Data Books endorsement, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-213 DC UPS

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This list covers test and inspection requirements for DC UPS	Project Spec. P.O. Description					
1. 1	Vendor approval	COMPANY Pre-qualification					
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>	Project Spec. P.O. Description					
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Prod. Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub orders	Prod. Plan					
3.4	Material test and certification	Project Spec. Codes, Stds &					
3.5	FAT Procedure review						
<b>4.</b>	<b>Production &amp; Internal Testing</b>						
4.1	Check of received material "Mechanical Components, Windings, Boards, electrical & Electromechanical components, Batteries, BMS Cables"	Project Spec. P.O. Description & Approved Drawings/Do cuments, International Codes and standards					
4.2	Assembly & Dimensions check						
4.3	Winding Marking with ferrules, crimping, tightness						
4.4	Final Painting colour and Tagging check						
4.5	Protective Circuit Continuity test						
4.6	Insulation resistance test						
4.7	Dielectric test						
4.8	Functional test						
4.9	Heating test						
4.10	Noise test						
<b>5.</b>	<b>Routine Test</b>						
5.1	Battery Test Certificates- Review	Project Spec. P.O. Description,					
5.2	Conformity checks- Dimensional checks, Wiring checks, Accessibility & IP Rating, Continuity checking						
5.3	Insulation tests						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

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### ITP-213 DC UPS (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
5.4	Load Duration tests	Project Spec.					
5.5	Functional tests a) Rectifier Load test (constant voltage) b) Rectifier Load test (constant current)	Project Spec.					
5.6	Auxiliary equipment and control circuit tests						
5.7	Heating test						
5.8	Noise test						
5.9	Visual inspection EX-d Battery Protection Box And BMS (Battery Monitoring System) M-Sensors "if Applicable"						
5.10	Redundancy check 2x100% of each UPS	Project Spec.					
5.11	Functional check for Online battery circuit monitoring facilities	Project Spec.					
5.12	Operation and mechanical checks for all circuit breakers (MCCB, MCB, etc)	Project Spec.					
5.13	Functional checks of auxiliary circuits (heaters, redundant ventilation blowers, internal lighting, etc.).	Project Spec.					
5.14	Verification of name plate, Tag plate, identification, labeling, marking and ferruling	Project Spec.					
5.15	Checking of all outgoing feeders	Project Spec.					
5.16	Full load heat run test for 48 hours at 50% & 100% of full load rating of UPS system	Project Spec.					
5.17	Logic verification, scheme verification	Project Spec.					
5.18	Interface and communication test and check with PMS, DCS, etc. (including redundancy check)	Project Spec.					
5.19	Spare and space checks	Project Spec.					
5.20	Full battery charge and discharge test (curves to be recorded and submitted)	Project Spec.					
5.21	Full functional test as per COMPANY STD	Project Spec.					
5.22	Verification of I/O list hard wired	Project Spec.					

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-213 DC UPS (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
5.23	One-minute power frequency high voltage withstand (at 2kV)						
5.24	IR test before & after Power Frequency HV withstand test on Power, Control electronics, power electronics & auxiliary circuits						
5.25	Demonstration of supplying a minimum of 120 % of an estimated maximum load.						
5.26	Demonstration of metering, alarms, and indications	Project Spec. P.O. Description					
5.27	Demonstration of protections						
<b>6. Type Test &amp; Special Test</b>							
6.1	Type Test Certificates						
6.2	Tests and inspection for ATEX AND/OR IECEx certification "if applicable"	ATEX AND/OR IECEx					
<b>7. Preparation for Dispatch</b>							
7.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drawings/Do cuments, International Codes and standards					
7.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks						
7.3	Packing inspection and marking control of all goods, including spare parts						
7.4	Inspection Release Note issuance Verification of Punch list clearance						
7.5	Manufacturing Record Book						
<b>8. Reports &amp; Test Certificates</b>							
8.1	Vendor Data Report	Vendor Document Requirement List					
8.2	Raw Material Test Certificates						
8.3	WIN/UTC/CMMS data sheet (to be completed by vendor (wherever applicable))						
8.4	Vendor Data Books endorsement, and issue of release note by TPA						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-214 HV/MV Electric Motors

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<b>Scope</b> This list covers test and inspection requirements for HV/MV electric motors	Project Spec. P.O. Description					
1. 1	Vendor approval	COMPANY Pre-qualification					
2.	<b>Pre-production/Pre-inspection Meeting</b>	Project Spec. P.O. Description					
3.	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Prod. Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub orders	Prod. Plan					
3.4	Material test and certification	Project Spec. P.O. Description Codes, Stds					
3.5	FAT Procedure review						
4.	<b>Production &amp; Internal Testing</b>						
4.1	Material / component Traceability and Examination	Vendor Data Book					
4.2	Shaft forged rod heat analysis, mechanical properties and ultrasonic test	Project Spec.					
4.3	Drawn rotor bars heat analysis, brinell hardness and dimensional and form check	Project Spec. EN 12163					
4.4	Rotor balancing	Project Spec.					
4.5	Stator dielectric test -before coils connection -after coils connection -after impregnation	P.O. Description & Approved Drawings					
4.6	S/C ring forgings heat analysis, brinell hardness, electrical conductivity, liquid penetrant inspection, ultrasonic test and dimensional inspection	Project Spec.					
4.7	Sleeve bearings ultrasonic inspection of white metal adhesion and dimensional inspection	Project Spec.					
4.8	Sample coil test	Project Spec.					
4.9	Dielectric loss angle test on sample coil	Project Spec.					
4.10	Spray test						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-214 HV/MV Motors (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5. Routine Test</b>								
5.1	Winding, heater and thermo-resistor (cold) resistance test	Project Spec. P.O. Description						
5.2	Insulation resistance measurement (cold)	Project Spec.						
5.3	Axial play check	Drawing						
5.4	No-load test (saturation test) and direction of rotation	Project Spec.						
5.5	No-load vibration test	Project Spec. IEC 60034-14						
5.6	Short circuit test with locked rotor	Project Spec. IEEE 112						
5.7	Insulation resistance measurement before and after high voltage test	Project Spec. P.O. Description						
5.8	High voltage test (windings, heaters and built-in temperature detectors)	IEC 60034-1 IEC 60060-1						
5.9	Visual inspection	Project Spec.						
5.10	Functional test of PD coupler/detector (pulse phase analysis)	Project Spec. P.O. Description						
5.11	Functional check of instruments (Vibration probe, PT100 RTDs and space heater)	& Approved Drawings						
<b>6. Type Test &amp; Special Test</b>								
6.1	Type Test Certificates	Project Spec. IEC 60034						
6.2	Insulation resistance measurement before and after temperature rise test	Project Spec. IEEE 43 IEC 60204-1						
6.3	Temperature rise test with double frequency method (frame and bearings temperatures, winding resistance at warm)	Project Spec. IEC 60034-1 IEC 60034-29						
6.4	Starting torque/current test with locked rotor	Project Spec. IEEE 112.par.						
6.5	Shaft voltage test	Project Spec. IEEE112.par.						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-214 HV/MV Electric Motors (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>6. Type Test &amp; Special Test (Cont'd)</b>								
6.6	Polarization index	Project Spec. IEEE 43 par. 5.4						
6.7	Over speed test	Project Spec. IEC 60034-1 par. 9.7						
6.8	Torque characteristic (f) RPM	Project Spec. IEEE 112 par. 7.3.2.2						
6.9	Extrapolation of torque characteristic (f) RPM at 80% and 100% of rated voltage							
6.10	Inertia moment test	Project Spec. IEC 60034-2-2 par. 7.2.5.1						
6.11	No-load noise test at nominal frequency by octave band analysis	Project Spec. ISO 3744						
6.12	Bearing insulation test	Project Spec. IEEE 112 par.8.4						
6.13	Efficiency, current, slip and power factor calculation with segregation of losses method (100-75-50% of load	Project Spec. IEC 60034-2						
6.14	Tests and inspection for ATEX AND/OR IECEX certification "if applicable"	ATEX AND/OR IECEX						
<b>7. Preparation for Dispatch</b>								
7.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved procedures, Drawings						
7.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks							
7.3	Packing inspection and marking control of all goods, including spare parts							
7.4	Inspection Release Note issuance Verification of Punch list clearance							
7.5	Manufacturing Record Book							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

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<b>8. Reports &amp; Test Certificates</b>		Vendor Document Requirement List					
8.1	Vendor Data Report						
8.2	Raw Material Test Certificates						
8.3	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)						
8.4	Vendor Data Books endorsement, and issue of release note by TPA						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-215 LV Electric Motors

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVE	VENDOR INTERVENTION LEVE WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVE	COMPANY INTERVENTION LEVE
<b>1.</b>	<b>Scope</b> This list covers test and inspection requirements for LV electric motors	Project Spec. P.O. Description					
1. 1	Vendor approval	COMPANY Pre-qualification					
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>	Project Spec. P.O.					
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Prod. Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub orders	Prod. Plan					
3.4	Material test and certification	Project Spec. Codes, Stds					
3.5	FAT Procedure review						
<b>4.</b>	<b>Production &amp; Internal Testing</b>						
4.1	Material / component Traceability and Examination	Vendor Data Book					
4.2	Shaft: -turning and grinding the shaft -Ex measuring document/shaft settings or random sample measurements -Ex measuring document/shaft routine measurement						
4.3	Rotor: -manufacturing rotors -correcting the shaft and turning the rotor core -balancing rotor	Project Spec. P.O.					
4.4	Stator winding: -working instructions for winding -electrical intermediate measurements during production -measuring the resistance of accessories -testing the winding with surge inspection	Description & Approved Drawings					
4.5	Pressure test: -Routine pressure test of M3 Eexd- and Exde-components Chapter "5 pressure test" -quality control pressure test of cast iron components						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-215 LV Electric Motors (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5. Routine Test</b>							
5.1	Visual inspection	Project Spec. P.O. Description & Approved Drawings					
5.2	Withstand high voltage test						
5.3	Insulation resistance measurement on winding and heater						
5.4	Resistance measurement at the ambient temperature						
5.5	Surge comparison test						
5.6	Terminal markings and direction of rotation						
5.7	No load point at 50 Hz						
5.8	Locked rotor points at 50 Hz						
5.9	Vibration level test	Project Spec.					
<b>6. Type Test &amp; Special Test</b>							
6.1	Type Test Certificates	Project Spec.					
6.2	No load test						
6.3	Locked rotor test						
6.4	Temperature rise test	Project Spec.					
6.5	Efficiency determination	Project Spec.					
6.6	Overload test	Project Spec.					
6.7	Starting current and torque						
6.8	Torque – speed curve						
6.9	Partial loads						
6.10	Sound level test						
<b>7. Preparation for Dispatch</b>							
7.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drawings					
7.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-215 LV Electric Motors (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>7. Preparation for Dispatch (cont. 'd)</b>								
7.3	Packing inspection and marking control of all goods, including spare parts							
7.4	Inspection Release Note issuance Verification of Punch list clearance							
7.5	Manufacturing Record Book							
<b>8. Reports &amp; Test Certificates</b>								
8.1	Vendor Data Report	Vendor Document Requirement List						
8.2	Raw Material Test Certificates							
8.3	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)							
8.4	Vendor Data Books endorsement, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-216 Variable Speed Drives

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This list covers test and inspection requirements for VSD	Project Spec. P.O. Description					
1. 1	Vendor approval	COMPANY Pre- qualification					
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>	Project Spec. P.O.					
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Prod. Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub orders	Prod. Plan					
3.4	Material test and certification	Project Spec. Codes, Stds					
<b>4.</b>	<b>Production &amp; Internal Testing</b>						
4.1	Check of received material	Project Spec. P.O. Description & Approved Drawings/ Documents					
4.2	Dimensions check & Visual inspection						
4.3	Winding Marking with ferrules, crimping, tightness						
4.4	Final Painting colour and Tagging check						
4.5	Check of electrical components						
4.6	Mechanical construction						
4.7	Clearance + Creeping Distances						
<b>5.</b>	<b>Routine Test</b>						
5.1	Visual Check	Project Spec. P.O. Description & Approved Drawings/ Documents					
5.2	Check Degree of Protection						
5.3	Check Earthing of Cubicles and Components of Cubicles						
5.4	Check Marking of Components in Accordance with the Relevant Drawings						
5.5	Check Rating Plate						
5.6	Check Terminals and Wiring for Correct Marking and Diameters						
5.7	Wiring Test						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-216 Variable Speed Drives (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
5.8	Insulation Test	Project Spec. Approved procedures Drawings					
5.9	High Voltage Test						
5.10	Functional Test for Water Cooled VSD: - Hydraulic Test (with test field cooling unit) - Check Pressure Difference Between Converter-in-/output at Rated Flow Rate - Static Pressure Test	Project Spec. P.O. Description Applicable for Water Cooled					
5.11	Functional Test for Air and Water Cooled VSD: - check of APSM (AUX) (if applicable) - check of terminal module - check of motor modules in U/f Mode (without load) - check of CBM Braking Unit (if applicable) - check of LCM (if applicable) - check of ALM/BLM/SLM (if applicable) - generate routine test certificate	Project Spec. P.O. Description Applicable for Air and Water Cooled					
5.12	Functional Test for Air Cooled VSD: - starting up AOP/IOP - Loading Firmware - Check of ALM/BLM/SLM (if applicable) - Check of Power Modules in U/f Mode (without load)	Project Spec. P.O. Description Applicable for Air Cooled					
<b>6.</b>	<b>Type Test &amp; Special Test</b>						
6.1	Type Test Certificates						
6.2	Tests and inspection for ATEX AND/OR IECEX certification "if applicable"	ATEX AND/OR IECEX					
<b>7.</b>	<b>Preparation for Dispatch</b>						
7.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drawings					
7.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks						
7.3	Packing inspection and marking control of all goods, including spare parts						
7.4	Inspection Release Note issuance Verification of Punch list clearance						
7.5	Manufacturing Record Book						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-216 Variable Speed Drives (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>8.</b>	<b>Reports &amp; Test Certificates</b>							
8.1	Vendor Data Report	Vendor Document Requirement List						
8.2	Raw Material Test Certificates							
8.3	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)							
8.4	Vendor Data Books endorsement, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-217 Electrical Heat Tracing

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This list covers test and inspection requirements for Electrical Heat Tracing	Project Spec. P.O.					
1.1	Vendor approval	COMPANY Pre-qualification					
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>	Project Spec. P.O. Description					
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Prod. Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub orders	Prod. Plan					
3.4	Material test and certification	Project Spec. P.O. Description					
3.5	FAT Procedure review	Codes, Stds					
<b>4.</b>	<b>Production &amp; Internal Testing</b>						
4.1	Visual Inspection	Project Spec. P.O. Description & Approved Drawings/ Documents					
4.2	Dimensional Inspection of Package equipment like (Control Panels, Junction box ... etc.)						
4.3	Insulation Resistance Test for Heater Cable & for Package equipment like (Control Panels ... etc.)						
4.4	Dielectric Test for Heater Cable						
4.5	Resistance of Metallic Braid (Sheath conductivity)						
4.6	Thermal Output Test (Rated Output)						
4.7	Start-Up Current Test						
4.8	Maximum Sheath Temperature Test						
4.9	Thermal Stability Test						
4.10	Self-Regulating Index						
<b>5.</b>	<b>Type Test &amp; Special Test</b>						
5.1	Type Test Certificates						
5.2	Tests and inspection for ATEX AND/OR IECEX certification "if applicable"	ATEX AND/OR IECEX					

**Procurement Inspection and Certification Requirement in Projects – APPENDIX A**
**ITP-217 Electrical Heat Tracing (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>6. Preparation for Dispatch</b>								
6.1	Punch clearance inspection and Quality records review							
6.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks							
6.3	Packing inspection and marking control of all goods, including spare parts	Project Spec. P.O. Description & Approved Drawings						
6.4	Inspection Release Note issuance Verification of Punch list clearance							
6.5	Manufacturing Record Book							
<b>7. Reports &amp; Test Certificates</b>								
7.1	Vendor Data Report	Vendor Document Requirement List						
7.2	Raw Material Test Certificates							
7.3	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)							
7.4	Vendor Data Books endorsement, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-218 Navigational Aids

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<b>Scope</b> This list covers test and inspection requirements for audible and visible navigational aids	Project Spec. P.O. Description, IALA IEC & Other international Standards					
1.1	Vendor approval	COMPANY Pre-qualification					
2.	<b>Pre-production/Pre-inspection Meeting</b>						
3.	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Prod. Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub orders	Prod. Plan					
3.4	Material test and certification	Project Spec. P.O. Description Codes, Stds					
3.5	FAT Procedure review	Project Spec. P.O. Description Codes, Stds					
4.	<b>Production</b>						
4.1	Material / component Traceability and Examination	Vendor Data Book					
4.2	Mountings, orientation of installation & coverage	Project Spec.					
4.3	Power supply equipment	P.O.					
4.4	Terminals, Connectors, Cable glands & Enclosures	Description & Approved Drawings					
4.5	Hoisting facilities	Approved Drawings					
5.	<b>Examination</b>						
5.1	Visual Dimensional Check, verification of each equipment in compliance with the technical documentation	Project Spec. Approved Drawings					
5.2	Weather proofing, I.P (Ingress protection)	Project Spec. P.O. Description & Standards					
5.3	Painting Examination	Approved PRO					

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-218 Navigational Aids (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL.*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>6. Testing</b>								
6.1	PMI (Where applicable)	Project Spec. P.O. Description Codes & Std						
6.2	Insulation resistance tests, voltage tests, continuity of protective bonding circuit, protection against residual voltage, endurance test etc.	Project Spec. P.O. Description & Standards						
6.3	Routine tests							
6.4	Performance & full functional test							
6.5	Type and special test (where appropriate)							
6.6	Load Test (Where applicable)							
<b>7. Preparation for Dispatch</b>								
7.1	Marking, Tagging & Name plate	Project Spec. P.O. Description, Std.						
7.2	Protection for Shipment							
<b>8. Reports &amp; Test Certificates</b>								
8.1	Vendor Data Report							
8.2	Raw Material Test Certificates							
8.3	Hazardous area classification (ATEX AND/OR IECEx approved notified bodies.)	Project Spec. P.O. Description & Standards						
8.4	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)							
8.5	Vendor Data Books endorsement, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-219 Solar Power Systems

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This list covers test and inspection requirements for equipment/items related to Solar Power Systems	Project Spec. P.O. Description P.O. Spec.					
1.1	Vendor approval	COMPANY Pre-qualification					
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>	Project Spec. P.O. Description					
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Prod. Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub orders	Prod. Plan					
3.4	Material test and certification	Project Spec. Codes, Stds &					
3.5	FAT Procedure review						
<b>4.</b>	<b>Production</b>						
4.1	Material / component Traceability and Examination	Vendor Data Book					
4.2	Array module frame & array support structure						
4.3	Module JBs, isolators, CBs , Charge controller , interface box, distribution board, fittings and accessories	Project Spec. P.O. Description & Approved Drawings					
4.4	Battery and Battery boxes & including battery CB						
4.5	Hoisting, transportability and assembling facilities						
<b>5.</b>	<b>Examination</b>						
5.1	Visual Dimensional Check, earth and cable connections, locking facilities completeness of the name plates, labels & rating plates	Project Spec. P.O. Description & Approved Drawings					
5.2	Interchangeability and functional tests, insulation measurement and dielectric withstand test						
5.3	Measurement of SC current and open circuit voltage, verification of fault signaling circuit						
5.4	Temperature Rise test						
5.5	Painting Examination	/ Approved PRO					

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-219 Solar Power Systems (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>6. Testing</b>							
6.1	PMI (Where applicable)	Project Spec. P.O. Description Codes & Std					
6.2	Type tests (where appropriate)						
6.3	Full load soak test						
6.4	Full Functional Test & Factory Acceptance Test (FAT)	Project Spec. P.O. Description & Standards					
6.5	Special test (where appropriate)						
<b>7. Preparation for Dispatch</b>							
7.1	Marking, Tagging & Name plate	Project Spec. P.O. Description,					
7.2	Protection for Shipment						
<b>8. Reports &amp; Test Certificates</b>							
8.1	Vendor Data Report	VDRL					
8.2	Raw Material Test Certificates						
8.3	Hazardous area classification (ATEX AND/OR IECEx approved notified bodies.)	P.O. Spec. & Standards					
8.4	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)						
8.5	Vendor Data Books endorsement, and issue of release note by TPA						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### **ITP-220 Cathodic Protection System**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This List covers Inspection of Cathodic Protection System	P.O, Project Spec. Codes & Stds.						
1.1	Vendor approval	COMPANY PQ						
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>							
<b>3.</b>	<b>General - Preliminary work</b>							
3.1	Vendor's CP installation and commissioning schedule	Installation & commissioning Plan						
3.2	Vendor Q.P	QA Manual						
3.3	Status of sub orders	Prod. Plan						
3.4	Material test and certification							
3.5	Pre-Design Survey Procedure							
3.6	CP System detailed design and calculations	Project Spec. P.O. Description Codes, Stds						
3.7	FAT Procedure review							
3.8	Post Installation and Site Acceptance Test Procedure							
<b>4.</b>	<b>Installation, Pre-Commissioning Testing and Inspection of CP System</b>							
4.1	Material / Component Traceability and examination	Vendor Data Books						
4.2	Installation of CP on pipes, tanks, well casing							
4.3	Verify material correct and vendor data sheet where appropriate for installation							
4.4	Verify location of rectifier PDB test station associated equipment correct	Project Spec. P.O. Description & Approved Drawings						
4.5	Verify cable Route, Trench Size							
4.6	Installation of anode loops and reference electrodes							
4.7	Installation of rectifiers test stations, PDB and associated equipment.							
<b>5.</b>	<b>Verify Cables and cable terminations</b>							
5.1	Pin brazing							
5.2	Coating Repair							
5.3	Measure and record Soil resistivity	Project Spec. P.O. Description & Approved Drawings						
5.4	Electrical Bonding: Verify correct size bonding and continuity test							
5.5	Steel to Soil Potential							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-220 Cathodic Protection System (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5. Verify Cables and cable terminations (Cont'd)</b>								
5.6	Pre-Commissioning Testing and Inspection of CP System	Project Spec. P.O. Description Code & Stds						
5.7	Vendor Inspection Data Book endorsement, and Issue of Release Note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-221      GRP Cable Trays & Ladders

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This list covers Inspection and testing of GRP Cable Trays & Ladders	Project Spec. P.O. Description Code & Stds						
1.1	Vendor approval	COMPANY PQ						
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>	Project Spec. P.O. Description,						
<b>3.</b>	<b>General - Preliminary work</b>							
3.1	Data sheet	STD 107, Project specification						
3.2	Design/Drawing Approval	Project Spec. Construction Drawing						
3.3	Vendor Manufacturing Schedule	Prod. Plan						
3.4	Vendor QP	QA Manual						
3.5	Laminating procedures Approval and operator's qualification	Project spec. Codes/stds						
3.6	Status of sub orders	Prod. Plan						
3.7	Material and Test Certificates/Compliance	Project Spec. Codes/Stds. &						
3.8	FAT Procedure and manufacturer Technical specification review							
<b>4.</b>	<b>In process inspection (Visual/ Dimensional/workmanship)</b>							
4.1	Raw material inspection: Glass Reinforced Polyester -Class 1 Type <u>Flame Retardant and Non-Toxic Properties</u> Flame-spread index Oxygen index Flame rating Class 1	Project Spec. Batch Certificate						
4.2	Chemical resistance Test	Project Spec. ASTM C581						
4.3	Product sample test: -Minimum glass transition test (Tg)	ISO 6721						
4.4	Product sample test: Barcol hardness	Project Spec. ASTM D 2583						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-221 GRP Cable Trays & Ladders (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4. In process inspection (Visual/ Dimensional/workmanship) – (Cont'd)</b>							
4.5	Product sample test: Glass content UV, Chemical and Water Resistance Properties Flame retardant & non-toxic, Anti-Static Property Water absorption test	Project Spec. P.O. Description ISO 1172					
4.6	SWL Test using deflection meter						
<b>5. Final Inspection and Testing</b>							
5.1	Visual and dimensional inspection	Project Spec. Approved drawing and ASTM D 2563					
5.2	Product marking, identification check and Quantity check Check Trays / Ladders and Accessories Catalogue Number	Project Spec.					
<b>6. Preparation for Dispatch</b>							
6.1	Marking, Tagging & Name Plate	Project Spec. P.O. Description,					
6.2	Protection for Shipment						
<b>7. Reports &amp; Test Certificates</b>							
7.1	Vendor Data Report	Project Spec. Code & Standards					
7.2	Raw Material Test Certificates	Project Spec. P.O. Description,					
7.3	Vendor Data Books endorsement, and issue of release note by TPA						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-222 Electric Traction Lift

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This list covers Inspection and testing of Electric Traction Lift	Codes & Stds. Project Spec. P.O. Description					
1.1	Vendor approval	COMPANY PQ					
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>						
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Design/Model Approval	Project Spec. P.O. Description Manufacturer's Catalogue					
3.2	Vendor Manufacturing Schedule	Prod. Plan					
3.3	Vendor QP	QA Manual					
3.4	Status of sub orders	Prod. Plan					
3.5	Material and Test Certificates/Compliance	Project Spec. P.O. Description Codes, Stds. &					
3.6	FAT Procedure review						
<b>4.</b>	<b>Final inspection and Testing</b>						
4.1	Visual/dimensional check, electrical rating inspection and workmanship	Project Spec. P.O. Description , Codes & Std					
4.2	Overhead guard and Hydraulic cylinders inspection						
4.3	Master assembly: Check for crack weld, bent areas and missing stop						
4.4	Lift chains, rollers and Forks Tires examination						
4.5	Examine the battery						
4.6	Check the hydraulic fluid level						
4.7	Check the gauges, Hour meter and Battery discharge indicator						
4.8	Test the standard equipment: Steering, Brakes, Front, tail, brake lights, Horn						
4.9	Check the operation of load-handling attachments						
4.10	Test the front, tail, and brake lights						
4.11	Proof load and Safe working load testing						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-222 Electric Traction Lift (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL.*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5. Report &amp; Test Certificates</b>								
5.1	Load test certificates	Project Spec. P.O. Description , Codes & Std						
5.2	Vendor Data Reports	Code & Standards						
5.3	Raw Material Certificates							
5.4	Instruction Manual							
5.5	Vendor Inspection Data Book, Warranty certificate and Issue of Release Note by TPAA							
<b>6. Preparation for Dispatch</b>								
6.1	Marking, Tagging & Name Plate	Project Spec. P.O. Description						
6.2	Protection for Shipment							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-223 Pneumatic & Hydraulic Actuators

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This List covers Inspection of (A) Pneumatic Actuators. (B) Hydraulic Actuators.	Project Spec., Codes & Stds. P.O.					
1. 1	Vendor approval	COMPANY Pre- qualification					
<b>2.</b>	<b>Pre-production Meeting</b>						
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Data sheets and GA, Detailed drawings						
3.2	Vendor Manufacturing Schedule	Prod. Plan					
3.3	Vendor QP	QA Manual					
3.4	Status of sub orders	Prod. Plan					
3.5	Material and Test Certificates	Codes, Stds. & Project Specification					
3.6	Factory acceptance Test Procedure						
<b>4.</b>	<b>Production</b>						
4.1	Material / Component Traceability and examination	Vendor Data Books					
4.2	Base Frame, Yoke, Spring Cartridge, Actuator Construction (Whichever applicable)						
4.3	Electrical Components, Electronic control circuits, Valve position Indicators, Flange Pipe connections, Threaded pipe connections, Instrument Enclosures, Dynamic Actuator Seals, Pneumatic connections, Accessories	P.O. Spec & Approved Drawings					
4.4	Hoisting, Pulling, Transportability, Jacking Facility (If required)						
<b>5.</b>	<b>Examination</b>						
5.1	Visual Dimensional Check, Proper mounting, Completeness of name plates, rating and diagram plates etc.	P.O. Spec & Approved Drawings					
5.2	Painting Examination						
<b>6.</b>	<b>Testing</b>						
6.1	NDE (PMI, Ultra Sonic, Dye Penetrant) (As applicable)	Codes & Std					
6.2	Actuator Thrust/Torque Test	P.O. Spec , Code & Standards					
6.3	Functional Test						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

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### ITP-223 Pneumatic & Hydraulic Actuators (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL.*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>6. Testing (Cont'd)</b>								
6.4	Fugitive Emission Test							
6.5	Pressure Test (Hydro test & Seat Leakage Test)							
<b>7. Preparation for Dispatch</b>								
7.1	Marking, Tagging & Name Plate	P.O Spec.,						
7.2	Protection for Shipment							
	Inspection Release Note							
<b>8. Report &amp; Test Certificates</b>								
8.1	Vendor Data Reports	Vendor Document Requirements List						
8.2	Raw Material Certificates							
8.3	WIN/UTC/CMMS DATA Sheet (To be completed by Vendor wherever applicable)							
8.4	Vendor Inspection Data Book endorsement, and Issue of Release Note by TPAA							
8.5	SIL Certificate for ESDV & for the whole assembly (valve, actuator & accessories)							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-224 Motorized Actuators

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This list covers Inspection and testing of Motorized Actuators	Codes & Stds. P.O.					
1.1	Vendor approval	COMPANY PQ					
<b>2.</b>	<b>Pre-production Meeting</b>						
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Data sheet, Design/Drawing Approval	Design Data Sheet and Drawing					
3.2	Vendor Manufacturing Schedule	Prod. Plan					
3.3	Vendor QP	QA Manual					
3.4	Status of sub orders	Prod. Plan					
3.5	Material and Test Certificates/Compliance	Codes, Stds. &					
<b>4.</b>	<b>Production</b>						
4.1	Material / Component Traceability and examination	Vendor Data Sheet					
4.2	Wiring drawing verification	Approved Design Drawing					
4.3	Electrical component or device in explosive atmosphere	UL/FM/CSA/ ATEX AND/OR IECEX					
4.4	Actuator construction and enclosure compliance	NEMA 4X and IP65					
4.5	Electronic control circuit test	IEC 60255.22-3					
4.6	Actuator rated/peak/stall torque and opening/closing time	P.O. Spec & Approved Data Sheet					
4.7	Hand wheel, local control, control power supply, closing direction, all required inputs and outputs, operation of motor winding temperature detector, and operation position indication & LEDs.	P.O. Spec & Approved Design Drawing					
4.8	Manufacturer or external Gear Box Model No.	Approved Data Sheet					

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

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### ITP-224 Motorized Actuators (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL.*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5. Final inspection and Testing</b>							
5.1	PMI (Where applicable)	Codes & Std					
5.2	Functional Test	P.O. Spec , Code & Standards					
<b>6. Preparation for Dispatch</b>							
6.1	Marking, Tagging & Name Plate	P.O Spec., Std.&					
6.2	Protection for Shipment	P.O Spec.					
	Inspection Release Note						
<b>7. Report &amp; Test Certificates</b>							
7.1	Vendor Data Reports	Codes & Std					
7.2	Raw Material Certificates						
7.3	Instruction Manual						
7.4	Vendor Inspection Data Book, Issue of Release Note by TPAA						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-225 Analyzer System

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This list covers test and inspection requirement for Analyzer Package (Sample Connection System)	Project Spec. P.O. Description						
1.1	Vendor approval	COMPANY PQ						
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>	Project Spec. P.O. Description						
<b>3.</b>	<b>General - Preliminary work</b>							
3.1	Vendor fabrication schedule	Prod. Plan						
3.2	Vendor Q.P	QA Manual						
3.3	Status of sub orders	Prod. Plan						
3.4	Material test and certification	Project Spec. P.O. Description Codes, Stds &						
3.5	Welding Procedure Qualification & Welder Qualification							
3.6	NDT Procedure & NDT Personnel Qualification							
3.7	Leak Test Procedure							
3.8	FAT Procedure review							
3.9	Painting Procedure review							
3.10	PMI Procedure review							
<b>4.</b>	<b>Production &amp; Testing</b>							
4.1	Check of received material	Project Spec. Approved Drawings, Codes & Standards						
4.2	PMI							
4.3	WELDING	Approved WPS						
4.4	NDE	Project Spec. P.O. Description & Approved Documents						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-225 Analyzer System (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.</b>	<b>Production &amp; Testing (Cont.'d)</b>							
<b>4.5</b>	<b>Visual &amp; dimensional Check</b>							
4.5.1	Sample Connection System	Project Spec. P.O. Description & Approved Documents & Std.						
4.5.2	Name Plate							
4.6	Leak Test							
4.7	FAT							
4.8	Painting Check							
4.8.1	Visual Check	Project Spec. P.O. Description & Approved Documents & Std.						
4.8.2	Coating Thickness							
<b>5.</b>	<b>Preparation for Dispatch</b>							
5.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
5.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks							
5.3	Packing inspection and marking control of all goods, including spare parts							
5.4	Inspection Release Note Issuance Verification of Punch list clearance							
5.5	Manufacturing Record Book							
<b>6.</b>	<b>Report &amp; Test Certificates</b>							
6.1	Vendor Data Reports	Vendor Document Requirement List						
6.2	Raw Material Test Certificates							
6.3	WIN/UTC/CMMS data sheet (to be completed by vendor (Wherever Applicable)							
6.4	Vendor Inspection Data Book endorsement, and Issue of Release Note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-226 Distribution Panel Board

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This list covers test and inspection requirement for Distribution Panel Board	Project Spec. P.O. Description					
1.1	Vendor approval	COMPANY PQ					
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>	Project Spec. P.O. Description					
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Prod. Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub orders	Prod. Plan					
3.4	Material test and certification	Project Spec. P.O. Description Codes, Stds &					
3.5	Manufacturing Drawings						
3.6	Packing & Preservation Procedure						
3.7	Painting Procedure						
3.8	Inspection and Test Procedure						
3.9	FAT Procedure						
<b>4.</b>	<b>Production, Inspection &amp; Testing</b>						
4.1	Check of received material	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards					
4.2	Dimensions of Boards						
4.3	Size & Rating of Components						
4.4	Texts & Sizes of Nameplates						
4.5	Qty & Size of Cable Entries						
4.6	Operation Physical Test						
4.7	Temperature rise test						
4.8	Check Wiring						
4.9	Phase, earthing & continuity tests						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-226 Distribution Panel Board (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4. Production, Inspection &amp; Testing (Cont'd)</b>								
4.10	Insulation test (or impulse Test)							
4.11	Dielectric Test							
4.12	Functional Electrical Test with electrical component check							
4.13	EC declaration of conformity							
4.14	Hazardous conformity certificates							
<b>5. Preparation for Dispatch</b>								
5.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
5.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks							
5.3	Packing inspection and marking control of all goods, including spare parts							
5.4	Inspection Release Note Issuance Verification of Punch list clearance							
5.5	Manufacturing Record Book							
<b>6. Report &amp; Test Certificates</b>								
6.1	Vendor Data Reports	Vendor Document Requirement List						
6.2	WIN/UTC/CMMS data sheet (to be completed by vendor (Wherever Applicable))							
6.3	Vendor Inspection Data Book endorsement, and Issue of Release Note by TPAA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-227 Flow meter

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This list covers test and inspection requirement for Flowmeter	Project Spec. P.O. Description					
1.1	Vendor approval	COMPANY PQ					
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>  Key Design Documents shall be submitted and approved by COMPANY/Contractor prior to Pre-production Meeting	Project Spec. P.O. Description					
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Prod. Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub orders	Prod. Plan					
3.4	Material test and certification	Project Spec. P.O. Description Codes, Stds					
3.5	Welding Procedure Qualification & Welder Qualification where applicable						
3.6	NDT Procedure & NDT Personnel Qualification where applicable						
3.7	Inspection & Test Procedure review	Project Spec. P.O. Description Codes, Stds.					
3.8	Painting Procedure review						
3.9	PMI Procedure review						
<b>4.</b>	<b>Production, Inspection &amp; Testing</b>						
4.1	Check of received /purchased material	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards Approved WPS					
4.2	PMI						
4.3	WELDING where applicable						
4.4	NDE where applicable						
4.5	Pressure Test						
4.6	Dimensional Inspection						
4.7	Meter Proving (Function Test) (if required)						
4.8	Review the Calibration Certificate						
4.9	Visual Inspection (Assembly)						
4.10	Painting Inspection						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-227 Flowmeter (Cont.'d)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5.</b>	<b>Preparation for Dispatch</b>						
5.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards					
5.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks						
5.3	Packing inspection and marking control of all goods, including spare parts						
5.4	Inspection Release Note Issuance Verification of Punch list clearance						
5.5	Manufacturing Record Book						
<b>6.</b>	<b>Report &amp; Test Certificates</b>						
6.1	Vendor Data Reports	Vendor Document Requirement List (VDRList)					
6.2	Raw Material Test Certificates						
6.3	WIN/UTC/CMMS data sheet (to be completed by vendor (Wherever Applicable)						
6.4	Vendor Inspection Data Book endorsement, and Issue of Release Note by TPAA						
6.5	Calibration Test Certificate						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-228      Instrument Tubing (SMLS Tube)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b>  1. This list covers test and inspection requirement for Instrument Tubing (SMLS Tube)	Project Spec. P.O. Description						
1.1	Vendor approval	COMPANY PQ						
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>	Project Spec. P.O. Description						
<b>3.</b>	<b>General - Preliminary work</b>							
3.1	Vendor fabrication schedule	Prod. Plan						
3.2	Vendor Q.P	QA Manual						
3.3	Status of sub orders	Prod. Plan						
3.4	Material test and certification	Project Spec. P.O. Description Codes / Stds,						
3.5	Packing & Preservation Procedure							
3.6	Non-Destructive Examination (NDE) Procedures	Project Spec. P.O. Description Codes, Stds.						
3.7	PMI Procedure							
3.8	Inspection and Test Procedure							
<b>4.</b>	<b>Production, Inspection &amp; Testing</b>							
<b>4.1</b>	<b>Material Test</b>							
4.1.1	Mechanical							
4.1.2	chemical							
4.1.3	hardness test							
<b>4.2</b>								
4.3	Eddy Current Test							
4.4	Hydro test							
4.5	PMI Inspection							
4.6	Visual & Dimensional Inspection							
4.7	Marking							
4.8	Final Inspection							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-228 Instrument Tubing (SMLS Tube) (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5. Preparation for Dispatch</b>								
5.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
5.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks							
5.3	Packing inspection and marking control of all goods, including spare parts							
5.4	Inspection Release Note Issuance Verification of Punch list clearance							
5.5	Manufacturing Record Book							
<b>6. Report &amp; Test Certificates</b>								
6.1	Vendor Data Reports	Vendor Document Requirement List						
6.2	WIN/UTC/CMMS data sheet (to be completed by vendor (Wherever Applicable)							
6.3	Vendor Inspection Data Book endorsement, and Issue of Release Note by TPAA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-229      Level Transmitter

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This list covers test and inspection requirement for Level Transmitter	Project Spec. P.O. Description					
1. 1	Vendor approval	COMPANY Pre- qualification					
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>	Project Spec. P.O. Description,					
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Prod. Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub orders	Prod. Plan					
3.4	Material test and certification	Project Spec. P.O. Description Codes, Stds &					
3.5	Welding Procedure Qualification & Welder Qualification						
3.6	NDT Procedure & NDT Personnel Qualification						
3.7	Inspection & Test Procedure	Project Spec. P.O. Description Codes, Stds.					
3.8	Preservation Procedure						
3.9	Painting Procedure review						
3.10	PMI Procedure review						
3.11	Shipping & Handling Procedure						
<b>4.</b>	<b>Production, Inspection &amp; Testing</b>						
4.1	Check of received /purchased material						
4.2	Visual / Dimension Inspection	Project Spec. P.O. Description					
4.3	Functional test	& Approved Drawings/ Documents,					
4.4	Pressure Test	International Codes & Standards					
4.5	PMI						

**Procurement Inspection and Certification Requirement in Projects – APPENDIX A**
**ITP-229      Level Transmitter (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4. Production, Inspection &amp; Testing (Cont'd)</b>								
4.6	Welding (where applicable)	Approved WPS						
4.7	NDE	Project Spec. P.O.						
4.8	Final inspection & review of all documents including all certificate & report	Description & Approved Documents						
<b>5. Preparation for Dispatch</b>								
5.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
5.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks							
5.3	Packing inspection and marking control of all goods, including spare parts							
5.4	Inspection Release Note Issuance Verification of Punch list clearance							
5.5	Manufacturing Record Book							
<b>6. Report &amp; Test Certificates</b>								
6.1	Vendor Data Reports	Vendor Document Requirement List						
6.2	Raw Material Test Certificates							
6.3	WIN/UTC/CMMS data sheet (to be completed by vendor (Wherever Applicable)							
6.4	Vendor Inspection Data Book endorsement, and Issue of Release Note by TPAA							
6.5	Calibration Test Certificate							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-230      Telecom System (LAN / WAN System)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b>  This list covers test and inspection requirement for Telecom System (LAN / WAN System)	Project Spec. P.O. Description						
1.1	Vendor approval	COMPANY Pre-qualification						
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>  Key Design Documents shall be submitted and approved by COMPANY/Contractor prior to Pre-production Meeting	Project Spec. P.O. Description						
<b>3.</b>	<b>General - Preliminary work</b>							
3.1	Vendor fabrication schedule	Prod. Plan						
3.2	Vendor Q.P	QA Manual						
3.3	Status of sub orders	Prod. Plan						
3.4	Material test and certification	Project Spec. P.O. Description Codes, Stds &						
3.5	Manufacturing Drawings							
3.6	Packing & Preservation Procedure							
3.7	Painting & Coating Procedure							
3.8	Inspection and Test Procedure							
3.9	FAT & IFAT Procedure							
<b>4.</b>	<b>Production, Inspection &amp; Testing</b>							
4.1	Check of received material	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP–230 Telecom System (LAN / WAN System) (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.2</b>	<b>PRE-FAT Inspection (Internal)</b>							
4.2.1	Visual and Functional Inspection (internal)							
4.2.1.1	Cabinets	Project Spec. P.O. Description & Approved Drawings						
4.2.1.2	Equipment	Codes & Standards						
4.2.1.3	Tagging							
4.2.1.4	Functional test							
<b>4.3</b>	<b>Factory Acceptance Testing</b>							
4.3.1	Verify Calibration of test equipment	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
<b>4.3.2</b>	<b>Visual and Dimensional Inspection</b>							
4.3.2.1	Cabinets	Project Spec. Approved Drawings/ Documents, International Codes & Standards						
4.3.2.2	Equipment							
4.3.2.3	Tagging							
<b>4.3.3</b>	<b>FAT - Main System</b>							
4.3.3.1	Equipment Assembly	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
4.3.3.2	Power supply/ Electrical test							
4.3.3.3	Functional test							
<b>4.3.4</b>	<b>Integrated Factory Acceptance Test</b>							
4.3.4.1	IFAT							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP–230 Telecom System (LAN / WAN System) (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5.</b>	<b>Preparation for Dispatch</b>							
5.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
5.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks							
5.3	Packing inspection and marking control of all goods, including spare parts							
5.4	Inspection Release Note Issuance Verification of Punch list clearance							
5.5	Manufacturing Record Book							
<b>6.</b>	<b>Report &amp; Test Certificates</b>							
6.1	Vendor Data Reports	Vendor Document Requirement List						
6.2	WIN/UTC/CMMS data sheet (to be completed by vendor (Wherever Applicable))							
6.3	Vendor Inspection Data Book endorsement, and Issue of Release Note by TPAA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-231 Wellhead Control Panels

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b>  This list covers test and inspection requirement for Wellhead control panels	Project Spec. P.O. Description					
1.1	Vendor approval	COMPANY Pre-qualification					
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>	Project Spec. P.O. Description,					
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Prod. Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub orders	Prod. Plan					
3.4	Material test and certification including ATEX AND/OR IECEX & IP Certification where applicable	Project Spec. P.O. Description Codes, Stds &					
3.5	Welding Procedure Qualification & Welder Qualification where applicable						
3.6	NDT Procedure & NDT Personnel Qualification where applicable						
3.7	Inspection & Test Procedure review						
3.8	Painting Procedure review						
3.9	PMI Procedure review						
3.10	Drawings						
3.11	Factory Acceptance Test Procedure						
3.12	Site Acceptance Test Procedure						
3.13	Commissioning Procedure						
3.14	Pressure Testing Procedure						
3.15	Leak Testing Procedure						
3.16	Flushing of hydraulic equipment Procedure						
<b>4.</b>	<b>Production, Inspection &amp; Testing</b>						
4.1	Check of received /purchased material	Project Spec. P.O. Description					

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP–231 Wellhead Control Panels (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL	
<b>4. Production, Inspection &amp; Testing (Cont'd)</b>									
<b>4.2 WHP Inspection from Sub-vendor</b>									
4.2.1	Dimensional check	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards							
4.2.2	Welding checks	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards							
4.2.3	Painting checks & Inspection								
4.2.3.1	Surface Check before Painting	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards							
4.2.3.2	Salt contamination tests								
4.2.3.3	Dry Film Thickness test								
4.2.3.4	Visual Inspection of coating								
4.2.3.5	Coating adhesion tests								
4.2.3.6	Coating curing tests								
<b>4.3 Panel assembly</b>									
<b>4.3.1 Well Control Module Assembly Inspection</b>									
4.3.1.1	Dimensional Check	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards							
4.3.1.2	Component check								
4.3.1.3	Mechanical check								
4.3.1.4	Electrical check								
4.3.1.5	Flushing of Hydraulic System								
4.3.1.6	Leak test								
4.3.1.7	Pressure Test								
<b>4.3.2 ESD Module Assembly Inspection</b>									
4.3.2.1	Dimensional Check	Project Spec. P.O. Description & Approved Drawings, procedures Codes & Standards							
4.3.2.2	Component check								
4.3.2.3	Electrical check								

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP–231 Wellhead Control Panels (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4. Production, Inspection &amp; Testing (Cont'd)</b>								
<b>4.3.3</b>	Installation of Electrical and Instrumentation accessories	Project Spec. Approved Drawings, procedures Codes & Standards						
<b>4.3.4 Internal Inspection of WHCP</b>								
4.3.4.1	Visual & Dimensional Check	Project Spec. Approved Drawings/ Documents, International Codes & Standards						
4.3.4.2	Conformance to Schematic & GA drawings							
4.3.4.3	Component Tag and nameplate checks							
4.3.4.4	Equipment Installation Inspection							
4.3.4.5	E&I assembly checks Cable Testing & Inspection Correct Glands Installed							
4.3.4.6	Junction Box Inspection Termination as per drawing Correct Glands Installed Earthing as per requirements							
4.3.4.7	Flushing of Hydraulic System							
4.3.4.8	Leak Test							
4.3.4.9	Pressure Test							
<b>4.3.5 Final Functional Testing (FAT &amp; Loose Equipment Supply Inspection)</b>								
4.3.5.1	Factory Acceptance Test	Project Spec. & Approved Drawings/ procedures Codes & Stds						
4.3.5.2	Punch List Clearance							
4.3.5.3	Inspection of Loose Supply Items & BOM verification							
<b>5. Preparation for Dispatch</b>								
5.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
5.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks							
5.3	Packing inspection and marking control of all goods, including spare parts							
5.4	Inspection Release Note Issuance Verification of Punch list clearance							
5.5	Manufacturing Record Book							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-231 Wellhead Control Panels (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>6. Report &amp; Test Certificates</b>								
6.1	Vendor Data Reports	Vendor Document Requirement List						
6.2	Raw Material Test Certificates							
6.3	WIN/UTC/CMMS data sheet (to be completed by vendor (Wherever Applicable)							
6.4	Vendor Inspection Data Book endorsement, and Issue of Release Note by TPAA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-232 LV Diesel Driven Alternators

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This List covers Inspection of LV diesel Driven Alternator	Codes & Stds. P.O.					
1.1	Vendor approval	COMPANY PQ					
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>						
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Vendor Manufacturing Schedule	Prod. Plan					
3.2	Vendor QP	QA Manual					
3.3	Status of sub orders	Prod. Plan					
3.4	Material and Test Certificates	Project spec. Codes, Stds.					
3.5	FAT Procedure review						
<b>4.</b>	<b>Production</b>						
4.1	Material / Component Traceability and examination	Vendor Data Books					
4.2	Base Frame and Core Construction						
4.3	Voltage Regulator, Control Panel, Main Circuit Breaker, Battery and Battery Charger, Space Heaters and other ancillaries	P.O. Spec & Approved Drawings					
4.4	Mounting						
4.5	Hoisting, Pulling, Transportability, Jacking Facility						
<b>5.</b>	<b>Examination</b>						
5.1	Visual Dimensional Check, earth connections, proper terminal marking, completeness of name plates, rating and diagram plates	P.O. Spec & Approved Drawings					
5.2	Painting Examination						
<b>6.</b>	<b>Testing</b>						
6.1	PMI (Where applicable)	Codes & Std					
6.2	Standard Shop Test						
6.3	Performance Test	Spec , Code & Standards					
6.4	Over speed Trip Test						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP–232 LV Diesel Driven Alternators (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>6. Testing (Cont'd)</b>								
6.5	Engine Starting Test	Spec , Code & Standards						
6.6	Generator Alarm and Shut Down Test							
6.7	Generator circuit Breaker Test							
6.8	Load Test (Where applicable)							
<b>7. Preparation for Dispatch</b>								
7.1	Marking, Tagging & Name Plate	P.O Spec., Std. &						
7.2	Protection for Shipment							
7.3	Inspection Release Note (IRN)							
<b>8. Report &amp; Test Certificates</b>								
8.1	Vendor Data Reports	Vendor Document Requirement List						
8.2	Raw Material Certificates							
8.3	WIN/UTC/CMMS DATA Sheet (To be completed by Vendor wherever applicable)							
8.4	Vendor Inspection Data Book endorsement, and Issue of Release Note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-233 MAC DCS, ESD & F&G Systems

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This list covers test and inspection requirement for MAC DCS, ESD & F&G Systems	Project Spec. P.O. Description					
1.1	Vendor approval	COMPANY PQ					
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>	Project Spec. P.O. Description					
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Prod. Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub orders	Prod. Plan					
3.4	Material test and certification	Project Spec. Codes, Stds &					
3.5	Manufacturing Drawings						
3.6	Packing & preservation Procedure						
3.7	Non-Destructive Examination (NDE) Procedures where applicable	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards					
3.8	Weld Procedures Specification and Qualification Records where applicable						
3.9	Surface preparation and Painting Procedure						
3.10	Inspection and Test Procedure						
3.11	FAT Procedure						
3.12	Integration Procedures						
<b>4.</b>	<b>Production, Inspection &amp; Testing</b>						
<b>4.1</b>	<b>DCS In-Process Inspection</b>						
4.1.1	Visual and Dimensional Check of Cabinets including Cabinet painting	Project Spec. P.O. Description & Approved Drgs, procedures, Codes & Strds					
4.1.2	Verification of Internal Components for Model No/Type within the Cabinets.						
4.1.3	Cabinets Internal Wiring Size / Color/ Type Check (Including Continuity & Isolation)						
4.1.4	Check of easy accessibility and removal of Individual components						
4.1.5	Check of terminal strips functional separation.						
4.1.6	Check of wiring separation for various level voltage steps						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-233 MAC DCS, ESD & F&G Systems (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.</b>	<b>Production, Inspection &amp; Testing (Cont'd)</b>							
<b>4.1</b>	<b>DCS In-Process Inspection (Cont'd)</b>							
4.1.7	Check of filling of wire ducts	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
4.1.8	Visual Check for the future expansion							
4.1.9	Cabinet Internal Grounding Circuit Check							
4.1.10	Check of Internal Components labeling							
4.1.11	Check of Internal Wire Marking							
4.1.12	Check of Hardware assembly and Internal Wiring Workmanship							
<b>4.2</b>	<b>ICSS Prototype Hardware Inspection and Testing</b>							
4.2.1	Internal Prototype Test	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
4.2.2	Visual Inspection of ICSS System Cabinets including internal components, labeling & Painting							
4.2.3	Visual Inspection of ICSS Marshalling Cabinets & Server, Network Cabinets including internal components, labeling & Painting							
4.2.4	Visual Inspection of ICSS Marshalling Cabinets wiring check							
4.2.5	Visual Inspection of ICSS System & Marshalling Cabinets Spares check							
4.2.6	Visual Inspection of ICSS System & Marshalling Cabinets earthing check							
4.2.7	Visual Inspection of ICSS System & Marshalling Cabinets Alarm check							
<b>4.3</b>	<b>DCS Final Inspection and Testing</b>							
4.3.1	Review of Pre-Factory Acceptance Test Records (Pre-FAT)	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
4.3.2	System Readiness Review and Overall System Configuration Check							
4.3.3	Visual Inspection of DCS System Cabinets including internal components, labeling & Painting							
4.3.4	Visual Inspection of DCS Marshalling Cabinets & Server, Network Cabinets including internal components, labeling & Painting							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP–233 MAC DCS, ESD & F&G Systems (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.</b>	<b>Production, Inspection &amp; Testing (Cont'd)</b>							
<b>4.3</b>	<b>DCS Final Inspection and Testing (Cont'd)</b>							
4.3.5	Visual Inspection of Consoles including internal components, labeling & Painting	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
4.3.6	Visual Inspection of HIS and Printers including labeling							
4.3.7	DCS Bill Of Material Checks (Including spares)							
4.3.8	System Startup Check							
4.3.9	CPU Redundancy Check							
4.3.10	Communication Redundancy Check							
4.3.11	Power Supply Module Redundancy Checks							
4.3.12	System Hardware Check. On-line removal and insertion under powered condition							
4.3.13	Redundancy of I/O Modules Check							
4.3.14	DCS- System loading and Resource Check							
4.3.15	Printer Functional Check							
4.3.16	Application Check-Graphics Windows Check							
4.3.17	Application Check-Overview Windows Check							
4.3.18	Application Check - Tuning Windows Check							
4.3.19	Application Check - Trend Group Windows Check							
4.3.20	Application Check - Log Report Functional Check with time stamp							
4.3.21	Application Check- Historical Messages Report Check							
4.3.22	Application/ Logic Check for Field Control Station							
4.3.23	Functional Test of Fieldbus Configuration Check							
4.3.24	Functional Test of Fieldbus Components (only for Sample Components)							
4.3.25	Functional Test of – Fieldbus Loop Check Functions							
4.3.26	Functional Test of Fieldbus System- Alarms & Messages Check. (for sample device)							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP–233 MAC DCS, ESD & F&G Systems (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.</b>	<b>Production, Inspection &amp; Testing (Cont'd)</b>							
<b>4.3</b>	<b>DCS Final Inspection and Testing (Cont'd)</b>							
4.3.27	DCS System – Loop Checking	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
4.3.28	DCS System – Spare I/O check							
4.3.29	Screen Refresh rate check							
4.3.30	Scan time Check							
4.3.31	Bulk power supply redundancy check							
4.3.32	Check of logics/ graphics (Including Change of Status) on consoles/HMI							
4.3.33	Typical FF devices function check							
4.3.34	Power UP / Power DOWN tests							
4.3.35	Visual inspection of Control room furniture							
4.3.36	Review of Hardware certificates							
4.3.37	Review of Software licenses							
<b>4.4</b>	<b>ESD In-Process Inspection</b>							
4.4.1	Visual and Dimensional Check of Cabinets including Cabinet painting	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
4.4.2	Verification of Internal Components for Model No/Type within the Cabinets							
4.4.3	Cabinets Internal Wiring size/Color/Type Check (including continuity & isolation)							
4.4.4	Check of easy accessibility and removal of Individual components							
4.4.5	Check of terminal strips functional separation							
4.4.6	Check of wiring separation for various level voltages							
4.4.7	Check of filling of wire ducts							
4.4.8	Visual Check for the future spare/ expansion							
4.4.9	Cabinet Internal Grounding Circuit Check							
4.4.10	Check of Internal Components labeling							
4.4.11	Check of Internal Wire Marking							
4.4.12	Check of Hardware assembly and Internal Wiring Workmanship							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-233 MAC DCS, ESD & F&G Systems (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.5</b>	<b>ESD Final Inspection and Testing</b>						
4.5.1	Review of Pre-FAT Records	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards					
4.5.2	System Readiness Review and Overall System Configuration Check.						
4.5.3	Visual Inspection of ESD System Cabinets including internal components & labeling						
4.5.4	Visual Inspection of ESD Marshalling Cabinets internal components & labeling						
4.5.5	Nest Loading and I/O Assignments check.						
4.5.6	Bill of Material Checks including spares						
4.5.7	System Startup Check						
4.5.8	ESD CPU Redundancy Check.	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards					
4.5.9	Communication Redundancy Check						
4.5.10	Power Supply Module Redundancy Checks.						
4.5.11	System Hardware Check. On-line removal and insertion under powered condition.						
4.5.12	SOE Functionality Check with timestamp.						
4.5.13	Redundancy of I/O Modules Check.						
4.5.14	ESD - System CPU loading Check.						
4.5.15	Safety Control Station Application Check.						
4.5.16	ESD Cabinets – Wiring Check including wire markers Check.						
4.5.17	ESD Cabinets – Loop Checking.						
4.5.18	ESD System-Spare I/O Checks						
4.5.19	System Monitoring Check.						
4.5.20	Alarm Summary						
4.5.21	Historical Message Report						
4.5.22	Operator Station Functional Check						
4.5.23	ESD – Bulk power supply redundancy check						
4.5.24	Check of logics/ graphics (Including Change of Status) on consoles/ HMI.						
4.5.25	Power UP / Power DOWN tests						

**Procurement Inspection and Certification Requirement in Projects – APPENDIX A**
**ITP-233 MAC DCS, ESD & F&G Systems (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.</b>	<b>Production, Inspection &amp; Testing (Cont'd)</b>							
<b>4.5</b>	<b>ESD Final Inspection and Testing (Cont'd)</b>							
4.5.26	Diagnostic functions check							
4.5.27	ESD cause and effect / logic check							
4.5.28	Review of Hardware certificates							
4.5.29	Review of software licenses							
4.5.30	Integration of ESD signal with DCS check							
4.5.31	ESD interlock check							
4.5.32	ESD Functional check							
<b>4.6</b>	<b>F&amp;G In-Process Inspection</b>							
4.6.1	Visual and Dimensional Check of Cabinets including Cabinet painting	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
4.6.2	Verification of Internal Components for Model No/Type within the Cabinets							
4.6.3	Cabinets Internal Wiring size/Color/Type Check (including continuity & isolation)							
4.6.4	Check of easy accessibility and removal of Individual components							
4.6.5	Check of terminal strips functional separation							
4.6.6	Check of wiring separation for various level voltages							
4.6.7	Check of filling of wire ducts							
4.6.8	Visual Check for the future spare/ expansion							
4.6.9	Cabinet Internal Grounding Circuit Check							
4.6.10	Check of Internal Components labeling							
4.6.11	Check of Internal Wire Marking							
4.6.12	Check of Hardware assembly and Internal Wiring Workmanship							
<b>4.7</b>	<b>F&amp;G Final Inspection and Testing</b>							
4.7.1	Review of Pre-FAT Records	Project Spec. Approved Drawings/ procedures Codes & Stds						
4.7.2	System Readiness Review and Overall System Configuration Check.							
4.7.3	Visual Inspection of F&G System Cabinets including internal components & labeling							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP–233 MAC DCS, ESD & F&G Systems (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.0</b>	<b>Production, Inspection &amp; Testing (Cont'd)</b>						
<b>4.7</b>	<b>F&amp;G Final Inspection and Testing (Cont'd)</b>						
4.7.4	Visual Inspection of F&G Marshalling Cabinets internal components & labeling	Project Spec. P.O. Description & Approved Drawings, procedures, Codes & Standards					
4.7.5	Nest Loading and I/O Assignments check.						
4.7.6	Bill of Material Checks including spares						
4.7.7	System Startup Check						
4.7.8	F&G CPU Redundancy Check.						
4.7.9	Communication Redundancy Check						
4.7.10	Power Supply Module Redundancy Checks.						
4.7.11	System Hardware Check. On-line removal and insertion under powered condition.						
4.7.12	SOE Functionality Check with timestamp.						
4.7.14	Redundancy of I/O Modules Check.						
4.7.15	F&G - System CPU loading Check.						
4.7.16	Safety Control Station Application Check.						
4.7.17	F&G Cabinets – Wiring Check including wire markers Check.						
4.7.18	F&G Cabinets – Loop Checking.						
4.7.19	F&G System-Spare I/O Checks						
4.7.20	System Monitoring Check.						
4.7.21	Alarm Summary						
4.7.22	Historical Message Report						
4.7.23	Operator Station Functional Check						
4.7.24	F&G – Bulk power supply redundancy check						
4.7.25	Check of logics/ graphics (Including Change of Status) on consoles/ HMI.						
4.7.26	Power UP / Power DOWN tests						
4.7.27	Diagnostic functions check						
4.7.28	F&G cause and effect / logic check						
4.7.29	Review of Hardware certificates						
4.7.30	Review of software licenses						
4.7.31	Integration of F&G signal with DCS check						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP–233 MAC DCS, ESD & F&G Systems (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.0</b>	<b>Production, Inspection &amp; Testing (Cont'd)</b>							
<b>4.7</b>	<b>F&amp;G Final Inspection and Testing (Cont'd)</b>							
4.7.32	Integration of F&G signal with ESD check							
4.7.33	F&G interlock check							
4.7.34	F&G Functional check							
<b>4.8</b>	<b>Integration Test between DCS &amp; Subsystems</b>							
<b>5.</b>	<b>Preparation for Dispatch</b>							
5.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
5.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks							
5.3	Packing inspection and marking control of all goods, including spare parts							
5.4	Inspection Release Note Issuance Verification of Punch list clearance							
5.5	Manufacturing Record Book							
<b>6.</b>	<b>Report &amp; Test Certificates</b>							
6.1	Vendor Data Reports	Vendor Document Requirement List						
6.2	WIN/UTC/CMMS data sheet (to be completed by vendor (Wherever Applicable)							
6.3	Vendor Inspection Data Book endorsement, and Issue of Release Note by TPA							
6.4	SIL Certificate for the safety systems (ESD/F&G)							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-234      Remote Telemetry Unit (RTU)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This list covers test and inspection requirement for RTU	Project Spec. P.O. Description					
1.1	Vendor approval	COMPANY PQ					
<b>2.</b>	<b>Pre-production Meeting</b>						
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Prod. Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub orders	Prod. Plan					
3.4	Vendor Documentation	Project Specification Codes & Stds					
3.5	Material test and certification						
<b>4.</b>	<b>Production</b>						
4.1	Material / component Traceability and Examination	Vendor Data Book					
4.2	Fabrication control Panel, and cabinet arrangement						
4.3	Final Visual and Dimensional inspection						
4.4	NDT (UT, MPI, RT – If Applicable)	P.O. Spec. & Approved Drawings					
4.5	PMI (If applicable)						
4.6	ASSMEBY -RTU						
<b>5.</b>	<b>Examination &amp; FAT</b>						
5.1	Interconnection and Wiring Diagram arrangement including Signals segregation, Tagging / Ferruling, Wires and Cable Characteristics and Color						
5.2	Verification of Equipment and Component Tags						
5.3	Internal component arrangement, JB installation, cable glanding, and termination	P.O. Spec. & Approved Drawing					
5.4	Verification of IO via the HMI and SCADA Software, Integrated Test of Database, Tag Assignments and Addressing of Input/output Signals						
5.5	Verification of spare requirements						
5.6	CPU Health & Redundancy Tests, IO Module Failure Test						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-234      Remote Telemetry Unit (RTU) (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5. Examination &amp; FAT (Cont'd)</b>							
5.7	Visual Dimensional and cabinet arrangement check						
5.8	Check of Mechanical Protection (IP rating and Hazardous area certification)						
5.9	Operation and maintenance accessibility checks	P.O. Spec. & Approved Drawing / Procedure					
5.10	Functional tests						
5.11	Heat Soak Test						
5.12	Fiber optic communication test (If applicable)						
5.13	Grounding Circuit Check						
5.14	Painting Examination	/ Approved PRO					
5.15	Marking / Name Plate	P.O Spec., Std. &					
5.16	Closure of Punch points						
5.17	Preservation, Packing and shipping	P.O. Spec. & Approved Drawing					
5.18	Vendor Data Book endorsement, and Issue of Release Note by TPIA						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-235 Control and Instrumentation Cables

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<b>Scope</b> This list covers test and inspection requirements for Control and Instrumentation Cables	Project Spec. P.O. Description						
1.1	Vendor approval	COMPANY PQ						
2.	<b>Pre-production/Pre-inspection Meeting</b>							
3.	<b>General - Preliminary work</b>							
3.1	Vendor Manufacturing schedule	Prod. Plan						
3.2	Vendor Q.P	QA Manual						
3.3	Status of sub orders	Prod. Plan						
3.4	Material test and certification	Project Spec. P.O. Description Codes, Stds &						
3.5	FAT Procedure review							
4.	<b>Production</b>							
4.1	Material / component Traceability and Examination	Vendor Data Book						
4.2	Sealing and Drumming	Project Spec. P.O. Description & Standards						
4.3	Laying up of conductors, insulation, armor, screening and inner & outer sheathing	Project Spec. P.O. Description, std. &						
4.4	Inner and outer sheathing identification / color coding	Approved Drawings						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP–235 Control and Instrumentation Cables (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.</b>	<b>Production (Cont'd)</b>						
4.5	Hoisting, transportability, pulling facilities of drums	Project Spec. P.O. Description & Stds & Approved Drawings					
<b>5.</b>	<b>Examination</b>						
5.1	Visual Check, Checking of proper identification of drums, completeness of quantities, sizes and voltage grades.	Project Spec. P.O. Description & Approved Drawings					
5.2	Conductor and armor resistance, measurement of insulation thickness	Project Spec. P.O. Description &					
5.3	Insulation resistance and voltage test						
5.4	Dimensional checks						
<b>6.</b>	<b>Testing</b>						
6.1	Type tests (where appropriate)	Project Spec. P.O. Description &					
6.2	Routine tests						
6.3	Special tests (where appropriate)	Project Spec. P.O. Description					
<b>7.</b>	<b>Preparation for Dispatch</b>						
7.1	Marking, Tagging & Name plate	Project Spec. P.O. Description, Std.					
7.2	Protection for Shipment						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

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### ITP-235 Control and Instrumentation Cables (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>7.</b>	<b>Preparation for Dispatch</b>						
7.1	Marking, Tagging & Name plate	Project Spec. P.O. Description, Std.&					
7.2	Protection for Shipment	Project Spec. P.O. Description, Std.&					
<b>8.</b>	<b>Reports &amp; Test Certificates</b>						
8.1	Vendor Data Report	Vendor Document Requirements List					
8.2	Raw Material Test Certificates						
8.3	Vendor Data Books endorsement, and issue of Release Note by TPA						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-236 Control Valves

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<b>Scope</b> This list covers test and inspection requirement of control valves (at vendor premises only). Nevertheless (if required), the test and inspection requirements of Pneumatic and Hydraulic Actuators are covered by ITP-213. And ITP-214 for Motorized Actuators	Project Spec., P.O. Description BS 5793					
1.1	Vendor approval status	COMPANY Pre-qualification					
2.	<b>Pre-production/Pre-inspection Meeting</b>						
3.	<b>General - Preliminary work</b>						
3.1	Data sheet	Project specification					
3.2	COMPANY Material Specification Sheet. (If applicable)	Ref. Drawing					
3.3	Vendor's Fabrication Schedule	Production Plan					
3.4	Vendor QA Plan	QA Manual					
3.5	Status of sub-orders	Production Plan					
3.6	Material test and certification	Codes, Std &					
3.7	Welding Procedure Qualification (WPS & PQR) and Welders Qualification	Project Spec., P.O. Description Design Codes & Std					
3.8	NDE Procedures						
3.9	Hydrostatic and low-pressure pneumatic test procedure						
3.10	PMI procedure						
3.11	FAT Procedure						
3.12	Surface preparation and Painting procedure, including PQT and production test panel	Project specification					
4.	<b>Production</b>						
4.1	Material Traceability and chemical analysis, mechanical properties, of: Body, Bonnet, Trim /plug,	Vendor Data Book					
4.2	Body & Bonnet	Standard					
4.3	Trim / Plug	Standard					

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-236 Control Valves (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
4.4	Heat Treatments	Project Spec., P.O.					
4.5	Gasket surface						
4.6	Flanges, Bolting, Gasket Packing, etc.	Project Spec., P.O. Description					
4.7	Actuators (if required), the test and inspection requirements of Pneumatic and Hydraulic Actuators are covered by ITP-213. And ITP-214 for Motorized Actuators., operators & control pressure fittings.	Project Spec., P.O. Description					
<b>5.</b>	<b>Examination</b>						
5.1	Visual and Dimensional Check	Project Spec.,					
5.2	PMI (Where applicable)	Codes & Std					
<b>6.</b>	<b>Testing</b>						
6.1	NDE (PMI, Ultrasonic, Dye Penetrant ... etc) (As applicable)	Project Spec., P.O. Description Codes & Std.					
6.2	Hydrostatic Test (Body & Seat including low pressure air test)	Project Spec., P.O. Description BS 5793					
6.3	Hardness Test including those on RTJ grooves						
6.4	Fugitive Emission Test Prototype						
6.5	Fugitive Emission test on Production						
6.6	Ferrite Check on SS 316L overlay						
6.7	Hysteresis & Dead band						
6.8	Functional Test (stroke, linearity)						
6.9	Load Test (Where applicable)	Approved Procedure,					

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-236 Control Valves (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
7.	<b>Preparation for Dispatch</b>							
7.1	Surface Preparation and painting, Final DFT and colour code							
7.2	Marking / Name Plate & Tagging, marking Flow direction and actuator orientation	Project Spec./P.O. Description &						
7.3	Preparation for Shipment and Packing, preservation and storage	Project specificatio n						
7.4	CONTRACTOR Inspection Release Note (IRN)	Project specificatio n						
8.	<b>Reports &amp; Test Certificates &amp; Vendor Data Books</b>							
8.1	Vendor Data Report							
8.2	Raw Material Test Certificates							
8.3	WIN / UTC / CMMS DATA Sheet (To Be Completed by Vendor Wherever Applicable)							
8.4	Vendor Data Books approval, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-237 AC Power Generators

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<b>Scope</b> This list covers test and inspection requirements for alternators driven by either gas turbines or diesel engines.	Project Spec. P.O. Description IEC 60034					
1.1	Sub-contractor / Vendor approval status	COMPANY PQ					
2.	<b>Pre-production/Pre-inspection Meeting</b>						
3.	<b>General - Preliminary work</b>						
3.1	Data sheet and drawings						
3.2	Vendor production schedule	Prod. Plan					
3.3	Vendor Q.P	QA Manual					
3.4	Status of sub orders	Prod. Plan					
3.5	Material test and certification	Project Spec. P.O. Description					
3.6	Standard shop test procedures	Codes, Stds &					
3.7	Factory Acceptance test procedures						
4.	<b>Production</b>						
4.1	Material / component Traceability and Examination	Vendor Data Book					
4.2	Mounting, bearings, lubrication, Stator frame, rotor, fan & coupling						
4.3	Excitation system						
4.4	Windings, Terminals, Connectors, Cable glands, Enclosures, Ventilation / Cooling & Heating equipment	Project Spec. P.O. Description & Approved Drawings					
4.5	Automatic Voltage Regulator						
4.6	Instruments & Protective devices						
4.7	Hoisting facilities						
5.	<b>Examination</b>						
5.1	Visual Dimensional Check, earth connections, proper terminal markings, completeness of the labels, rating & name plates	Project Spec. P.O. Description & Approved Drawings					
5.2	Weather Proofing, I.P (ingress protection)						
5.3	Painting Examination	and procedure					

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP–237 AC Power Generators (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>6. Testing</b>								
6.1	PMI (Where applicable)	Codes & Std						
6.2	Dynamic balancing of rotor, Inter-turn electrical insulation & Hydro testing of air / water coolers	Project Spec. P.O. Description , & Standards						
6.3	Standard Tests							
6.4	Performance and complete tests including routine tests							
6.5	Abbreviated and special tests (where appropriate)							
6.6	Load Test (Where applicable)	Approved PRO						
<b>7. Preparation for Dispatch</b>								
7.1	Marking, Tagging & Name plate	Project Spec. P.O. Description , Std.						
7.2	Protection for Shipment, preservation and storage							
7.3	Inspection Release Note (IRN)							
<b>8. Reports &amp; Test Certificates</b>								
8.1	Vendor Data Report							
8.2	Raw Material Test Certificates							
8.3	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor Wherever Applicable)							
8.4	Vendor Data Books approval and, issue of release notes by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-238      Machine Monitoring System

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b>  This list covers test and inspection requirements for Machine Monitoring System.	Project Spec. P.O. Description					
1.1	Vendor approval	COMPANY Pre-qualification					
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>  Key Design Documents shall be submitted and approved by COMPANY/Contractor prior to Pre-production Meeting	Project Spec. P.O. Description, Standards,					
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Prod. Plan					
3.2	Vendor Q. P	QA Manual					
3.3	Status of sub orders if any	Prod. Plan					
3.4	Material test and certification	Project Spec.					
3.5	Inspection & Test Procedure						
3.6	Drawings where applicable						
3.7	Packing & Preservation Procedure						
3.8	FAT, IFAT Procedure review						
<b>4.</b>	<b>Production, Inspection &amp; Testing</b>						
<b>4.1</b>	<b>In-Process Inspection</b>						
4.1.1	Material Verification	Project Spec. P.O. Description & Approved Drgs/ Documents, International Codes & Stds.					
4.1.2	Visual Inspection						
4.1.3	Dimensional Check						
4.1.4	Component Check						
4.1.5	Check wiring specifications						
4.1.6	Check of wiring separation						
4.1.7	Ventilation system check						
4.1.8	Circuit Breakers Check						
4.1.9	Grounding Circuit Check						
4.1.10	Nameplates, labels, & ferrules check						

**Procurement Inspection and Certification Requirement in Projects – APPENDIX A**
**ITP-238 Machine Monitoring System (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.2 Pre-FAT (after building the cabinet)</b>							
4.2.1	Visual Inspection	P.O. Description approved Project Spec., procedures, Drgs, Intl. Codes & stds					
4.2.2	Power Up Test						
4.2.3	Signal Simulation Test for 3500 & System1						
4.2.4	Pre-FAT Punch list review & close out						
<b>4.3 Factory Acceptance Test FAT</b>							
4.3.1	Visual Inspection	P.O. Description Approved Project Spec., procedures Drgs International Codes & stds					
4.3.2	Power Up Test						
4.3.3	Signal Simulation Test for 3500 & System1						
4.3.4	Bill of Material Verification						
4.3.5	Decision Support & Bently Performance - Configuration Verification						
4.3.6	FAT Punch list review & Close Out						
4.3.7	IFAT						
<b>5. Preparation for Dispatch</b>							
5.1	Punch clearance inspection and Quality records review	P.O. Description Project Spec.					
5.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks	Approved Drgs International Codes & Stds					
5.3	Packing inspection and marking control of all goods, including spare parts						
5.4	Inspection Release Note issuance Verification of Punch list clearance						
5.5	Manufacturing Record Book						
<b>6. Reports &amp; Test Certificates</b>							
6.1	Vendor Data Report	VDRL					
6.2	Raw Material Test Certificates						
6.3	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor (Wherever Applicable))	& DST-003 Part 1					
6.4	Vendor Data Books endorsement, and issue of release note by TPA						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-239 HVAC Control System

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b>  This list covers test and inspection requirements for HVAC Control System.	Project Spec. P.O. Description					
1.1	Vendor approval	COMPANY Pre-qualification					
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>	Project Spec. P.O. Description, Standards,					
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Prod. Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub orders if any	Prod. Plan					
3.4	Material test and certification						
3.5	Manufacturing Drawings						
3.6	Packing & preservation Procedure						
3.7	Non-Destructive Examination (NDE) Procedures where applicable						
3.8	Weld Procedures Specification and Qualification Records where applicable						
3.9	Surface preparation, Painting/Coating Procedure						
3.10	Inspection and Test Procedure						
3.11	FAT Procedure						
<b>4.</b>	<b>Production, Inspection &amp; Testing</b>						
<b>4.1</b>	<b>Receiving / Procured material inspection</b>						
4.1.1	PLC cabinets	P.O. Description approved Project Spec. procedures, Drgs, codes & stds					
4.1.2	HMI, Software package with media & license.						
4.1.3	Field Devices						
4.1.4	BMS System						
4.1.5	Other procured/received material, equipment						
4.2	Review and correlation of certificates						

**Procurement Inspection and Certification Requirement in Projects – APPENDIX A**
**ITP–239 HVAC Control System (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.3 In-process Inspection/Pre-FAT</b>								
4.3.1. 1	Dimension Check	Project Spec. P.O. Description & Approved Drgs/ Documents, International Codes & Stds.						
4.3.1. 2	Panel Painting, color & thickness	Project Spec. procedures, Drgs, Codes & Stds.						
<b>4.3.2 Power Connection Check</b>								
4.3.2. 1	Incomer power supply check	Project Spec. procedures, Drgs, Codes & Stds.						
4.3.2. 2	Output Terminals Voltage check.	Project Spec. procedures, Drgs, Codes & Stds.						
4.3.2. 3	Redundancy Check	Project Spec. procedures, Drgs, Codes & Stds.						
<b>4.3.3 Components with wiring check</b>								
4.3.3. 1	Components part numbers	Project Spec. procedures, Drgs, Codes & Stds.						
4.3.3. 2	wires & cable checks-size, type & ferruling	Project Spec. procedures, Drgs, Codes & Stds.						
<b>4.4 FAT</b>								
4.4.1	Check final assembly of the panel	P.O. Description, approved Project Spec. procedures, Drgs, Codes & Stds.						
4.4.2	Check cable terminations							
4.4.3	Name plate detail check							
4.4.4	Continuity test of control and power Cables							
4.4.5	Field Devices							
4.4.6	Module configuration check							
4.4.7	IO check							
4.4.8	Operation sequence check							
4.4.9	System and graphics check							
4.4.10	Communication check							
4.4.11	Loop check for I/Os up to HMI							
4.2.12	Operation sequence as per scheme							

**Procurement Inspection and Certification Requirement in Projects – APPENDIX A**
**ITP-239 HVAC Control System (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5.</b>	<b>Preparation for Dispatch</b>							
5.1	Punch clearance inspection and Quality records review							
5.2	Visual and dimensional checks, component Marking, serial number, tag number and Name Plate checks	P.O. Description approved Project Spec. procedures , Drgs, Codes & Stds						
5.3	Packing inspection and marking control of all goods, including spare parts							
5.4	Inspection Release Note issuance Verification of Punch list clearance							
5.5	Manufacturing Record Book							
5.6	Inspection Release Note (IRN)							
<b>6.</b>	<b>Reports &amp; Test Certificates</b>							
6.1	Vendor Data Report	VDRL						
6.2	WIN / UTC / CMMS DATA Sheet (To Be Completed By Vendor (Wherever Applicable))							
6.3	Vendor Data Books endorsement, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-240      Temporary Refuge Room

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<b>Scope</b> This list covers test and inspection requirements for Temporary Refuge Room.	Project Spec. P.O. Description					
1.1	Vendor approval	COMPANY Pre-qualification					
2.	<b>Pre-production Meeting</b>						
3.	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Prod. Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub orders (if any)	Prod. Plan					
3.4	Material test and certification	Codes, standards &					
4.	<b>Production</b>						
4.1	Material / component Traceability and Examination (Including Tags and Labels)	Vendor Data Book					
4.2	Shop prefabricated steel structural work	AWS D1.1					
4.3	Shop prefabricated pipe work	ANSI B31.3					
4.4	Instrument installation, pressure gauge, Transmitter, Temperature gauge. etc.						
4.5	PSV installation						
4.6	Battery/UPS installation, electrical tests shall on the UPS/ DB: - Conformity checks - Insulation resistance test - Load Duration test - Heat run and temperature rise test - Earth continuity test - Polarity and continuity checks - Operational checks of MCCB, MCB, meters, etc. - Operation of earth fault monitors	P.O. project Spec., approved procedures, Standards Drawings					
4.7	Control Panel, MCT and JB installation etc.						
4.8	Lighting Installation						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-240 Temporary Refuge Room (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4. Production (cont'd)</b>							
4.9	Fire and Gas Detector/Devises Installation						
4.10	PAGA system Installation						
4.11	Telecom Installation						
4.12	Instrument and Electrical Cables & Cable Trays Installation						
4.13	HVAC Installation						
<b>5. Examination</b>							
5.1	Factory acceptance Test (for UPS/Battery, Control Panel, HVAC system, Rotating equipment)	P.O Spec. & Approved Drawings					
5.2	Painting Examination	/ App. PRO					
5.3	Closure of Punch points	P.O. Spec. & App. Drawing					
	Inspection Release Note (IRN)						
<b>6. Preparation for Dispatch</b>							
6.1	Marking, Tagging & Name plate	P.O Spec., Std.&					
6.2	Load Test of Container	P.O. Spec. & Approved Drawing					
6.3	Preservation, Packing and shipping	P.O. Spec. & Approved Drawing					
6.4	Vendor Data Book endorsement, and Issue of Release Note by TPIA	P.O. Spec. & Approved Drawing					

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-301 Line Pipe

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This list covers test and inspection requirements for Line pipes	Project Spec. P.O. Description					
1.1	Vendor approval	COMPANY Pre-qualification					
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>						
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Vendor Manufacturing schedule	Prod. Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub orders	Prod. Plan					
3.4	Review & Approval of MPS, QC-Plan, Test Procedures and NDT operator qualification	Project Spec. P.O. Description Codes, Stds &					
<b>4.</b>	<b>Production</b>						
4.1	MPQT	Vendor Data Book					
4.2	Steel making, slab making, heat analysis, slab condition check, reheating	Project Spec. P.O. Description & Standards					
4.3	Plate rolling, Plate Stack Cooling, plate marking ,test sampling, inspection of plate	Project Spec. P.O. Description, std. &					
4.4	UST, plate receiving identification	Approved Drawings					

**Procurement Inspection and Certification Requirement in Projects – APPENDIX A**
**ITP-301 Line Pipe (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.</b>	<b>Production (Cont'd)</b>						
4.5	Pipe forming ,internal and external welding	Project Spec. P.O. Description & Stds & Approved Drawings					
<b>5.</b>	<b>Examination</b>						
5.1	NDI & Visual Inspection for Mill Control Purpose	Project Spec. P.O. Description & Approved Drawings					
<b>6.</b>	<b>Testing</b>						
6.1	Hydrostatic Testing	Project Spec. P.O. Description					
6.2	Auto UST of Welded Seam						
6.3	Radiographic Inspection of Pipe Ends	Project Spec.					
	Manual UST of Indication Detected by Auto UST						
	Auto UST and MPI of Pipe Ends						
	Final VDE						
	Production Mechanical Test						
<b>7.</b>	<b>Preparation for Dispatch</b>						
7.1	Marking and End Protection	Project Spec. P.O. Description,					
7.2	Protection for Shipment	Std.					

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-301 Line Pipe (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>8.</b>	<b>Reports &amp; Test Certificates</b>							
8.1	Vendor Data Report/documentation	Vendor Document Requirements List						
8.3	Vendor Data Books endorsement, and issue of Release Note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-302 Hot Induction Bend

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This list covers test and inspection requirement for Hot Induction Bend	Project Spec. P.O. Description					
1.1	Vendor approval	COMPANY PQ					
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>	Project Spec. P.O. Description,					
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Data sheet						
3.2	Vendor fabrication schedule	Prod. Plan					
3.3	Vendor Q.P	QA Manual					
3.4	Status of sub orders	Prod. Plan					
3.5	Material test and certification	Project Spec.					
3.6	All related procedures						
3.7	NDT Procedure & NDT Personnel Qualification						
3.8	Hydrostatic Test Procedure						
3.9	Manufacturing Drawings						
3.10	Manufacturing Procedure specification including MPQT and Corrosion tests	Project Spec. P.O. Description Codes & Std					
3.11	Heat Treatment Procedure						
3.12	Weldability Test Procedure						
3.13	Hardness Test Procedure						
3.14	Painting Procedure review						
<b>4.</b>	<b>Production, Inspection &amp; Testing</b>						
<b>4.1</b>	<b>Receipt inspection of Pipes</b>						
4.1.1	Verification of Mill Certificates and Tally Sheets	Project Spec. approved Drawings/ procedures, Codes & Standards					
4.1.2	Verification of Traceability Markings						
4.1.3	Inspection of physical Condition/packing,						
4.1.4	Visual and Dimensional Checks,						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-302 Hot Induction Bend (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.2</b>	<b>Qualification Bend Forming Activity Cooling: air and water quenching during the hot induction bending for only bend portion</b>							
4.2.1	Heat Treatment Stress Relieving of full length (seamless) qualification bends	Project Spec. Approved Drawings, procedures Codes & Standards						
4.2.2	Heat Treatment of Q&T R Welded Pipes qualification bends	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards						
4.2.3	Hydraulic Test							
4.2.4	Visual and Dimensional							
4.2.5	Wall Thickness by UT							
4.2.6	Gauging Pig Dimensional Check							
4.2.7	Gauging PIG Test							
4.2.8	MPI bend body Ends and WELD							
4.2.9	Residual Magnetism							
4.2.10	Ultrasonic Test on bend ends and longitudinal weld							
4.2.11	Weldability, Capsis and additional tests on mother							
4.2.12	Sampling Tests (tangent, transition area, extrados, intrados, weld)							
4.2.13	Mechanical Tests & Corrosion Tests							
4.2.14	Simulation test cycle on MPQT Prior to additional Mechanical Tests (only for Min Wall Thick >31.8 mm)							
<b>4.3</b>	<b>Production Hot Induction Bends</b>							
4.3.1	quenching during the hot induction bends for only bend portion							
4.3.2	Heat Treatment of Stress-Relieving for seamless Bends							
4.3.3	Heat Treatment							
4.3.4	Hydraulic Test on all production bends							
4.3.5	Visual and Dimensional (100% Bends)							
4.3.6	Wall Thickness on bend W by UT							
4.3.7	Gauging PIG Test (100% Bends)							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-302 Hot Induction Bend (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.3 Production Hot Induction Bends</b>							
4.3.8	M.P.I bend body and ends seam weld and ends (100% bends)						
4.3.9	Ultrasonic Test on bend ends and longitudinal weld						
4.3.10	Residual Magnetism (100% Bends)						
4.3.11	Surface External Hardness (HB)						
4.3.12	Pipe Ends Visual and Dimensional						
<b>5.0 Preparation for Dispatch</b>							
5.1	Punch clearance inspection and Quality records review	Project Spec. P.O. Description & Approved Drawings/ Documents, International Codes & Standards					
5.2	Visual and dimensional checks, component Marking, checks						
5.3	Packing inspection and marking control of all goods						
5.4	Inspection Release Note (IRN)						
5.4	Manufacturing Record Book						
<b>6.0 Reports &amp; Test Certificates</b>							
6.1	Vendor Data Reports	Vendor Document Requirement List					
6.2	Raw Material Test Certificates						
6.3	WIN/UTC/CMMS data sheet (to be completed by vendor (Wherever Applicable)						
6.4	Vendor Inspection Data Book endorsement, and Issue of Release Note by TPA						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-303 Barred Tee

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This list covers test and inspection requirement for Hot Induction Bend	Project Spec. P.O. Description						
1.1	Vendor approval	COMPANY PQ						
<b>2.</b>	<b>Pre-production/Pre-inspection Meeting</b>	Project Spec. P.O. Description,						
<b>3.</b>	<b>General - Preliminary work</b>							
3.1	Data sheet							
3.2	Vendor fabrication schedule	Prod. Plan						
3.3	Vendor Q.P	QA Manual						
3.4	Status of sub orders	Prod. Plan						
3.5	Material test and certification	Project Spec.						
3.6	Welding procedures /WPQR							
3.7	NDT Procedure & NDT Personnel Qualification							
3.8	Hydrostatic Test Procedure							
3.9	Manufacturing Drawings							
3.10	Manufacturing Procedure specification including MPQT and Corrosion tests	Project Spec. P.O. Description Codes & Std						
3.11	Heat Treatment Procedure							
3.12	Hardness Test Procedure							
3.13	Painting Procedure review							
<b>4.</b>	<b>Production, Inspection &amp; Testing</b>							
<b>4.1</b>	<b>Receipt inspection of Pipes/ Plate for guide bar</b>							
4.1.1	Verification of Mill Certificates and Raw material cutting	Project Spec. approved Drawings/ procedures, Codes & Standards						
4.1.2	Verification of Traceability Markings							
4.1.3	Inspection of physical Condition/packing,							
4.1.4	Visual and Dimensional Checks,							
4.2.1	hot forming							
4.2.2	Heat Treatment of Q&T including test ring							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-303 Barred Tee (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>4.2</b>	<b>Hot forming and heat treatment</b>							
<b>4.3</b>	<b>Welding</b>							
4.3.1	Welding guide bars							
<b>4.4</b>	<b>Final heat treatment</b>							
4.4.1	Final heat treatment stress relieving including test ring							
<b>4.5</b>	<b>Testing and examination</b>							
4.5.1	Surface hardness test							
4.5.2	sampling for mechanical test on prolongation test ring							
4.5.3	Mechanical test ( tensile, Charpy V notch impact ) on tee and test ring							
4.5.4	Metallographic examination on Tee and test ring							
4.5.5	Hardness test through thickness on tee and test ring							
4.5.6	Product analysis							
4.5.7	Mech test only on Tee and guide bar							
4.5.8	HIC test and SSCC test							
4.5.9	Hydrotest							
4.5.10	End bevel							
4.5.11	Review of NDT operator qualification							
4.5.12	100% Ultrasonic Test on tee body and beveled end bend ends and longitudinal weld							
4.5.13	100% MPI on tee body and beveled end bend ends, fillet welds of bars							
4.5.14	Residual magnetism							
4.5.15	Visual and Dimensional (100% Tee) including pigging gauging test for Tee							
4.5.16	Surface External Hardness (HB)							
<b>5.0</b>	<b>Preparation for Dispatch</b>							
5.1	Punch clearance inspection and Quality records review	Project Spec. Approved Drawings/ Documents,						

**Procurement Inspection and Certification Requirement in Projects – APPENDIX A**
**ITP-303 Barred Tee (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
5.2	External painting							
5.3	Marking checks							
5.4	Packing inspection and marking control of all goods							
5.5	Inspection Release Note (IRN)							
5.6	Manufacturing Record Book							
<b>6.0 Reports &amp; Test Certificates</b>								
6.1	Vendor Data Reports	Vendor Document Requirement List						
6.2	Raw Material Test Certificates							
6.3	WIN/UTC/CMMS data sheet (to be completed by vendor (Wherever Applicable)							
6.4	Vendor Inspection Data Book endorsement, and Issue of Release Note by TPAA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-401 Cranes Jib & Overhead

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This list covers test and inspection requirement of Jib & Overhead cranes.	P.O. Spec & Standards					
1.1	Vendor approval	COMPANY PQ					
<b>2.</b>	<b>Pre-production Meeting</b>						
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Prod. Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub orders	Prod. Plan					
3.4	Material test and certification	Codes, Std &					
3.5	Welding Procedure	Design codes, Stds & Drawings					
3.6	List of qualified welders						
3.7	Shop Test procedure						
<b>4.</b>	<b>Production</b>						
4.1	Material Traceability and Examination	Vendor Data Book					
4.2	Fit-up, Size & Root run For Main members	Design codes, Specification & Assembly drawing					
4.3	Production Welding	Approved Drawings					
4.4	Assembly of moving component						
4.5	Hooks & Hoist wire system	P.O Spec & Std.					
4.6	Hydraulic & Electrical system						
4.7	Personnel safety measure & limiting devices	P.O Spec & Drawing					
4.8	Instruments	P.O Spec.					
<b>5.</b>	<b>Examination</b>						
5.1	Visual Dimensional Check	P.O Spec & Drawing					
5.2	Non-Destructive Examination	Codes & Std					
5.3	Painting Examination						
5.4	Noise level measurement	Proj. Spec. & Std					

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-401 Cranes Jib & Overhead (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>6. Testing (FAT)</b>								
6.1	Static performance test	Standards						
6.2	Dynamic performance test	Standard						
6.3	Protection devices	P.O Spec. & Std.						
6.4	Emergency operations	P.O Spec. & Std.						
<b>7. Preparation for Dispatch</b>								
7.1	Marking & name plate stamping / SWL indication	P.O Spec., Std.&						
7.2	Protection for Shipment	P.O Spec., Std.&						
<b>8. Report &amp; Test Certificates</b>								
8.1	Vendor Data Report	Vendor Document Requirement List						
8.2	Raw Material Test Certificates							
8.3	Lifting items, e.g. ropes, hooks, shackles, pulley blocks, ...etc.	PO SPEC. & STD						
8.4	WIN / UTC / CMMS Data Sheet (to be Completed by Vendor wherever applicable)							
8.5	Vendor Data Books endorsement, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-501      Marine Hoses

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b> This list covers the inspection and test requirements for rubber reinforced, smooth-bore, suction and discharge submarine and floating hoses which are commonly used in offshore mooring installations.	OCIMF ASTM A105					
1. 1	Vendor approval	COMPANY Pre-qualification					
<b>2.</b>	<b>Pre-production Meeting</b>						
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Production Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub-orders	Production Plan					
3.4	Material test and certification	P.O Spec. Codes, Std &					
3.5	Approval of drawings	Design codes, Standards					
3.6	Approval of test procedures						
3.7	Welding Procedure Specification (WPS&PQR) including Inconel 625 overlay						
3.8	Welder qualification						
3.9	NDE Procedure	ASME V & Standards					
<b>4.</b>	<b>Production</b>						
4.1	Material Traceability and Examination Fittings: Visual, RT, MPI, PT reports Proof Load Test Report Compound: Traceability and, Mix and Test rubber batched, record mix and parameters, every batch Rheometer test	Vendor Data Book					
4.2	Welding of Fittings and Flanges	WPS and Assembly drawing OCIMF, procedures					
4.3	Hose manufacture: Hose body, Wire helices & rubber reinforced textile body						
<b>5.</b>	<b>Examination</b>						
5.1	Visual, Dimensional Check	OCIMF Std & Approved Drawings					
5.2	Non-Destructive Examination						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-501 Marine Hoses (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>6. Testing</b>							
6.1	Type / Prototype test-if specified by Order	OCIMF Std. & Procedure					
6.2	Bend Test or Flexibility Test (MBR and stiffness)						
6.3	Hydro test & elongation check.						
6.4	Adhesion test (on representative sample)						
6.5	Kerosene Test (if order specifies)						
6.6	Electrical Test						
6.7	Vacuum Test						
6.8	Proof Load Test (Where applicable)		Approved Procedure,				
6.9	Calculate Buoyancy						
6.10	Oil resistance test Floating Hydrostatic Test						
<b>7. Preparation for Dispatch</b>							
7.1	Marking (Ref: Clause-7 of OCIMF)	P.O Spec., Std.					
7.2	Ends Protection						
7.3	Packing / Palletizing & Preservation For shipping.	P.O Spec., Std					
7.4	Supplier Certificate of Conformity						
7.5	Inspection Release Note (IRN)						
<b>8. Report &amp; Test Certificates</b>							
8.1	Vendor Data Report						
8.2	Raw Material Test Certificates						
8.3	WIN / UTC / CMMS Data Sheet (to be Completed by Vendor wherever applicable)						
8.4	Vendor Data Books endorsement, and issue of release note by TPA						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-502 Mooring Buoys and PLEM

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABLE**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b>  This list covers the inspection and test requirements for Mooring Buoys and PLEM.	P.O Spec. OCIMF					
1.1	Vendor approval	COMPANY PQ					
<b>2.</b>	<b>Pre-production Meeting</b>						
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Prod. Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub-orders	Prod. Plan					
3.4	Material test and certification Piping components SS, DSS and CRA shall conform to ITP-122	P.O Spec. Codes, Std &					
3.5	Approval of drawings	Codes & Std					
3.6	Approval of NDE, and Test procedures, NDE personnel	Codes & Std					
3.7	Welding Procedure specification (WPS & PQR)	Design codes & Standards					
3.8	Welder Qualification						
3.9	FAT and SAT Procedure for associated components, as applicable						
3.10	Baseline survey procedure						
3.11	Manufacturing Procedure Specification						
3.12	BUOY and PLEM Inspection and certification plan						
3.13	Integrated FAT and SAT procedure						
<b>4.</b>	<b>Production</b>						
4.1	Material Traceability and Examination	Vendor Data Book					
4.2	Plate forming & End preparation	Design Code					
4.3	Fit-up and Production Welding						
4.4	Witness Stage NDE						
4.5	PWHT						
4.6	Trial Fit: BUOY Body assembly, Turret, Deck house	WPS and Assembly drawing, OCIMF					
4.7	Bearing installation and Rotational Torque test						
4.8	Weather tight door installation and leak testing						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-502 Mooring Buoys and PLEM (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5. Examination</b>								
5.1	Visual Dimensional Check-In and Outside Main Shell, End plates, Manhole & Cover, Fenders, Mooring Bar & Shackle Hole, Safety Chain Etc.	P.O spec, Std & Approved Drawings						
5.2	Non-Destructive Examination	Codes & Std.						
5.3	Surface preparation & Painting (including PQT and production test panel)	P.O Spec.						
<b>6. Testing</b>								
6.1	BUOY body compartment Leak Testing	Standards & Procedures OCIMF						
	BUOY Piping Hydrostatic leak Test							
6.2	Bouncy Test/Trimming and Ballasting							
6.3	Function Tests: Drainage Pipework function test Function test of valves Surge system test, as applicable Nav Aid Test Anode continuity Test Bilge Pump Chain stopper rotation test Chain Pull through Test Function test of winch PLEM Pigging Test PLEM Leak test PLEM Load Test of pad eye PLEM Sliding Test Weighing	Project specification, OCIMF						
6.4	DFT- Coating (Inside & Outside)	P.O Spec.						
6.5	Load Test (Where applicable)							
6.6	Base line survey							
<b>7. Preparation for Dispatch/Load out</b>								
7.1	Inspection of Identification No. & Location	P.O Spec., OCIMF Std.  Project specification						
7.2	As-Built drawings review and endorsement							
7.3	Packing / Palletizing & Preservation For shipping.							
7.4	Inspection Release Note (IRN)							
7.5	Mooring BUOY Load out							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

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### ITP-502 Mooring Buoys and PLEM (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>8. Report &amp; Test Certificates</b>								
8.1	Vendor Data Book including Test reports & As-built Drawings.	OCIMF						
8.2	Classification Society - Drawings approval							
8.3	Classification Society certification for Mooring BUOY and PLEM							
8.4	Raw Material Test Certificates							
8.5	Vendor Data Books endorsement, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-503 Mooring Hawser

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b>	OCIMF BS 7648 BS EN 919					
1.1	Vendor approval	COMPANY PQ					
<b>2.</b>	<b>Pre-production Meeting</b>						
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Prod. Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub-orders	Prod. Plan					
3.4	Material test and certification	Spec. Codes, Std &					
3.5	Approval of drawings	Codes & Std.					
<b>4.</b>	<b>Production</b>						
4.1	Material Traceability and Examination	Vendor Data Book					
4.2	Witness sample collection for test.	Design Spec. & Std.					
<b>5.</b>	<b>Examination</b>						
5.1	Weight Check of Sample Rope Section	Design Spec. & Std.					
5.2	Linear Density Check (Actual per 1Meter)						
5.3	Examination of Circumference under pre-load						
5.4	Inspection of sample rope section Construction, Wt. Ratio of Sheath / Core Etc.						
5.5	Visual & Dimensional Check of finished Mooring Hawser		P.O Spec, Std & Approved Drawing.				
5.6	Inspection of Thimble Eye and Auxiliary Gear						
<b>6.</b>	<b>Testing</b>						
6.1	Determination of The Breaking Strength of Rope. Realized Break Load	BS 7648 & / or Approved Procedure OCIMF					
6.2	Melting Point of Core & Sheath Test						
6.3	Acid Dissolve Test						
6.4	Aqueous solution Boiling test						
6.5	Burning Characteristics Test						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

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### ITP-503 Mooring Hawsers (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>7.</b>	<b>Preparation for Dispatch</b>						
7.1	Inspection of Marking / Tagging & Identification No. and Mark spare as applicable	P.O Spec., OCIMF Std.					
7.2	Packing / Crating For shipping.						
7.3	Inspection Release Note (IRN)						
<b>8.</b>	<b>Report &amp; Test Certificates</b>						
8.1	Vendor Data Book	OCIMF					
8.2	Raw Material Test Certificates						
8.3	Vendor Data Books endorsement, and issue of release note by TPA						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-504 Chains for Marine Services

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
1.	<b>Scope</b> This list covers the inspection and test requirements for flash welded chain and forged kenter connecting links used for mooring of offshore floating vessels, pipe lay barges, derrick barges and storage tanks	API SPEC 2F, US Mil Spec.					
1.1	Vendor approval	COMPANY PQ					
2.	<b>Pre-production Meeting</b>						
3.	<b>General - Preliminary work</b>						
3.1	Vendor fabrication schedule	Prod. Plan					
3.2	Vendor Q.P	QA Manual					
3.3	Status of sub-orders	Prod. Plan					
3.4	Material test and certification	P.O Spec. Codes, Std &					
3.5	Approval of drawings	Codes & Std.					
3.6	Approval of NDE, Heat treatment and Test procedures	Codes & Std.					
3.7	Welding Procedure	Design codes & Standards					
3.8	FAT Procedure	Project Specification					
3.9	Painting Procedure						
4.	<b>Production</b>						
4.1	Material Traceability and Examination	Vendor Data Book WPS and Assembly drawing					
4.2	Welding						
4.3	Heat treatment						
4.4	Identification of test link						
5.	<b>Examination</b>						
5.1	Visual Dimensional Check	P.O Spec, Std & Approved Drawing.					
5.2	Non-Destructive Examination						
6.	<b>Testing</b>						
6.1	Break Test	PO SPEC & STD					
6.2	Proof Test						
6.3	Inspection Of Flash Weld After Proof Test						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-504 Chains for Marine Services (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>6. Testing (Cont'd)</b>								
6.4	Inspection of Length Over Five Links After Proof Test							
6.5	Inspection for Surface Defects After Proof Test							
6.6	Link Dimension and Measurements After Proof Test							
6.7	Mechanical Property Test of Finished Chain Link- One Link Per Each Length	PO SPEC & STD						
6.8	Weight check							
<b>7. Preparation for Dispatch</b>								
7.1	Marking	P.O Spec.,						
7.2	Packing / Palletizing & Preservation For shipping.	P.O Spec.						
7.3	Inspection Release Note (IRN)							
<b>8. Reports &amp; Test Certificates</b>								
8.1	Vendor Data Book	Vendor Document Requirement List						
8.2	Raw Material Test Certificates							
8.3	Vendor Data Books endorsement, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-505 Rub strips and Fenders

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b>  1. This list covers test and inspection requirement for Rub strips for Well Head Fenders	Project Specification. P.O. Description BS 903					
1. 1	Vendor approval	COMPANY Pre-qualification					
<b>2.</b>	<b>Pre-production Meeting</b>						
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Drawing & Specification	Drawing & Specification					
3.2	COMPANY Material Specification Sheet (If applicable)	Approved Drawing & Specification					
3.3	Vendor Production Schedule	Prod. Plan					
3.4	Vendor QA/Plan	QA Manual					
3.5	Status of Sub Orders	Prod. Plan					
3.6	Material Test & Certificates	Codes Standards &					
3.7	Welding Procedure Qualification & Welder Qualification (if applicable)	Design Codes Specification , Codes & Standards					
3.8	NDT Procedure & NDT Personnel Qualification (If applicable)						
3.9	Test Procedures						
<b>4.</b>	<b>Production</b>						
4.1	Material Traceability and examination	Vendor Data Book & Material Test Certificates					
4.2	Steel Element	Approved Drawing/ Specification					
4.3	Rubber Element						
4.4	Vulcanization	Specification					
4.5	Surface Finish after Blasting	ISO 8501-1, SA 2.5					
<b>5.</b>	<b>Examination</b>						
5.1	Visual	Approved Drg. Specification , procedures					
5.2	Dimension						
5.3	Painting of Steel Surface						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-505 Rub strips and Fenders (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>6. Testing</b>								
6.1	Tensile Strength	BS903-A2/ASTM D412						
6.2	Elongation at Break	BS903-A2/ASTM D412						
6.3	Hardness	BS 903 A26						
6.4	Tear Strength	BS903-A2/ASTM D412						
6.5	Compression Set (22 hours at 70° C)	BS 903-A6						
6.6	Ozone Resistance	BS 903 A43						
6.7	Hot Water Resistance	BS 903-A9						
6.8	Abrasion Loss	BS 903 A9						
6.9	Specific Gravity	BS 903-A7						
6.10	Water Absorption	BS 903-A16						
<b>7. Preparation for Dispatch</b>								
7.1	Cleaning, Preservation & surface Treatment	Specification						
7.2	Preparation for Shipment & Packing	Specification						
	Inspection Release Note (IRN)							
<b>8. Reports &amp; Test Certificates</b>								
8.1	Vendor Data Book							
8.2	Raw Material Test Certificates							
8.3	Vendor Data Books endorsement, and issue of release note by TPA							

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-506      Hydraulic Clamp

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>1.</b>	<b>Scope</b>  This list covers test and inspection requirement for Hydro Clamp	Project Specification. P.O. Description						
1. 1	Vendor approval	COMPANY Pre- qualification						
<b>2.</b>	<b>Pre-production Meeting</b>							
<b>3.</b>	<b>General - Preliminary work</b>							
3.1	Drawing & Specification	Drawing & Spec.						
3.2	COMPANY Material Specification Sheet (If applicable)	Approved Drawing & Spec.						
3.3	Vendor Production Schedule	Prod. Plan						
3.4	Vendor QA/Plan	QA Manual						
3.5	Status of Sub Orders	Prod. Plan						
3.6	Material Test & Certificates	Codes Standards &						
3.7	Welding Procedure Qualification & Welder Qualification (if applicable)	Design Codes & Standards						
3.8	NDT Procedure & NDT Personnel Qualification (If applicable)	Codes & Standards						
3.9	Coating Procedure							
3.10	Test Procedures	Spec., Codes & Standards						
<b>4.</b>	<b>Production</b>							
	<b>Manufacture</b>							
4.1	Identify Material & check Mill Certificates	Approved Drg./Spec./Ce rtificates						
4.2	Machining of internal components							
4.3	Rough Machining Body							
4.4	Saw cut Rough machined Body							
4.5	Mill Faces after saw cut	Approved Spec., Drawings Certificates WPS						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-506 Hydraulic Clamp (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
4.6	Fit & Tack of two body halves together	Approved Drg., Spec., Certificates, WPS					
4.7	Final Machining of internal bores on Body	Approved Drg., Spec., Certificates, WPS					
4.8	Split Body Halves and finish all machining	Approved Drg., Spec., WPS					
4.9	Fabrication Fit up	Approved Drg., Spec., WPS					
4.10	Welding	Specification, approved Procedure					
4.11	Stress Relieving where applicable	Specification, approved Procedure					
4.12	Coating	Approved Coating Procedure					
4.13	Assemble of Clamp	Specification, approved Drg, procedure					
<b>5. Examination &amp; Inspection</b>							
5.1	Receiving Inspection of Purchased Material	Spec. Approved, procedures Drawing					
5.2	Visual & Dimensional Inspection at rough machining						
5.3	Visual & Dimensional Inspection of rough machining						
5.4	Visual & Dimensional Inspection of saw cut Body						
5.5	Visual & Dimensional Inspection of milling						
5.6	Visual & Final Dimensional Inspection at Welding Completion						
5.7	Visual & Dimensional Inspection of Bores on Body						
5.8	Visual & Final Dimensional Inspection at Machining Completion						
5.9	Visual & Fabrication Dimensional Inspection at Fit up Stage						
5.10	Visual & Final Dimension at welding Completion						
5.11	Final Surface NDE of Body Halves						
5.12	Surface NDE after structural welding						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-506 Hydraulic Clamp (Cont'd)

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
5.13	Surface NDE after load test	Approved procedure, Spec.					
5.14	Final Coating Inspection	Approved Coating Procedure					
<b>6. Testing</b>							
6.1	Load test of welded pad eyes on the clamp at 1.5 times the clamp weight	Project specification, approved Procedure, Drawing					
6.2	FAT of Clamp assembly	Specification, approved Test Procedure,					
<b>7. Preparation for Dispatch</b>							
7.1	Marking	Spec., Drawing					
7.2	Cleaning, Preservation	Spec./					
7.3	Preparation for Shipment & Packing	Spec./					
<b>8. Reports &amp; Test Certificates</b>							
8.1	Vendor Data Book	Vendor Document Requirement List					
8.2	Raw Material Test Certificates						
8.3	Vendor Data Books endorsement, and issue of release note by TPA						

## Procurement Inspection and Certification Requirement in Projects – APPENDIX A

### ITP-507 Connectors

SL. NO.	ACTIVITY	REFERENCE DOCUMENT	CERTIFICATION	MANUFACTURER INTERVENTION LEVE	VENDOR INTERVENTION LEVE WHERE APPLICABL*	CONTRACTOR INTERVENTION LEVE	COMPANY INTERVENTION LEVE
<b>1.</b>	<b>Scope</b> This list covers test and inspection requirement for Connectors	P.O, Project Specification.					
1.1	Vendor approval	COMPANY PQ					
<b>2.</b>	<b>Pre-production Meeting</b>						
<b>3.</b>	<b>General - Preliminary work</b>						
3.1	Drawing & Specification	Approved Drawing.					
3.2	COMPANY Material Specification Sheet (If applicable)	Approved Drawing & Spec.					
3.3	Vendor Production Schedule	Prod. Plan					
3.4	Vendor QA/Plan	QA Manual					
3.5	Status of Sub Orders	Prod. Plan					
3.6	Material Test & Certificates	Codes Standards &					
3.7	Welding Procedure Qualification & Welder Qualification (if applicable)	Design Codes & Standards					
3.8	NDT Procedure & NDT Personnel Qualification (If applicable)						
3.9	Coating Procedure	Spec., Codes & Standards					
3.10	Test Procedures						
<b>4.</b>	<b>Production</b>						
4.1	Identify Material & check Mill Certificates	Approved Spec., Approved Drawings Certificates WPS					
4.2	Machining of internal components						
4.3	Machining of Seal Housing Sections						
4.4	Fit & Tack of Seal Housing sections						
4.5	Welding of Seal Housing Section						
4.6	Welding						
4.7	Stress Relieving where applicable	Approved Proc/Spec					
4.8	Coating	Approved Procedure					
4.9	Assembly	Approved Drawing					
<b>5.</b>	<b>Examination &amp; Inspection</b>						
5.1	Receiving Inspection of Purchased Material						
5.2	Visual & Dimensional Inspection at machining						

**Procurement Inspection and Certification Requirement in Projects – APPENDIX A**
**ITP-507 Connectors (Cont'd)**

SL. NO.	ACTIVITY	REFERENCE DOCUMENT		CERTIFICATION	MANUFACTURER INTERVENTION LEVEL	VENDOR INTERVENTION LEVEL WHERE APPLICABL**	CONTRACTOR INTERVENTION LEVEL	COMPANY INTERVENTION LEVEL
<b>5. Examination &amp; Inspection (Cont'd)</b>								
5.3	Visual & Final Dimensional Inspection at Welding Completion	Project Specification approved procedures and Drawing						
5.4	Visual & Final Dimensional Inspection at Machining Completion							
5.5	Visual & Final Dimension at welding Completion							
5.6	Surface NDE of welds, RT, MT, PT as applicable							
5.7	Surface NDE after load test							
5.8	Final Coating Inspection							
<b>6. Testing</b>								
6.1	Load test Lifting arrangement	Approved Proc., Spec., Drawing						
6.2	Hydro Pressure Test/FAT of Clamp assembly							
<b>7. Preparation for Dispatch</b>								
7.1	Marking, cleaning, preservation	Specification, Drawing						
7.2	Preparation for Shipment & Packing							
<b>8. Reports &amp; Test Certificates</b>								
8.1	Vendor Data Report	VDRL						
8.2	Raw Material Test Certificates							
8.3	Vendor Data Book endorsement, and Issue of Release Note by TPA							