PTT Exploration and Production Public Company Limited

PTTEP Engineering General Specification

(Engineering and Development Group)

Standard

Inspection and Testing Requirements

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Revision History

Rev	Description of Revision	Date
0-0	New Document Document No: PEGS-0842-INT-001	11-Jul-12
1-0	Revised following 3 years cycle completion New Document No : PEGS-12060-INT-001	20-Aug-15
R00	Revised due to new document coding system and formatting. Major changes other than new number and format are as mentioned below: ***Item No./Clause*** — ***Description of Change*** 1.0 & 4.0 — New clause (Introduction and Responsible Action Parties) introduced as per new document format 7.3.1 — Added qualification level of welding visual inspector 7.3.2 — Added last paragraph regarding UT & RT certification as per SNT-TC-1A	5-Jul-17

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1.0 INTRODUCTION

Inspection and Testing plays a vital role in the final delivery of product which meets the specified requirements. Hence systematic approach needs to be adopted starting from placement of order till delivery and installation of product/facilities.

2.0 PURPOSE

The purpose of this general specification is to provide requirements for all activities associated with inspection and testing of material, manufacturing, fabrication and installation including pre-commissioning / commissioning for the WORK.

3.0 SCOPE

This PEGS is intended for use by all related parties e.g. COMPANY, CONTRACTOR, Sub-contractors, Vendors, Suppliers, etc.

4.0 RESPONSIBLE ACTION PARTIES

- CONTRACTOR including his sub-contractors
- Manufacturer
- Vendor / Supplier

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5.0 DEFINITIONS

A number of different terms are commonly used to describe the work stages, processes, and approvals which take place during the early stages of a development. This can often be a source of confusion so the following section is intended to show the PTTEP preferred terminology as used in this document.

5.1 LANGUAGE

In this document, the words should and shall have the following meanings:

Shall Indicates a course of action with a mandatory status. The term "shall" shall be used if a requirement is considered to be necessary to claim compliance with a PEGS document.

Should Indicates a preferred course of action. Should is a non-mandatory word and is not forbidden, but use in the body of the text should be the exception. Where none mandatory terms are used, each paragraph within these clauses shall also have an associated commentary paragraph that provides the rationale for why the stated choices and modifications are appropriate and circumstance under which the stated choices and modifications might be different.

5.2 TERMINOLOGY

Terminology	Description
Approval	The authorisation in writing given by the COMPANY to the CONTRACTOR on a procedure or to proceed with the performance of a specific part of the Work without releasing in any way the CONTRACTOR from any of his obligations to conform with the technical specifications, requisitions, etc. The words "Approve", "Approved" and "Approval" shall be construed accordingly
Certifying Authority	A suitably qualified independent Third Party providing certification of the project based on the agreed scope of work
CFME	COMPANY Furnished Materials and Equipment
COMPANY	PTT Exploration and Production Public Company Limited and affiliates
CONTRACT	CONTRACT means the signed AGREEMENT together with the Exhibits and Annexes which are made part thereof, and any future amendments thereto. In the event of ambiguity or contradiction between the AGREEMENT and the other documents, the AGREEMENT shall prevail over its Exhibits and Annexes
CONTRACTOR	CONTRACTOR means the contractor who is a PARTY to this CONTRACT and where the context so requires, any and all Sub-contractors utilised by Contractor for the performance of the WORK
Hold Point (H)	Hold Points are defined as critical steps in manufacturing and testing, whereby CONTRACTOR shall advise COMPANY Representative in advance of the operation, so that it can be witnessed by COMPANY's Quality Representative. CONTRACTOR shall not proceed with WORK past the Hold Point without witness by COMPANY's Quality Representative, except by prior written agreement from COMPANY Representative

Terminology	Description
Inspection and Test Plan	A Project Specific document defining a planned sequence of Inspection and Testing activities and events pertaining to the WORK with the minimum requirements of COMPANY's Inspection and Tests included
Inspection Release Note	A document issued by CONTRACTOR's Quality Representative / independent Third Party Inspection Agency or Certifying Authority on satisfactory completion of all activities as per Quality Control Plan or Inspection and Test Plan
Manufacturer Data Report	A compilation of documentation by the CONTRACTOR, manufacturers or subcontractors / vendors containing documents such as mill certificates, test certificates, inspection and test records, ITP, procedures, drawings, IRN, etc. providing evidence and /or history of the manufacturing process
Monitor Point (M)	Monitor points are defined as steps in manufacturing and testing whereby COMPANY's Quality Representative, through random examination and observations, shall identify that inspections, manufacturing steps and testing activities are being fulfilled (generally used when a repetitious process or multiple similar materials are being manufactured).
Pre-Inspection Meeting or Pre-Production Meeting	A meeting convened by all concerned parties to ensure all required documents are approved by the concerned parties and available prior to manufacturing.
Project Certification Plan	A document describing the certification process, CA scope of work, execution plan, coordination with different offices within CA and CONTRACTOR, function and responsibilities of assigned personnel and intervention points for fulfilment of the project requirements.
Project Quality Plan	A document describing the quality practices, identify the resources, responsibilities, tools and references to be used, identify all plans and procedures to be implemented and sequence of events to ensure the WORK meets specific requirements.
Quality Assurance	Part of Quality Management System which is focused on providing confidence that the quality requirements are / will be fulfilled. QA is process oriented, making sure the right processes are employed.
Quality Control	Part of Quality Management System which is focused on delivering the specified quality requirements. QC is product oriented; making sure the right product is produced.
Review Point (R)	Review points are defined as steps in manufacturing and testing whereby COMPANY's Quality Representative, through the reviewing process, shall confirm by examination that all quality records and documentation applicable to the inspection activity or test detailed are in compliance. COMPANY's Quality Representative shall endorse the records/documents.
Sub-contractor	Any company or person to whom CONTRACTOR has subcontracted directly or indirectly the performance of any part of the WORK in accordance with the CONTRACT. Sub-contractors include Vendors
Vendor / Supplier	The company designated on the Purchase Order form or Contract as being the selected supplier of the said materials.
Witness Point (W)	Witness points are defined as critical steps in manufacturing and testing whereby CONTRACTOR shall advise COMPANY Representative an agreed

Terminology	Description
	time in advance of the operation, so that it may be witnessed by COMPANY's Quality Representative. CONTRACTOR may proceed with WORK past the Witness Point only if COMPANY's Quality Representative has advised CONTRACTOR that he/she cannot attend.
WORK	All and any part of the works and services required to be performed by CONTRACTOR under the CONTRACT
WORKSITE(S)	The SITE and/or all and any construction location(s) where major parts of the PLANT (such as deck, jacket, piles, modules) will be fabricated and assembled by CONTRACTOR

5.3 COMMON ACRONYMS

Set out below in alphabetical order are common acronyms as found within this document:

ACQPA	Association of Certification and Qualification for Paint Anticorrosion
ASNT	American Society for Non-Destructive Testing
AWS	American Welding Society
CA	Certifying Authority
CSWIP	Certification Scheme for Welding and Inspection Personnel
CV	Curriculum Vitae
FROSIO	The Norwegian Professional Council for Education and Certification of Inspectors for Surface Treatment
IRN	Inspection Release Note
ITP	Inspection and Test Plan
IWI-S	International Welding Inspector-Standard
MDR	Manufacturer Data Report
MWS	Marine Warranty Surveyor
NACE	National Association of Corrosion Engineers
NCR	Non-conformance Report
NDT	Non Destructive Testing
PCN	Personnel Certification for NDT
PEGS	PTTEP Engineering General Specification
PCP	Project Certification Plan
PIM	Pre Inspection Meeting
PO	Purchase Order
QA/QC	Quality Assurance/Quality Control
SOW	Scope of Work
TPIA	Third Party Inspection Agency

6.0 REFERENCES

The reference documents listed below, including Industry Codes and Standards and COMPANY specifications, form an integral part of this Engineering General Specification. Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published on the effective date of a contract.

The overall order of precedence of the applicable documents shall be:

1. Applicable Laws, Rules and Regulations of the country in which the system/equipment will be operated (if any);
2. Purchase Order/ Service Order/ Contract Documents (Only applicable for direct purchase by COMPANY);
3. Project Particular Specification (PPS), and relevant data sheet(s) if any;
4. COMPANY General Specification;
5. Codes and Standards in reference.

Any conflict between any of the Contract Documents, or between this specification and any other Contract Documents, shall be reported to COMPANY for decision. In such a case, and unless otherwise agreed or decided by COMPANY, it is understood that the more stringent requirement shall apply.

Exceptions to, or deviations from this specification are not permitted unless previously accepted in writing by COMPANY. For this purpose, requests for substitutions or changes of any kind shall be completed with all pertinent information required for COMPANY assessment. COMPANY's approval, nevertheless, will not, in any way, relieve the responsibility of the Contractor to meet the requirements of the industry Codes and Standards referred to and amended herein, in the event of conflict.

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6.1 PTTEP INTERNAL REFERENCES

Internal documents applicable to this document are indicated in the table below.

Document Number	Document Title
10008-STD-6-GEN-003* PEGS-12060-ADM-002**	Minimum Requirements for Vendor's Documentation
10008-STD-6-GEN-004* PEGS-12060-ADM-004**	Minimum requirements for Contractor's Documentation
10008-STD-6-GEN-005* PEGS-12060-ADM-006**	Quality Requirements for Contractor / Vendor

* New document number due to revision in document numbering system

** Old document number

6.2 INTERNATIONAL STANDARDS

International standards applicable to this document are indicated in the table below i.e. ISO, IEC or ITU.

Document Number	Document Title
IEC 60079-17	Explosive atmospheres - Part 17: Electrical installations inspection and maintenance
ISO 10005	Quality Management Systems – Guidelines for Quality Plans
ISO 10474	Steel and steel products – Inspection documents
ISO 9001	Quality Management System-Requirements
ISO 9712	Non-destructive testing - Qualification and certification of NDT personnel
ISO/IEC 17020	Conformity assessment – Requirements for the operation of various types of bodies performing inspection
ISO/TS 29001	Petroleum, Petrochemical and Natural Gas Industries – Sector Specific Quality Management System-Requirements for Product and Service Supply Organizations

6.3 CODE AND OTHER STANDARDS

Codes, standards and regional legislation applicable to this document are indicated in the table below.

Document Number	Document Title
EN 10204	Metallic products-Types of Inspection Documents
AS/NZS 60079.17	Explosive atmospheres - Electrical installations inspection and maintenance
SNT-TC-1A	Personnel Qualification and Certification in Nondestructive Testing

7.0 INSPECTION AND TESTING REQUIREMENTS

7.1 QUALITY ASSURANCE

7.1.1 QUALITY MANAGEMENT SYSTEM

CONTRACTOR shall establish and operate within his organization, a Corporate Quality Management System conforming to the requirements of ISO 9001 and / or ISO/TS 29001, or in accordance with an internationally recognized Standards for all phases of WORK. The effectiveness of the CONTRACTOR's Quality Management System shall be demonstrated throughout the execution phase. COMPANY reserves the right to evaluate the effectiveness of CONTRACTOR's quality management system.

All the Sub-contractor(s)/Vendor(s) engaged by CONTRACTOR or their Sub-contractor(s) or Vendor(s) shall also maintain Quality Management System conforming to the requirements of ISO 9001 or ISO/TS 29001 or equivalent.

Quality Management system shall be documented in Quality Manual and CONTRACTOR shall submit their Quality Management System Certificate and/or Quality Manual for COMPANY review.

CONTRACTOR's quality management system shall cover all the activities and inspections that affect the quality of products or services provided in accordance with the WORK. CONTRACTOR shall maintain documentation of such activities and inspections and shall make records readily accessible to COMPANY when requested.

7.1.2 AUDIT

CONTRACTOR shall submit for review an audit schedule detailing the audit sequence of Activities/Procedures/ISO Elements to be audited throughout the duration of the WORK.

Unless otherwise specified, as a minimum, CONTRACTOR shall conduct audit during various phases of project execution including Engineering, Procurement, Fabrication, Installation, Hook up and Commissioning. Such audit shall also cover Sub-contractor(s)/Vendor(s). The type of audit/frequency shall be subjected to COMPANY approval.

CONTRACTOR shall invite COMPANY and CA (if applicable) to officially attend all audits including those on Subcontractor(s)/Vendor(s). Personnel conducting the audit must be conversant with ISO 9001 or ISO/TS 29001 Quality System and shall be experienced enough in WORK to be audited. CV of auditors shall be submitted to COMPANY for approval prior to conducting the audit.

Two weeks prior to the planned audit, CONTRACTOR shall submit an audit checklist to COMPANY and CA (as applicable) for approval.

COMPANY reserves the right to directly audit the Quality Management System and/or WORK of CONTRACTOR or its Sub-Contractor(s) or Vendor(s) at its own convenience after relevant notification to CONTRACTOR.

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CONTRACTOR shall ensure that the concerned personnel of the department to be audited are available. COMPANY's Auditor shall be allowed full access to relevant records and shall be provided with suitably equipped meeting room in CONTRACTOR/Sub-Contractor/Vendor premises for the duration of the audit.

CONTRACTOR shall attend or participate in any audit performed by COMPANY upon CONTRACTOR, Sub-Contractor(s) or Vendor(s) activities as Observer.

7.1.3 PROJECT QUALITY PLAN

CONTRACTOR shall submit a Project Quality Plan to COMPANY for review and approval within 30 days after effective CONTRACT date and prior to commencement of manufacturing or fabrication activities.

The Project Quality Plan shall describe the specific quality practices, identify the resources including outsourcing, responsibilities, tools and references to be used, identify all plans and procedures to be implemented and sequence of events to ensure that the WORK meets specific requirements. Project Quality Plan shall comply with ISO 10005 and 10008-STD-6-GEN-005.

CONTRACTOR shall be responsible for the following activities:

1) Ensure that all products and services obtained comply with COMPANY's quality requirements.
2) Carry out audits, inspections and testing to ensure that COMPANY's quality requirements are being achieved.

COMPANY reserves the right of access to all facilities at which WORK is being carried out as noted in the CONTRACT Documents.

The Project Quality Plan shall contain following, as a minimum;

1) An organogram describing the organization for the execution of the WORK highlighting the outsourced personnel
2) Reference COMPANY/Regulatory/International specifications, Practices, Codes and Standards relevant to the WORK
3) Reference project documents detailing how the WORK is being performed and inspected and the sequence of performing it
4) Quality Control Plan(s) / Inspection and Test Plan (ITP) for the WORK
5) Detail of products and services performed by sub-contractors and vendors with their conformance to their responsibilities including quality procedures
6) Audit Plan and Schedule
7) Interface with Sub-contractor(s)/Vendor(s) and third parties such as CA, MWS
8) Control of Non-conformance and Corrective/Preventive actions

9) A list of tests to be performed including acceptance criteria

10) Documentation and records

7.1.4 APPROVED MANUFACTURERS LIST

All the items procured by CONTRACTOR or Sub-contractors or Vendors shall be from COMPANY Approved Manufacturers List (AML). Selection of Sub-contractors or Vendors from COMPANY AML does not relieve CONTRACTOR of his responsibility to ensure compliance with relevant Code, Standards, PEGS or project specifications.

In case if certain materials or equipment or services is not listed in COMPANY AML, CONTRACTOR may propose suitable Sub-contractor(s) / Vendor(s) and shall furnish full details such as Quality Manual including various procedures, Quality Management System certificate, facility details, past track record, type test reports etc. for COMPANY review. COMPANY may ask CONTRACTOR to conduct pre-qualification audit with or without attendance from COMPANY.

COMPANY reserves the right to reject such Sub-contractors / Vendors based on review of pre-qualification documents and/or audit output.

7.2 INSPECTION MANAGEMENT

7.2.1 INSPECTION AND TEST PLAN

CONTRACTOR shall submit to COMPANY the Inspection and Test Plan (ITP) for review and approval at least 30 days prior to commencement of construction. ITP shall also be submitted for each of the procured items or sub-contracted work, however in that case ITP shall be generated by Vendor or Sub-contractor.

ITP shall describe following as a minimum;

- Construction/Installation/Hook up/Commissioning activities in sequence including sub-contracted or outsourced activities
- Responsible parties for each activity
- Inspection activities(check points) for each activities
- Applicable reference documents
- Acceptance criteria
- Verifying documents
- Inspection intervention points for all concerned parties

Format of Typical ITP is shown in Appendix-1.

CONTRACTOR’s Inspection or QA/QC department independent of production shall undertake inspection of all activities as per approved ITP. This is also applicable for sub-contracted activities including material or equipment procured by CONTRACTOR or their Sub-Contractors.

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7.2.2 KICK OFF MEETING (KOM)

Kick off meeting is mandatory for equipment or materials with Criticality Rating 1 or 2 or as deemed necessary by COMPANY and shall be carried out at the initial stage of each PO to ensure that Vendors, Suppliers and Sub-contractors fully understand all the requirements stated in the PO / Purchase specifications.

KOM shall be carried out to discuss the following as a minimum:

- Project Organization Chart
- Provision for resources
- Manufacturing and delivery schedule planning
- Procurement strategy
- Establish the communication channel, interface control and focal point to address various issues
- Document deliverables
- Management of document and approval protocol
- Management of change
- Evaluation, approval and management of sub-contractor or sub-vendor (if any)
- Establish audit schedule based on the project audit program
- Identify priority documents that are required to start the WORK

KOM shall be attended by Project Engineer, Discipline Engineer, Project Quality Assurance Engineer, Project Procurement Coordinator / Procurement Expeditor prior to execution of PO.

7.2.3 PRE-INSPECTION MEETING (PIM) / PRE-PRODUCTION MEETING (PPM)

After award of the CONTRACT and prior to commencement of manufacturing, CONTRACTOR shall organize a PIM / PPM with COMPANY, CA (if applicable) and the respective Vendors. Requirement to conduct PIM is subject to the criticality of the equipment and/or as agreed between COMPANY and CONTRACTOR based on the project requirements. Upon award of CONTRACT, CONTRACTOR shall provide for COMPANY approval, a list of items, for which PIM / PPM is proposed to be conducted. CONTRACTOR shall provide advance notification to COMPANY for attending PIM / PPM along with status of approval of various key engineering and fabrication documents. In any case, CONTRACTOR shall not commence manufacturing unless key documents such as Engineering calculations, drawings, Welding procedures, Inspection and Test Plan, NDT procedure are approved by COMPANY and CA (as applicable)

CONTRACTOR including CA and/or COMPANY shall ensure the following during PIM / PPM;

1) A copy of the approved Unpriced Purchase Order (if applicable) or Purchase Specification is available with the Manufacturer or Vendor

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2) All relevant documents have been approved by all concerned parties
3) Deviations (if any) has been discussed and agreed
4) All relevant project specifications are available
5) Communication channel has been established

PIM / PPM shall be minuted by CONTRACTOR and copy of the minutes shall be provided to COMPANY and CA (if required) for review.

7.2.4 INSPECTION NOTIFICATION

CONTRACTOR shall give at least 24 hours written notice to COMPANY and/or CA (if applicable) for “Hold Point” or “Witness Point” marked by COMPANY/CA in the ITP.

In case the WORK performed by Vendor or Sub-contractor is not near the vicinity of the CONTRACTOR WORKSITE, additional days in advance of notification with the agreement of COMPANY shall be required.

If overseas travelling is required by COMPANY and/or CA, a minimum notice of 10 working days is required.

Inspection notifications shall include the following minimum essential information;

1) Item description
2) Inspection or test venue
3) Description of Inspection or Test
4) Reference of ITP activities indicating Witness or Hold point
5) Date and time of Inspection or Test including the expected duration
6) Focal point from CONTRACTOR and Vendor’s representative
7) Proposed parties involved in inspection
8) Contact telephone number of Vendor representative

COMPANY and CA shall have the right to access to all WORK at all WORKSITES at all times and shall be at liberty to inspect the WORK at any stage.

7.2.5 INSPECTION MONITORING SCHEDULE

CONTRACTOR shall prepare and submit to TPIA, CA (as applicable) and COMPANY a Weekly Inspection Monitoring Schedule showing the following information, as a minimum, for each equipment or material;

- PO reference number with criticality rating
- Equipment or material description for each item purchased
- Details of Vendor, Sub-contractor or sub-vendor

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- Manufacturing location(s)
- ITP reference number stating inspection intervention points (especially “Hold” and “Witness” activities)
- Inspection forecasting based on Vendor fabrication schedule / Inspection notifications
- Status of Inspection reports and Inspection Release Notes

The Inspection Monitoring Schedule shall be continuously updated until all the procured items are officially accepted by CA (as applicable) and COMPANY.

7.2.6 INSPECTION REPORTS / INSPECTION RELEASE NOTE

CONTRACTOR shall submit Inspection report for each of the inspection visit performed by themselves or TPIA or CA (as applicable) within 2 days after completion of inspection.

Upon satisfactory completion of all the inspection stages as per ITP and prior to shipment of material, Inspection Release Note shall be issued by CONTRACTOR, assigned TPIA and/or CA (as applicable) and shall be submitted to COMPANY for review and record.

In case where the work is incomplete, a Provisional IRN shall be issued which shall be supported by outstanding work list. CONTRACTOR shall ensure that the outstanding activities or punch list are rectified by CONTRACTOR or by the same Vendor, Supplier or Sub-contractor at the WORKSITE and issue Final IRN supported by close out of punch list. COMPANY or CA (as applicable) shall verify satisfactory acceptance of outstanding work or punch list.

Inspection Release notes shall be made available during material receiving inspection along with other relevant documents.

CONTRACTOR shall furnish, install and maintain in a safe operating condition the necessary scaffolding, ladders, walkways, lighting etc., to allow for safe and thorough inspection by COMPANY and CA (as applicable). Where WORK subjected to inspection has been rendered unsafe and/or inaccessible prior to such inspection, CONTRACTOR shall be responsible to make good the unsafe and/or inaccessible area.

7.2.7 MATERIAL RECEIVING INSPECTION

Upon receipt of material or equipment at CONTRACTOR WORKSITE, Contractor shall undertake inspection to ensure that material is free of any defects and comply with applicable code/standard/specification including project specifications.

CONTRACTOR shall be responsible for the inspection upon receipt of all CFME and issue a deficiency report for any over, short or damage (OSD) to COMPANY’s representative immediately.

CONTRACTOR shall also be responsible for providing adequate storage and preservation of COMPANY furnished materials and equipment (CFME) in accordance with CONTRACTOR’s material control procedure approved by COMPANY.

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All the equipment or material released from Sub-Contractor or Vendor shall be accompanied by following reports / documents as a minimum;

- Inspection Release Note from CONTRACTOR or TPIA or CA (as applicable)
- Material test certificates with traceability record
- Test reports such as hydro test report, NDT reports, heat treatment reports, painting reports
- Outstanding work or punch list
- Handling procedures, if relevant
- Packing, unpacking, storage and preservation procedures, if relevant
- Lubrication schedule (as applicable)

All the above reports shall be available during material receiving inspection and CONTRACTOR's QA/QC shall review the same to ensure compliance with relevant code / standard / PEGS / project specification.

Items, goods or equipment purchased by COMPANY shall be issued with an Inspection Release Note(s) (IRNs) upon receipt by CONTRACTOR. A copy of the Inspection Release Note along with all necessary test reports / documents shall be included by CONTRACTOR in their final documentation.

7.3 QUALIFICATION OF INSPECTION PERSONNEL

CV of all inspection personnel shall be submitted to COMPANY for review and approval prior to commencement of the WORK.

All inspection personnel shall have at least 5 years of similar experiences in relevant oil and gas construction.

COMPANY reserves the right to evaluate the performance and / or competency of all the inspection personnel throughout all stages of the project.

7.3.1 WELDING INSPECTION

All welding inspection personnel shall have at least AWS CWI, CSWIP 3.1, IWI-S or PCN Welding Inspector Level 2 qualification.

Welding Visual Inspector may be certified to CSWIP 3.0 or equivalent certification scheme.

7.3.2 NDT TECHNICIANS / OPERATORS

NDT Technicians/Operators shall have as a minimum;

1) Ultrasonic Testing (UT): ACCP, CSWIP or PCN Level 2 with qualification covering material / weld joint geometry to be tested
2) Radiographic Interpreter (RI): CSWIP or PCN Level 2 qualification

3) Radiographic Testing Operator (RT): Level 1 or Level 2 as per SNT-TC-1A or ISO 9712 or equivalent

4) Magnetic Particle Testing (MPT) and Dye Penetrant Testing (DPT): Level 2 as per SNT-TC-1A or ISO 9712

For Ultrasonic Testing and Radiographic interpretations, with prior approval from COMPANY, certificates as per SNT-TC-1A may be acceptable provided certificates are issued by independent and recognized third party authorities. Employer issued certification is not acceptable.

7.3.3 COATING / PAINTING INSPECTORS:

Inspectors shall be certified to minimum NACE Level 2 or BGAS-CSWIP Painting Inspector Grade 2 or an equivalent certification by an approved organization such as ACQPA, FROSIO, etc.

7.3.4 DIMENSIONAL SURVEYOR:

Dimensional surveyor shall have a recognized diploma/degree in construction, civil or related fields.

Additionally, the dimensional surveyor shall be conversant with 3D survey equipment and Auto-CAD.

7.3.5 MECHANICAL INSPECTOR:

Mechanical inspector shall have a recognized diploma/degree in mechanical engineering.

7.3.6 ELECTRICAL AND INSTRUMENT INSPECTORS:

Electrical and Instrument inspectors shall have a recognized diploma/degree in their related field. Additionally, all personnel testing and inspecting explosion-protected electrical equipment and associated safe area equipment shall have been assessed as being competent to do so in accordance with AS/NZS 60079.17 or relevant statutory standards for facility operating in Australia and Commonwealth waters.

For facilities operating outside of Australia or Commonwealth waters, the requirements as defined in IEC 60079-17 shall be followed.

7.4 THIRD PARTY INSPECTION

Third Party Inspection Agency may be engaged by CONTRACTOR to supplement their resources in managing the quality control activities including surveillance upon Sub-contractor and Vendors.

Third Party Inspection Agency selected by CONTRACTOR shall be accredited to ISO/IEC 17020 Type A.

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The contracting inspection agency and their proposed personnel engaged by CONTRACTOR shall comply qualification requirement as mentioned in Section 7.3 and subject to approval by COMPANY. CV of inspection personnel shall be submitted to COMPANY for prior approval.

7.5 CERTIFYING AUTHORITY (CA)

Certifying Authority (CA) shall be engaged by either COMPANY or CONTRACTOR to perform the necessary verification, inspection and certification within the scope of the CONTRACT.

Minimum certification SOW and responsibilities of CA shall be as detailed in the CONTRACT.

Independent surveillance performed by CA shall not relieve CONTRACTOR or Sub-contractor or Vendor of their responsibilities for the WORK.

CA deliverables, in particular, the Project Certification Plan (PCP) shall be subjected to approval by COMPANY. PCP shall be generated by CA and approved by COMPANY.

The independent agencies nominated by CONTRACTOR to perform the certification works shall be as per COMPANY approved list and accredited to ISO/IEC 17020 Type A.

All CA personnel performing certification works shall be subjected to approval by COMPANY prior to mobilization.

7.6 CONTROL OF NON CONFORMANCE

Any WORK or any test result which is found not in conformance with COMPANY specification or agreed procedure shall be subjected to a Non-Conformance to be issued by CONTRACTOR for submission to COMPANY. NCR shall be issued by CONTRACTOR or party performing the WORK irrespective of who detects the non-conformity.

NCR shall clearly indicate corrective action intended by CONTRACTOR and shall state any impact in terms of quality, cost and time associated with accepting or rejecting CONTRACTOR proposed remedial action without being an opening to any change order in case of rejection.

The remedial action proposed by CONTRACTOR may be accepted or rejected by COMPANY.

NCR needs to be formally closed by CONTRACTOR only after the remedial action from CONTRACTOR is recognized as satisfactory by COMPANY.

The progress of NCR's in terms of remedial action / close out date shall be submitted to COMPANY on weekly basis.

7.7 MATERIAL CERTIFICATION / TEST REPORTS

All material to be incorporated into WORK shall be new and of first quality.

Material certification / test reports shall be provided for all purchased items in accordance with requirements of relevant code / standard / specification including project specifications.

Material certification shall confirm to EN 10204 or ISO 10474. All material test certificates or test reports shall be clear, well contrasted and legible and shall be furnished in “Original” or “Certified True Copies”.

All certificates or test reports shall be in English language.

Material certificate shall be issued by manufacturing plant. Certificates from stockist or “typical” certificates are not acceptable.

In case of assemblies or packaged units, material certificates and test reports shall be furnished for each components included in assembly or package in addition to certificate of conformance / test reports for entire package.

The type of required certification shall conform to respective PEGS’s.

7.8 DOCUMENTATION

In general, all the reports / documents to be submitted to COMPANY shall be in accordance with the relevant PEGS’s and project specifications.

All reports / documentation shall be retained by CONTRACTOR for not less than the period of time specified by the industry standard or in CONTRACT, whichever is longer but not less than five years.

Submission of MDR shall be within one (1) month after completion of the manufacturing or mutually agreed.

UNCONTROLLED when printed, visit PTTEP Intranet for latest version

8.0 APPENDICES

Appendix 1. Typical Inspection and Test Plan

REFERENCE ITP NO:		DATE:	EQUIPMENT DESCRIPTION : SAMPLE ITP FOR STRUCTURE				CONTRACT NO.						REV.:	
			VENDOR :				PROJECT :							
LATEST REVISION STATUS			ITEM/TAG NO.				CONTRACTOR :							
ITEM NO.	RESPONSIBLE PARTIES / COMPANIES	MANUFACTURING ACTIVITY	INSPECTION ACTIVITY	REFERENCE DOCUMENT	ACCEPTANCE CRITERIA	VERIFYING DOCUMENT	SUBCONTRACTOR / VENDOR		CONTRACTOR		CERTIFYING AUTHORITY / TPIA		COMPANY	
							ACTION	SIGN	ACTION	SIGN	ACTION	SIGN	ACTION	SIGN
1		▪ Shop Drawings	▪ Material Grade ▪ Joint Design	▪ Engineering Drawings	▪ Relevant Specification	▪ Approved Shop Drawings	H		H		R		R	
2		▪ Weld Map & NDE Map	▪ Welding Process ▪ NDE Requirement	▪ Shop Drawings	▪ Relevant Specifications ▪ Approved WPS	▪ Approved Weld Map & NDE Map	H		H		R		R	
3		▪ Welding Procedure Qualification Test	▪ Welding Procedure Qualification Test (WPQT) Plan ▪ PWPS ▪ Mechanical Test ▪ Corrosion Test ▪ CTOD ▪ PWHT (if required) ▪ NDT	▪ Welding Control Procedure	▪ Relevant Codes / Standards ▪ Relevant Specifications	▪ PQR ▪ WPS	H		H		W		W	
4		▪ Welder Qualification Test	▪ Welder Qualification Test ▪ Mechanical Test ▪ NDT	▪ Welder Qualification Test Procedure	▪ Relevant Codes / Standards ▪ Relevant Specifications	▪ Welder Certifications	H		H		W		W	
5		▪ Welding Consumables Qualification Test	▪ Batch Number ▪ Diameter of Electrodes ▪ Material Grade of Coupons ▪ Size, Thickness and Dimension of Coupons	▪ Consumable Qualification Test Procedure	▪ Relevant Codes/ Standards ▪ Relevant Specifications ▪ Consumable Test Certificate	▪ Approved Consumable Qualification Test Records	H		H		W		W	
6		▪ NDT Operator's Qualification	▪ NDT Operator's Qualification ▪ Experience ▪ NDT Method	▪ CV of NDT Operators	▪ Relevant Codes/ Standards ▪ Relevant Specifications	▪ Relevant NDT Certificates	H		H		R		R	
7		▪ NDT Procedures	▪ Application of various NDT Methods ▪ NDT Techniques	▪ NDT Procedures	▪ Relevant Codes/ Standards ▪ Relevant Specifications	▪ Approved NDT Procedures	H		H		R		R	

SAMPLE

REFERENCE ITP NO:		DATE:	EQUIPMENT DESCRIPTION : SAMPLE ITP FOR STRUCTURE				CONTRACT NO.						REV.:	
			VENDOR :				PROJECT :							
LATEST REVISION STATUS			ITEM/TAG NO.				CONTRACTOR :							
ITEM NO.	RESPONSIBLE PARTIES / COMPANIES	MANUFACTURING ACTIVITY	INSPECTION ACTIVITY	REFERENCE DOCUMENT	ACCEPTANCE CRITERIA	VERIFYING DOCUMENT	SUBCONTRACTOR / VENDOR		CONTRACTOR		CERTIFYING AUTHORITY / TPIA		COMPANY	
							ACTION	SIGN	ACTION	SIGN	ACTION	SIGN	ACTION	SIGN
			▪ Qualification of NDT Techniques											
8		▪ Calibration of Testing Measuring Equipment	▪ NDT Equipment ▪ Dimensional Control Equipment ▪ Painting/Coating Inspection Equipment ▪ Electrode Baking/Holding Ovens ▪ Welding Equipments ▪ Instruments for welding parameters check	▪ Calibration and Testing Procedure	▪ Relevant Codes/ Standards ▪ Relevant Specifications	▪ Calibration Records	H		H		R		R	
9		▪ Material Receiving	▪ Condition of materials received ▪ Quantity, Size & Dimension ▪ Heat Number/Lot Number, Pipe Number	▪ Material Control Procedure	▪ PO Specification (s)	▪ Material Receiving Reports ▪ Mill Certificates ▪ Inspection Release Note	H		H		W		W	
10		▪ Material Traceability	▪ Material identification	▪ Material Control Procedure	▪ Relevant Specifications	▪ Material Traceability Record	H		H		M		M	
11		▪ Fit-up Inspection	▪ Edge Preparation ▪ Piece Mark Number ▪ Applicable WPS ▪ Alignment & Straightness ▪ Dimension ▪ Run-on & Run-off Plates (as required)	▪ Welding Control Procedure ▪ Method Statement/Work Instruction	▪ Approved Shop Drawings ▪ Relevant Codes/ Standards ▪ Relevant Specifications	▪ Fit-up Reports ▪ NDT Report (if required)	H		H		M		M	
12		▪ In process Weld Control	▪ WPS ▪ Welder ID ▪ Preheat ▪ Interpass Temperature	▪ Welding Control Procedure ▪ Method Statement/Work Instruction	▪ Relevant Specifications ▪ WPS	▪ Weld Parameter Records	M		M		M		M	

SAMPLE

REFERENCE ITP NO:		DATE:	EQUIPMENT DESCRIPTION : SAMPLE ITP FOR STRUCTURE				CONTRACT NO.						REV.:	
			VENDOR :				PROJECT :							
LATEST REVISION STATUS			ITEM/TAG NO.				CONTRACTOR :							
ITEM NO.	RESPONSIBLE PARTIES / COMPANIES	MANUFACTURING ACTIVITY	INSPECTION ACTIVITY	REFERENCE DOCUMENT	ACCEPTANCE CRITERIA	VERIFYING DOCUMENT	SUBCONTRACTOR / VENDOR		CONTRACTOR		CERTIFYING AUTHORITY / TPIA		COMPANY	
							ACTION	SIGN	ACTION	SIGN	ACTION	SIGN	ACTION	SIGN
			▪ Weld Parameters ▪ Weld Consumables ▪ Weather Protection ▪ Width of Weld Bead - Weaving											
13		▪ Visual Inspection	▪ Date & Time of Weld Completion ▪ Welder ID ▪ Visual Appearance of Completed Weldment ▪ Weld Profile	▪ Welding Control Procedure ▪ Method Statement/Work Instruction	▪ Relevant Codes/ Standards ▪ Relevant Specifications ▪ WPS	▪ Visual Inspection Reports	H		H		W		W	
14		▪ NDT	▪ Application NDT Methods ▪ Material Type ▪ Thickness & Diameter ▪ Type of RT Films ▪ Temperature of the Joints (at the time of NDT) ▪ Date of NDT ▪ Evaluation of the Results	▪ NDT Procedure ▪ NDT Extent and Requirements	▪ Relevant Codes/ Standards ▪ Relevant Specifications	▪ NDT Reports	H		H		W/R		W/R	
15		▪ Weld Repair (if any)	▪ Preheat ▪ Interpass Temperature ▪ Weld Parameters ▪ Weld Consumables ▪ NDT to Ascertain Complete Removal of Weld Defects ▪ Weather	▪ Welding Repair Procedure ▪ Method Statement/Work Instruction	▪ Relevant Specifications ▪ Repair WPS	▪ Weld Repair Records ▪ Visual Inspection Report ▪ NDT Reports	H		H		M		M	
16		▪ PWHT (if any)	▪ NDT Clearance ▪ PWHT Equipment ▪ Heating and Soaking Temperature	▪ PWHT Procedures	▪ Relevant Codes/ Standards ▪ Relevant Specifications ▪ Shop Drawings	▪ PWHT Chart and Report	H		H		R		R	

SAMPLE

REFERENCE ITP NO:		DATE:	EQUIPMENT DESCRIPTION : SAMPLE ITP FOR STRUCTURE				CONTRACT NO.						REV.:	
			VENDOR :				PROJECT :							
LATEST REVISION STATUS			ITEM/TAG NO.				CONTRACTOR :							
ITEM NO.	RESPONSIBLE PARTIES / COMPANIES	MANUFACTURING ACTIVITY	INSPECTION ACTIVITY	REFERENCE DOCUMENT	ACCEPTANCE CRITERIA	VERIFYING DOCUMENT	SUBCONTRACTOR / VENDOR		CONTRACTOR		CERTIFYING AUTHORITY / TPIA		COMPANY	
							ACTION	SIGN	ACTION	SIGN	ACTION	SIGN	ACTION	SIGN
			▪ Duration of Soaking ▪ Weather Protection during PWHT											
17		▪ Dimension Check (Pre-Weld & Post Weld)	▪ Dimension ▪ Roundness ▪ Squareness ▪ Drift Test (for Jacket Leg and Piles) ▪ Gauging Test (for PIG Traps and Risers)	▪ Dimension Control Procedure	▪ Relevant Codes/ Standards ▪ Relevant Specifications ▪ Shop Drawings	▪ Dimensional Reports	H		W		W		W	
18		▪ Blasting / Painting	▪ Humidity ▪ Substrate Temperature ▪ Dew Point ▪ Surface Profile ▪ Surface Clealiness ▪ Dust Level ▪ Paint System ▪ NDT Clearance	▪ Blasting & Painting Procedure	▪ Relevant Specifications	▪ Blasting/ ▪ Painting Reports	H		H		M		M	
19		▪ Passive Fire Protection (PFP)	▪ Blasting ▪ Thickness of PFP ▪ Surface Appearance of System of Completed PFP Coating ▪ Painting ▪ NDT Clearance	▪ PFP Procedure ▪ Certification of PFP Materials	▪ Relevant Specifications	▪ Reports	H		H		M		M	
20		▪ Release for Installation or Delivery	▪ Final Inspection Acceptance ▪ IRN from TPI/CA	▪ Final Inspection Acceptance ▪ Packing Procedure	▪ Relevant Specifications	▪ IRN	H		H		H		H	
21		▪ Manufacturing Data Records (MDR)	▪ Completeness & Correctness of Documentations	▪ Final Document Index	▪ Relevant Specifications	▪ Approved MDR	R		R		R		R	

SAMPLE

Note: The above ITP serves as a guide for CONTRACTOR / Subcontractor / Vendor / Supplier and shall not be construed as complete and does not in any way relieve CONTRACTOR of his responsibility to develop the specific ITP required for the WORK.

CONTRACTOR shall explicitly indicate which activities will be outsourced or performed by Sub-contractor(s) / Vendor(s). Additional ITP may be required from Sub-contractor / Vendor as deemed necessary by COMPANY.

Legend:

H = Hold Point

W= Witness Point

M = Monitor Point

R = Review Point

SAMPLE

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