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REV..	DESCRIPTION	DATA	PROJ.	EXEC.	CONT.	APROV.

 TGP	TRANSPORTADORA DE GAS DEL PERU CAMISEA NATURAL GAS AND NGL TRANSPORTATION SYSTEM
 TECHINT TEDUC	TECHINT COMPAÑÍA TÉCNICA INTERNACIONAL PROJECT QUALITY PLAN

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	ESC. N/A	JOB: E100-50113	

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1.- SCOPE

The Project Quality Plan objective for the CAMISEA project is to provide conditions and criteria that construction to be executed conforms to drawings and contract specifications. A further objective is to produce documentation which will provide written confirmation that inspections, examinations and tests have been met. This plan is also aimed at ensuring the traceability of the process.

2.- EXTENT

The Project Quality Plan is designed to cover quality aspects related to construction

3.- DESCRIPTION OF THE QUALITY TASKS (CHECK-LISTS)

The description of the quality tasks is included in this document, Annex 1 – Inspection and Test Plan – Pipelines and Annex 2 Inspection and Test Plan – Pump Stations , Pressure Reducing Stations and Scraper Traps. The basic tasks is to monitor, assuring and certifying that quality aspects related to construction have been met.

4.- REFERENCES

- Lump-Sum Turn Key Engineering – Procurement and Construction Contract Supply Agreement – 2001
- Lump-Sum Turn Key Engineering – Procurement and Construction Contract Site Construction Agreement
- ASME B 31.4 – 1998 Edition - Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids.
- ASME B31.8 – 1999 Edition - Gas Transmission and Distribution Piping Systems
- Quality Control Manual – Techint


5.- RESPONSIBILITIES

- The Quality Assurance Manager is responsible for administration of the project quality plan. The Quality Assurance Manager maintain effective liaison with Project Management in meeting project quality objectives.
- The Construction Manager is responsible for the compliance of the quality tasks included in the Inspection and Test Plan.
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6.- QUALITY PLAN

6.1 RECEIVING INSPECTION

The pipes will be examined according to the guidelines established in the document 2794-

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L-SP-00038 Field Joint Coating & Pipe Coating Repair.

In addition to the Vendor Inspection, the fittings, all valves and equipment supplied to the project, upon receiving at Site, they will be inspected for damages and the related inspection reports will be issued.

All consumables such as electrodes, welding wires, coating materials, heat shrinkable sleeves will be inspected upon received at Site, and the related inspection reports will be issued together with the manufacturers certificates.

All approved, preliminary approved and rejected materials by Receiving Inspection team will be stored as per document Quality Control Manual A 7.0 and the Receiving Inspection Procedure.

6.2 QUALIFICATIONS

Qualifications of welding procedures, welders and welder operators will be done according to API 1104/99. The qualifications will be performed in presence of the Owner or his representative. Records of the qualifications will be maintained.

In case of pre-qualified joint for welding procedure covered by AWS D1.1 Structural Welding Code, the valid pre-qualification documentation will be submitted.

6.3 ROW

ROW shall be performed according to the document 2794-L-SP-00006 ROW Clearing and Grading.


6.4 DITCHING

Ditching activities will be inspected by the back end inspector. Checking will include ditching and coating of the prepared column to be lowered. 2794-L- SP – 00008 Ditching construction procedure will apply.

6.5 STRINGING

Stringing of the pipes along the ROW will be monitored by the inspector. A Data collector will be assigned to collect data from all activities related to: stringing, welding, pipes identification, etc.. Construction procedure 2794-L-SP-00004 Handling, Hauling , Stockpiling and Stringing of pipes and other materials will apply.

Records of this activities will be maintained.

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6.6 BENDING

Bending operations will be monitored by the inspector. Monitoring will consist mainly in ovalization checking (gage rod tool to be used). Document 2794-L-SP-00010 – Pipe Cold Bending will apply. Records will be maintained.

6.7 WELDING (LINE WELDING, TIE-INS, CROSSINGS)

Welding will be inspected by the welding inspector. In addition to the guidelines established in the document 2794-L-SP-00012 General Welding Specifications following steps will be checked – but not limited to:

- **Pipe out-of-roundness**
- **Joint bevels**
- **Tail root**
- **Gap root**
- **Joint Misalignment**

As soon as the root pass is completed, visual inspection will be performed.

At this sequence, welding identification will be done (PK, welding joint, welder ID, etc) and all the data will be sent to Main Office for further processing.

Tie-Ins and Crossings activities will be inspected by the tie-ins and crossing inspector. He will be responsible to verify the ditching, pipe column preparation before lowering, welding, coating, lowering and backfilling. Records will be maintained and distributed accordingly.

Nondestructive examination will be done to the 100% of the welded joints. NDE evaluation will be done by Techint and Owner representative.


6.8 COATING

All coated joints will be holiday tested in addition to the visual, surface preparation and coating installation inspection by the back-end inspector. Setting of the Holiday Detector will be done by means of a Jeoper Meter. Holiday Detector shall be calibrated.

Coating repairing will be inspected by the back-end inspector and records will be maintained. Document 2794-L-SP-00038 Field Joint Coating & Pipe Coating Repair will apply.

6.9 LOWERING AND BACKFILLING

Prior to lowering-in, the back-end inspector will be aware of all approvals regarding the welding (i.e. nondestructive examinations), as well as coated joints (Holiday examinations) in addition to the visual, surface preparation and coating installation inspection. Setting of the Holiday Detector will be done by means of a Jeoper Meter.

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Holiday Detector shall be calibrated.

Records will be maintained. Document 2794-L-SP-00038 Field Joint Coating & Pipe Coating Repair will apply.

For backfilling activities, document 2794-L-SP-00045 Lowering-in and Backfilling will apply.

6.10 TIE-INS AND CROSSINGS

Tie-ins and crossings will be inspected by the tie-in inspector. Records of this activities will be maintained.

Following sequences such as :

- **Welding procedure specification information**
- **Pipes identification**
- **Welding identification**
- **Dimensional checking**
- **Dimensional alignment**
- **Nondestructive examination results (Evaluation of the nondestructive tests will be done next day after the shooting day)**

will be reported and recorded.

6.11 CLEANING, GAGING, TESTING

One back-end inspector will check the activities of cleaning, gaging and testing. Document for restoring and testing will be issued.

6.12 PLATE INTERNAL GAUGING

Plate internal gauging will be inspected according to the guidelines established in the procedure to be issued.


Upon approval of the plate internal gauging, reports will be issued and records will be maintained.

6.13 ROW RESTORATION

Row restoration will be inspected by the back-end inspector. Documents for this activity will be reported and records will be maintained.

Row restoration will be done according to document 2794-L-SP-00053 Restoration.

6.14 FABRICATED PIPING & OTHER PIPING MATERIALS

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Fabricated piping and other piping materials will be monitored by an inspector who will issue the inspection reports. Following sequences will be monitored:

- **Source inspection for piping.**
- **Inspection and test plan**
- **Welding procedures**
- **Welders and welder operators qualification**
- **Welding joints identification**
- **Nondestructive examination**
- **Surface preparation and coating/lining**
- **Release report**

6.15 SURFACE PREPARATION AND COATING

Surface preparation and coating will be inspected as per procedure to be issued. Primary checking will be the surface preparation grade and the different coating layers applied on the surface.

6.16 NONDESTRUCTIVE EXAMINATION

Nondestructive examination will be performed in the firing line, tie-ins, crossings as well as other special works. Nondestructive examination contractor will be processing the films in places located in order to prevent delays for its evaluation. Document 2794-L-SP-00037 Radiographic Examination will apply.

6.17 CONCRETING

The activities for concreting will be monitored by an inspector. Holiday examination will be done on the pipe coating prior the installation of the mesh (grid) and the concreting. Records will be maintained. Document 2794-L-SP-00043 will apply.

7.- MEASURING AND TESTING EQUIPMENT

Measuring and testing equipment will be calibrated and the calibration intervals and the standard against the calibration will be according to contract specifications. Procedures for calibration and calibration records will be established. Calibration will be performed in recognized laboratories.

8.- ANNEX

Inspection and Test Plan – Pipeline