		PROJECT	Standby SRU & Additional Tanks IOCL Paradip Refinery		
		CLIENT	INDIAN OIL CORPORATION LIMITED		
PICKLING AND PASSIVATION OF STAINLESS STEEL SURFACES	Project No. 080557C001	Document No. 080557C-000-JSS-6300-003		Rev. No. 0	Page 1 of 6

SPECIFICATION FOR PICKLING AND PASSIVATION OF STAINLESS STEEL SURFACES

0	27.11.2019	ISSUED FOR IMPLEMENTATION	TB	GM	LA	JMC
REV.	DATE	STATUS	WRITTEN BY	CHECKED BY	APPROVED BY	AUTHOR. BY

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1. INTRODUCTION:

INDIAN OIL CORPORATION LIMITED (IOCL) has awarded Fax of Acceptance (FOA) dated 29th August 2019 to M/s. Technip India Limited (TPIL) for Consultancy services (PMC/EPCM services) for overall project management, FEED Review / FEED, Detailed Engineering, Procurement & expediting services, Tendering & award, Construction Management & Supervision, Assistance in start-up, Commissioning & performance test runs for installation of a Standby SRU of 525 TPD capacity and execution of Additional tanks for Paradip Refinery, Odisha, India.

2. DEFINITIONS:

2.1 Wherever used in this procedure, the following words shall have the meaning as given hereunder

“**OWNER** or **IOC** or **IOCL** or **Client**” shall mean INDIAN OIL CORPORATION LIMITED

“**CONSULTANT** or **PMC**” shall mean TECHNIP INDIA LIMITED.

“**CONTRACTOR**” shall mean the bidder selected by the OWNER for performing the scope of works specified in the bid documents.

“**AUTHORISED REPRESENTATIVE**” shall mean OWNER’s/PMC’s representative authorized to act for and on behalf of OWNER/PMC, as the case may be.

“**VENDOR/SUPPLIER**” shall mean any third party selected by either the OWNER or CONTRACTOR for supplying any of the equipment/materials for the Unit specified in the bid documents.



“**SUBVENDOR/SUBSUPPLIER**” shall mean any party on whom Vendor/Supplier suborders materials and items and whose role is defined in Quality Control Plans.

“**PROJECT**” shall mean Sulphur Recovery Unit and Additional Tanks Project, Paradip Refinery

“**UNIT**” shall mean the totality of the units and facilities comprised in the Scope of work, which forms a distinct operating system.

2.2 ABBREVIATIONS

- a. ITP: Inspection and Test Plan
- b. QA/QC: Quality Assurance / Quality Control

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- c. FQCP: Fabrication Quality Control Plan
- d. TPIA: Third Party Inspection Agency

2.3 **REFERENCE STANDARD**

ASTM A380 - Standard Practice for Cleaning, Descaling, and Passivation of Stainless Steel Parts, Equipment, and Systems

3 **PURPOSE:**

This document describes the Inspection Methodology to be used for inspection of equipment and materials to be supplied for the project to comply with the specifications and Quality Standards laid down in the Tender / Contract. This document details the Inspection Methodology to be adopted for ensuring the quality of the equipment and materials being supplied and defining the roles of various agencies involved and the quality system to be adhered to.

4 **SCOPE:**

Scope of this specification is to give main instructions for pickling and passivation of 300 and 400 series stainless steel surfaces. The specific equipment/piping surfaces and weld joints to be cleaned shall be given in other technical documents.

Head shell forming for vessels shall be guided by a proper procedure, to be submitted by Vendor / Fabricator for Contractor review. The procedure shall indicate how to avoid iron contamination during various stages of fabrication of Vessel.

The Vendor shall deliver a proper procedure for cleaning, pickling and passivation for approval. The procedure shall contain a detailed description of product used, temperatures, duration, safety requirements, etc.



WARNING:

**The test solution and contaminated water can be dangerous to personnel health.
The national regulations concerning dispose industrial dangerous refuse must be respected**

5. **INITIAL SURFACES CONDITION**

All surfaces shall be free from dust, dirt, weld slag etc.

For this purpose, only nylon brushes and stainless tools have to be used. After cleaning, the surfaces shall be washed with clean water.

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6 **OPERATING PRECAUTION**

Adequate precautions relevant to handling of the test solution shall be adopted.

Great care shall be taken in handling hydrofluoric acid, although the actual pickling solutions or pastes are relatively mild. It is essential that the manufacturer's instructions be followed implicitly as burns due to contact with acid may be apparent only after several hours.

Proper personnel protection including face shields, rubber gloves and rubber protective clothing must be provided.

Adequate ventilation and strict personnel access controls must be maintained in areas where such chemicals are being used.

7 **PICKLING**



7.1 All surfaces must be degreased before acid pickling.

Typical cleaning agents which may be used are organic solvents or paint remover (the same solvent approved for cleaning before liquid penetrant examination).

Wash surface with water to remove any residual organic solvent.

7.2 The composition of pickling/passivation solution shall be as per recommendation of ASTM A380

- PICKLE/PASSIVATION PASTES OR JELLS: These are typically proprietary mixture from a supplier and are material specific for the purpose of oxidation removal and shall contain no halogens. Thus, specific pastes should be selected for different materials and the specific manufactures directions followed. Pickling and passivation using pastes or Jells shall only be carried out on the outside of equipment, pipelines, pipes etc. Any residuals of such pastes shall be removed after cleaning by washing with copious quantities of fresh water

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- 7.3 The temperature during the pickling action shall be within 15°C to 30°C, or as per the Manufacturer's recommendation.

Typically, the lower the cleaning temperature the greater shall be the concentration of pickling agent.

- 7.4 The contact time necessary to obtain the desired surface is solution and temperature dependent, but typically between 5 to 30 minutes: Manufacturer's recommendations should be followed. To prevent over pickling, a previous test shall be made to establish the correct procedures for the specific application.

8 **RINSING**

On pickling completion, all the surfaces must be brushed with hot water. The "pH value" of final rinsing water shall be between 6 and 8 (max. Chloride level 50 ppm); manufacturer's recommendation can be followed if necessary.

Note: To minimize staining, surface must not be permitted to dry between successive steps of the pickling and rinsing procedure.

9 **DRYING**

After rinsing, all surfaces shall be dried in open air or with blower and by means of cleaned and dried clothes.

10 **EXAMINATIONS**

Complete area shall be inspected for any visible contamination using proper illumination. All the surface shall be shiny and free of scales. Weld Joint locations shall be free of oxides and any discoloration

"Spot-Testing" for iron contamination shall be performed when there are doubts on cleanliness, using a documented Feroxyl Test as per ASTM A380. Areas to be tested shall be determined by the Engineer-in charge/Appointed Inspector. Successful completion of testing shall also be approved by the Engineer-in charge/Appointed Inspector.