

 	PROJECT		Standby SRU & Additional Tanks IOCL Paradip Refinery		
	CLIENT		INDIAN OIL CORPORATION LIMITED		
SPECIFICATION FOR TRAY INSTALLATION	Project No. 080557C001	Document No. 080557C-000-JSC-0000-002	Rev. No. 0	Page 1 of 8	

JOB CONSTRUCTION SPECIFICATION FOR TRAYS/INTERNAL INSTALLATION

0	25.11.2019	ISSUED FOR IMPLEMENTATION	TB	PKP / LA	LA	JMC
REV.	DATE	STATUS	WRITTEN BY	CHECKED BY	APPROVED BY	AUTHOR. BY
DOCUMENT REVISIONS						

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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. SCOPE

- 2.1. This specification gives inspection instructions to be followed during installation of Trays/ Internals.
- 2.2. This specification is issued to ensure that all works/activities are in fully compliance with standards, drawings and specifications of TECHNIP.

3. REFERENCES

This specification makes reference to:

3.1. TECHNIP Documents

- 080557C-000-PP-805 Site Co-ordination & Communication Procedure.
- 080557C-000-PP-807 Material Receiving, Inspection, Handling Storage & Preservation procedure
- 080557C-000-PP-804 Specification for Positive Material Identification at Construction Site.
- 080557C-000-QCP-6860-001 QCP for Tray Installation.
- 080557C-000-QCP-6860-002 QCP for Equipment Internal Installation.
- 080557C-000-QCP-0000-001 QCP for Material Management and Warehouse
- 080557C-000-PP-820 Standard specification for inspection, flushing and testing of piping systems.
- DRAWINGS

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4. DEFINITIONS:

- 4.1. 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/CONSULTANT's representative authorized to act for and on behalf of OWNER/CONSULTANT, as the case may be

“**VENDOR**” 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.

“**PROJECT**” shall mean 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.

5. SAFETY

Safety prescriptions shall be in accordance with TECHNIP Document Specification for HSE

6. MATERIAL STORAGE AND PRESERVATION ACTIVITIES

- 6.1. Before storage, the incoming material shall be inspected for acceptance.
- 6.2. Contractor shall Inspect, preserve the materials as per specified in Job Construction Specification for Material Handling & Storage procedure 080557C-000-PP-807

7. PRELIMINARY ACTIVITIES BEFORE INSTALLATION

7.1. Documentation Check

- 7.1.1. CONTRACTOR shall verify that documentation is properly updated (latest revision & Manufacturer drawings and specifications) before starting any construction activity.

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- 7.1.2. CONTRACTOR will issue a detailed installation procedure for Tray & Internals that shall be approved by Owner/ CONSULTANT

8. INTRODUCTION

- 8.1. The purpose of this specification is to help in effecting satisfactory installation trays and tower internals in the minimum time.
- 8.2. Whether installation involves a small number of trays, tower internals or is a large complex involving thousands of components, it is vital that care is taken to ensure efficient handling and assembly of tray components.
- 8.3. This specification should be used only as a "General Guide". The work in each tower and for each tray/tower internal should be carried out in accordance with General Arrangement Drawings prepared for specific tray/tower internal.
- 8.4. An adequate number of components with installation spares, where applicable, are supplied for every assembly. Significant time and Cost can be saved by efficient storage and usage of such components.

9. ORDER OF INSTALLATION

- 9.1. These instructions are based upon the following order of installation:
- 9.2. Review the drawings for respective tray/tower internals. It is an important aid for installation. The drawings show the relative position of each component and corresponding item number. After all trays/tower internals are uncrated, identify each piece of the tray/tower internal with the item number w.r.t. its location on the General Arrangement Drawing.
- 9.3. Ensure that protective oil coating is removed from carbon steel tray/tower internal parts prior to initiating installation of trays and tower internals in the tower. (For suggested procedure for removal of linseed oil coating, refer clause 10.0 of this specification).

9.4. TRAYS

- 9.4.1. Check levelness of tray support rings & various dimensions of bolting bar welded to the tower to ensure that these are as per relevant drawings and within specified tolerances.
- 9.4.2. Check that ventilation (fans or breathing machines), low voltage lighting, means of access, scaffolding, means of transportation and routes to be followed, telephone or radio communication, auxiliary services and safety precautions have been properly arranged.

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- 9.4.3. Before starting tray assembly, the reference point shall be located inside the column.
- 9.4.4. Verify if for the first tray assembly is necessary to erect a floor scaffolding inside the column.
- 9.4.5. Each completed level shall be checked to ascertain that all parts are properly fitted, orientations and measurements are correct, no loose hardware is left.
- 9.4.6. Tray beams to be installed on column supports as per orientation and location specified in MFR drawing. Check level difference between topside support ring and topside beam.
- 9.4.7. To allow position adjustment of tray panels during installation, tighten clamps and bolts by hand only.
- 9.4.8. Cover plate can be closed after assembly of all tray decks.
- 9.4.9. Tray decks not to be deflected during installation work.
- 9.4.10. Check clearance during down comer assembly and perform final tightening of clamps and bolts.
- 9.4.11. Leak test recessed seal pans, wherever provided.
- 9.4.12. Field welds (if any), such as strength or seal welds, shall be carried out according to the welding procedure specifications and all other requirements specified on MFR drawings.
- 9.4.13. Field welds between internals and vessels are not permitted for pressure vessels stress relieved.
- 9.4.14. Installation starts at the bottom of the column, proceeding towards the top of it.

9.5. Tower Internals

- 9.5.1. Work upward from bottom most bed in the tower.
- 9.5.2. Fit/install lattice girder/major beam, if any.
- 9.5.3. Install (including welding and leak testing) vapour distributor/chimney tray/accumulator tray, if any.
- 9.5.4. Install support plate/support grid.
- 9.5.5. In case bed is provided with proprietary packings/grid/structured packings, follow the instructions provided by the supplier. Successive layers of grid/structured packings may

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require to be rotated by specific angle as mentioned in supplier's drawings/procedure for installation.

- 9.5.6. Install the bed limiter/hold down grid wherever specified in drawings, in case of random packings
- 9.5.7. Install bed retainer/distributor support grid, in case of structured packings.
- 9.5.8. Install distributor/redistributor, leak test pan/trough type distributor/redistributor and hydro test spray header, if specified, on the drawings.
- 9.5.9. Fit the pre-distributor/feed pipe.
- 9.5.10. Repeat from paragraph 9.5.2 to 9.5.8 above, for the next bed.
- 9.5.11. Remove all the foreign material from respective tower internal. Ensure that the same are clean and un-obstructed for proper performance.
- 10. REMOVAL OF LINSEED OIL COATING FROM CARBON STEEL TRAYS AND TOWER INTERNALS**
- 10.1. Prepare 10% caustic soda solution at about 80°C in a trough.
- 10.2. Immerse Tray or Tower Internal component coated with linseed oil for about 10minutes.
- 10.3. Remove the component, scrub with wire brush using sand followed with rinse in clean potable water for 15 minutes.
- 10.4. Repeat rinse in potable water two more times.

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11. MAIN TRAYS TOLERANCES

11.1 Design and construction requirements as per PDRP-8430-SP-0046

12. INSPECTION AND TEST RECORD

12.1. Inspection and Certification

Work Inspection and Test shall be monitored, witnessed and recorded according to the inspection list and QC Forms given by the applicable QCP:

080557C-000-QCP-6860-001 QCP for Tray Installation.

080557C-000-QCP-6860-002 QCP for Equipment Internal Installation.