Facilities Systems Completion Planning and Execution

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Introduction

The systems completion process is the sequential activities within a project that verify and prove the construction, installation, integration, testing, and preparation of systems have been completed as designed, and thus, the facility is ready for start-up and operations. The systems completion process is designed to help prepare and manage the transfer of care, custody, and control of facilities under construction through appropriate certification and documentation, such that the details of progress are evident.

The systems completion process identifies two main phases in the project life cycle — planning and execution. The planning phase begins in front-end engineering design (FEED) and comprises evaluation/planning through the beginning of fabrication/construction. The execution phase (field activities) starts with factory acceptance tests (FATs) and ends with stable operations and acceptance of the facility by operations. Systems completion planning and execution activities overlap at detailed engineering and procurement and fabrication/construction.

For many years the petrochemical industry has prepared documents representing the combined knowledge and experience of the industry on various phases of petrochemical industry operations. In continuation of this effort, this recommended practice assembles in one document established processes, practices, and terminology to standardize systems completion planning and execution within the petrochemical industry.

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1 Scope

This document applies to a wide variety of projects within the oil and gas industry excluding subsurface. Although intended for oil and gas industry, the process described in this document can be applied to other industries as well. It is intended that the processes and practices established herein can be adapted and applied from a single piece of tagged equipment to a complex petrochemical facility. The process described within is intended to be applied at a system level.

2 Terms, Definitions, and Abbreviations

2.1 Terms and Definitions

For the purposes of this document, the following terms and definitions apply.

2.1.1
"A" check sheet
A recorded verification that the equipment is mechanically complete.

2.1.2
"B" check sheet
A recorded verification that the equipment has been energized and function tested per the engineering design specification.

2.1.3
"C" check sheet
A recorded verification that a system commissioning activity has been completed.

2.1.4
commissioning
Group of energized and dynamic tests that constitute verification that each "system or subsystem" is fabricated, installed, cleaned, and tested in accordance with design and the systems are ready for start-up.

2.1.5
certificate
Documents that the system is complete for each step of the process.

2.1.6
mechanical completion
Milestone point in time when tagged items and equipment within a system is installed in accordance with all drawings, specifications, and documented in accordance with the inspection test plan and is ready for pre-commissioning.

2.1.7
handover
Internal transfer of assets based on either an area/module or systems determination between functional groups within the project organization

2.1.8
inspection and test plan
Document describing activities required to assure quality of manufacturing and installation.

2.1.9
inspection and test record
Record documenting manufacturing and installation of equipment.