

RIG INSPECTION, RIG SIZING AND SELECTION

DRL051

COURSE OVERVIEW

This course is intended to develop skills to conduct Inspection and Acceptance Tests on drilling and work over rigs based on API, ANSI, ISO and IADC standards through the application of check lists and procedures to verify the working conditions and readiness of major rig systems and equipment. The course starts with a detailed description and specification of main rig systems and equipment used for drilling and work over operations and continues with the discussion of specific procedures and check lists implemented for conducting rig equipment inspection. Finalizing with a methodology used for rig sizing and selection.

COURSE OBJECTIVES

By the end of this course, participant will be able to:

- Independently carry out a basic (visual) rig inspection
- Describe the main inspection criteria for major equipment
- Identify major items that have an impact on the safety and operation of a rig
- Recognize the indicators of the overall condition of a drilling rig
- List the relevant standards (such as API) and their implications for drilling equipment
- Understand the basics of EX equipment installed in hazardous areas
- Evaluate basic maintenance and inspection procedures on the rig to identify compliance with good working practices and industry standard

WHO SHOULD ATTEND

- Drilling Engineers, Drilling Supervisors, Drilling Team Leaders, Rig Managers, Tool Pushers
- Drillers, Service Companies Specialists, Management personnel who will benefit from learning about the practical aspects of rig inspection, Sizing and Selection procedures.

COURSE DURATION

5 Working Days

COURSE OUTLINES

- 1. Pre course evaluation**
- 2. Introduction to Rig Inspection, Rig Sizing and Rig Selection**
 - Course objectives
 - Basic concepts and definitions on Rig Inspection
 - Standards, Norms used in Rig Inspection
 - Inspection categories and acceptance criteria
- 3. Types of Drilling and Work Over Rigs**
 - Land rigs for drilling Operations
 - Land rigs for work over operations
- 4. The Basic Rig Systems – Description & Specifications**
 - Power System
 - Hoisting System
 - Rotary System
 - Fluid Circulating System
 - Solids Control Equipment
 - BOP and Well Control Equipment
 - Rig Instrumentation
- 5. Guidelines for Rig Inspection and Acceptance Test**
- 6. Rig Inspection and Acceptance Tests (Workshop & Check Lists) – Part I**
 - Drilling Equipment
 - Hoisting Equipment
 - Drill Floor Equipment
 - Pipe Handling Equipment
 - Mud System
 - Mud Pumps
 - Mud Mixing Equipment
 - Centrifugal Pumps
 - Solids Control Equipment
 - Well Control Equipment
 - Rams Preventers

- Annular Preventers
- Choke and Kill Manifold
- Poor Boy Degasser
- BOP Control Unit (Accumulator)
- BOP Handling Equipment
- Diverter System
- Power System (Diesel / Electric Rig)
 - Diesel Engines
 - Main Generators
 - Transformers
 - SCR System
 - Main Switch Boards
 - DC Motors
 - AC Motors
 - ELMAGCO Break
 - Lighting Systems
 - Emergency Generators / Auxiliary Equipment
- Safety and Environment Inspection
 - Fire Fighting Equipment
 - Drilling Facilities Safety
 - Gas Detection Equipment
 - Lifting and Load Handling Equipment
 - Permit To Work System
 - Pollution Control
 - Accommodations & Housekeeping
 - First Aid & Sick Bay

7. Drill String Inspection

- Drill String Components – Description & Specifications
 - Drill Pipe Marking System
 - Drill String Operation
 - Drill String Failures

8. Inspection Methods – NDT

- Dimensional Inspection

- Visual Inspection
- Magnetic Particles
- Electro Magnetic Inspection
- Ultra-Sonic Inspection
- Non-Magnetic Inspection Methods
- Inspection Marking
- Rig Sizing and Rig Selection
 - Minimum Land Rig Requirements
 - Main factors for Rig Comparison
 - Derrick Load Capacity Calculations
 - Block Line Calculations
 - Drilling Work Line Calculations
 - Rig Power Requirement Calculations
 - Well Control Equipment Requirements
 - Solid Control Equipment Requirements
 - Drill String Handling Capacity
 - Storage Capacity
 - Accommodations & Living Facilities
 - Rig Management System
 - Rig Inventory

9. Post course evaluation.

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