Operate an Oil and Gas Process (Crude Oil Stabilisation)

Overview

This process involves the operation of stabilising crude oil to meet export specification.
The process boundary is from the inlet to the outlet of the stabilisation train.

This Occupational Standard involves:

1. Starting up the crude oil stabilisation process
2. Operating and monitoring the crude oil stabilisation process
3. Shutting down the crude oil stabilisation process
4. Isolating and reinstating the crude oil stabilisation process
5. Complying with HSE and safe systems of work

Who is this standard for

This standard is recommended for process operators/technicians working in oil and gas production.
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**Performance criteria**

You must be able to:

- Start up the process
  - P1 obtain relevant operational instruction and ensure that information received on current operational status is accurate and complete
  - P2 brief relevant personnel and organise work of self and others where appropriate
  - P3 prepare and integrate plant and utilities
  - P4 carry out pre-start up checks
  - P5 start up the process in accordance with procedures
  - P6 achieve steady state conditions
  - P7 identify and take relevant action to deal with faults and any operational issues

- Operate and monitor the process
  - P8 monitor and take relevant action to optimise the process
  - P9 identify and take relevant action to deal with upsets in the process
  - P10 ensure effective on-going communication of relevant information on operational status
  - P11 maintain relevant records

- Shut down the process
  - P12 obtain relevant operational instruction and ensure that information received on current operational status is accurate and complete
  - P13 brief relevant personnel and organise work of self and others where appropriate
  - P14 shut down the process in accordance with procedures
  - P15 monitor the shut down and take relevant action to deal with issues

- Isolate and reinstate the process
  - P16 obtain relevant operational instruction and ensure that information received on current operational status is accurate and complete
  - P17 brief relevant personnel and organise work of self and others where appropriate
  - P18 isolate plant/equipment for maintenance
  - P19 carry out integrity testing of the isolation and confirm the safety of the plant/equipment
  - P20 monitor and maintain the integrity of the isolation
  - P21 confirm completion of maintenance and associated documentation
  - P22 carry out integrity testing and confirm the plant/equipment is safe to return to service
  - P23 de-isolate and reinstate plant and equipment

- Comply with HSE and safe systems of work
  - P24 carry out relevant risk assessments and ensure that controls are in place to
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- Ensure that risks are as low as reasonably practicable
- P25 Ensure that relevant safety briefings are carried out
- P26 Work in accordance with safe systems of work
- P27 Take relevant steps to protect the environment
- P28 Identify issues which may impact on safe systems of work and take relevant action
- P29 Maintain relevant safety records
Knowledge and understanding

You need to know and understand:

Process - General
K1 phases of the production process, the reactions taking place and the effect of changes on physical and chemical properties
K2 sources of information
K3 plant procedures and layout and its integration with other processes
K4 functioning of process control
K5 relation to control room operations
K6 how to connect to plant and utilities
K7 effects of loss of any utility and its reinstatement
K8 how to isolate plant and utilities from operating sources,
K9 the principles of de-isolation
K10 how to carry out integrity tests
K11 how to take samples and interpret results
K12 methods and consequences of depressurisation/pressurisation
K13 blowdown and relief systems and their limitations

Process – Specific
K14 function and operation of equipment
K15 utilities required for crude oil stabilisation
K16 normal plant conditions and operating parameters for crude oil stabilisation
K17 what steady state conditions are for crude oil stabilisation operations and how they are achieved
K18 factor impacting on performance of crude oil stabilisation operations and how to achieve optimum processing
K19 types and causes of deviations and faults for crude oil stabilisation operations and the relevant actions to take when they occur
K20 the effects of changes in ambient conditions on process operation
K21 drain systems associated with the plant and their limitations
K22 flare/vent systems associated with the plant and their limitations

Safe Systems of Work
K23 the implications of health, safety and environmental legislation
K24 work area hazards and how to identify and control/minimise them and reduce risks to as low as reasonably practicable
K25 safe systems of work procedure
K26 consequences of emissions to the environment and procedures for dealing with spillages and uncontrolled emissions
K27 segregation of waste materials

Critical and Emergency Situations
K28 critical conditions for the process and how to control and respond to them
K29 the effect and potential implications of loss of any critical process and its reinstatement
K30 the principles and effect of hydrocarbon hydrate formation, prevention and dispersion
K31 emergency response procedures for plant and location
K32 the operation and implications of the emergency shutdown (ESD) control systems
K33 the operation and implications of the fire and gas control systems
K34 actions to be taken in event of critical and emergency situations
Scope/range

Equipment:
• separators
• heat exchanger
• pumps
• sampling systems
• metering

Safe working practices
Candidates must demonstrate safe working practices at all times. This will involve:
• wearing correct PPE at all times
• complying with regulations
• proactively raising safety issues and participating in a safety culture
• ensuring work area is kept clear
• disposing of waste in accordance with environmental requirements
• taking part in safety drills and briefings.

Working relationships
Candidates must demonstrate effective working relationships at all times. This will involve:
• making clear efforts to establish and maintain productive working relationships
• ensuring effective communication with colleagues on operational matters
• communicating all relevant information on activities, progress and results to supervisors/managers
• providing support and advice for colleagues within limits of own responsibility and expertise.
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