Operate an Oil and Gas Process (Drain Systems)

Overview

This process involves the collection and processing of hazardous /contaminated hydrocarbons, liquids, oils, chemicals, slops through the open and closed drain system and collection and filtering of non-hazardous domestic and storm water through the drain system.

This Occupational Standard involves:

1. Starting up the drain systems process
2. Operating and monitoring the drain systems process
3. Shutting down the drain systems process
4. Isolating and reinstating the drain systems 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.
**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
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 open and close hazardous systems
K2 phases of the production process, the reactions taking place and the effect of changes on physical and chemical properties
K3 sources of information
K4 plant procedures and layout and its integration with other processes
K5 functioning of process control
K6 relation to control room operations
K7 how to connect to plant and utilities
K8 effects of loss of any utility and its reinstatement
K9 how to isolate plant and utilities from operating sources,
K10 the principles of de-isolation
K11 how to carry out integrity tests
K12 how to take samples and interpret results
K13 methods and consequences of depressurisation/pressurisation
K14 blowdown and relief systems and their limitations

Process – Specific
K15 function and operation of equipment
K16 utilities required for drain systems
K17 normal plant conditions and operating parameters for drain systems
K18 what steady state conditions are for drain systems operations and how they are achieved
K19 factor impacting on performance of drain systems operations and how to achieve optimum processing
K20 types and causes of deviations and faults for drain systems operations and the relevant actions to take when they occur
K21 the effects of changes in ambient conditions on process operation
K22 drain systems associated with the plant and their limitations
K23 flare/vent systems associated with the plant and their limitations

Safe Systems of Work
K24 the implications of health, safety and environmental legislation
K25 work area hazards and how to identify and control/minimise them and reduce risks to as low as reasonably practicable
K26 safe systems of work procedure
K27 consequences of emissions to the environment and procedures for dealing with spillages and uncontrolled emissions
K28 segregation of waste materials
Critical and Emergency Situations
K29 critical conditions for the process and how to control and respond to them
K30 the effect and potential implications of loss of any critical process and its reinstatement
K31 the principles and effect of hydrocarbon hydrate formation, prevention and dispersion
K32 emergency response procedures for plant and location
K33 the operation and implications of the emergency shutdown (ESD) control systems
K34 the operation and implications of the fire and gas control systems
K35 actions to be taken in event of critical and emergency situations
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Scope/range

Equipment:
- contactors
- scrubbers
- heat exchangers
- reboiler
- pumps
- filters
- reflux accumulator
- surge/sump tanks

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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