OPIPOH8 - SQA Unit Code HG1Y 04

Operate an Oil and Gas Process (Gas Fractionation)

Overview

This process involves the operation of delivering individual component(s) from mixed gas supply.
The process boundary is from the raw gas supply to component(s) stream (s) and residue.

This Occupational Standard involves:

1 Starting up the gas fractionation process
2 Operating and monitoring the gas fractionation process
3 Shutting down the gas fractionation process
4 Isolating and reinstating the gas fractionation 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 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, including isolation devices and methods of installation

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 gas fractionation

K16 normal plant conditions and operating parameters for gas fractionation

K17 what steady state conditions are for gas fractionation operations and how they are achieved

K18 factor impacting on performance of gas fractionation operations and how to achieve optimum processing

K19 types and causes of deviations and faults for gas fractionation 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 :

- fractionation column(s)
- reboiler
- reflux drum
- condenser
- pumps, filters

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.

OPIPOH8- SQA Unit Code HG1Y 04

Operate an Oil and Gas Process (Gas Fractionation)

Developed by	Opito
Version Number	1
Date Approved	February 2016
Indicative Review Date	February 2019
Validity	Current
Status	Original
Originating Organisation	OPITO
Original URN	OPIPOH8
Relevant Occupations	Process Operatives
Suite	Processing Operations Hydrocarbons
Keywords	Oil; gas; start up; shut down; production process; gas fractionation; process operator; process technician