

OCE13

Offshore COSHH essentials



This information will help offshore dutyholders (owners, operators and contractors) to comply with the Control of Substances Hazardous to Health Regulations 2002 (COSHH), as amended, to protect workers' health.

This guidance consolidates good control practice and reinforces existing knowledge with additional information.

It will help you carry out COSHH assessments, review existing assessments, deliver training and in supervising activities involving substances hazardous to health.

It is aimed at staff whose responsibilities include the management of substances hazardous to health on offshore installations (eg occupational health specialists, COSHH assessors, supervisors etc). It is also useful for trade union and employee safety representatives.

Following this guidance is not compulsory and you are free to take other action. But if you do follow this guidance, you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance as illustrating good practice.

Also see essential information on the back of the sheet.

Breaking containment – process cleaning operations

Control approach R

Respiratory protective equipment

What this sheet covers

This sheet describes good practice for internal cleaning of process plant and vessels, eg separators, hydrocyclones, pipework etc. It covers the key points you need to follow to help reduce exposure to an acceptable level, as part of your COSHH assessment.

Hazards

- ✓ Process plants and vessels may contain condensate crude oil and gas. Hydrocarbons can include BTEX (benzene, toluene, ethylbenzene and xylenes) mixtures.
- ✓ Health risks include cancer, genetic damage, reproduction effects, and sensitisation by inhalation or skin contact.
- ✓ The workplace exposure limit (WEL) for benzene is 1 ppm (8-hour time-weighted average (TWA)). Keep exposure as far below this as reasonably practicable.
- ✓ Hydrogen sulphide (H₂S) may also be present in hydrocarbon process plant and vessels, particularly when reservoirs begin to mature and water out (see OCE6).
- ✓ Mercury may also be present in process plant and vessels (see OCE14).
- ✓ NORM (naturally occurring radioactive material) may also be present in process plant and vessels (see ORE1).

Access

- ✓ Where possible, erect an enclosure or habitat.
- ✓ Erect barriers and notices.

Equipment and procedures

Planning

- ✓ Define the isolation standards and routines for draining, purging and venting.
- ✓ See sheet OCM1 if work is in a confined space.
- ✓ If NORM is present then ensure that your radiation protection supervisor (RPS) has written local rules for the job (see ORE1).
- ✓ See sheet OCE6 if H₂S is present.
- ✓ See sheet OCE14 if mercury is present.

Control equipment

- ✓ Where possible use alternative cleaning methods without breaking containment, eg sand washing packages.

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- ✓ Provide a spillage clean-up kit.
 - ✓ Provide for drainage to appropriate drains, eg closed drains.
 - ✓ Provide for gas venting to a safe place, eg a flare stack or cold vent.
 - ✓ Provide eyewash equipment and an emergency shower close to the work site.
 - ✓ Provide enough fresh air to dilute and remove air contaminants.
 - ✓ Provide portable hydrocarbon detector in the area.
 - ✓ Respiratory protective equipment is normally

Control procedures

- ✓ Isolate the line for safe opening.
- ✓ Connect via valves and lock the pipework to the appropriate drain. Purge and drain the fluids.
- ✓ Vent pressurised gases to a safe place.
- ✓ Prove isolation. Carry out pressure build-up (PBU) checks.
- ✓ Drain, purge and flush the system to hazardous open drains.
- ✓ Prove it is free of gas, if necessary have the authorised tester perform the gas test.
- ✓ Workers should break joints gently. In the event of an unexpected release, workers should evacuate the area immediately and raise the alarm.
- ✓ Fit 'Disturbed joint' tags on broken joints.
- ✓ Fit and leak-test blind flanges within 12 hours if the work is not finished.
- ✓ Never allow pipe ends to remain open.
- ✓ Test for leakage on remaking the joint.

Personal protective equipment (PPE) – see OCM3

- ✓ All PPE must be easy to decontaminate, eg washable.
- ✓ Ensure that all items of PPE are compatible.

Respiratory protective equipment (RPE) – see OCM4

- ✓ Provide a filtering respirator or breathing apparatus, CE marked with an assigned protection factor of at least 40.

Other protective equipment

- ✓ Provide a slicker suit worn over boots, nitrile gloves, and a visor if the RPE does not have one.

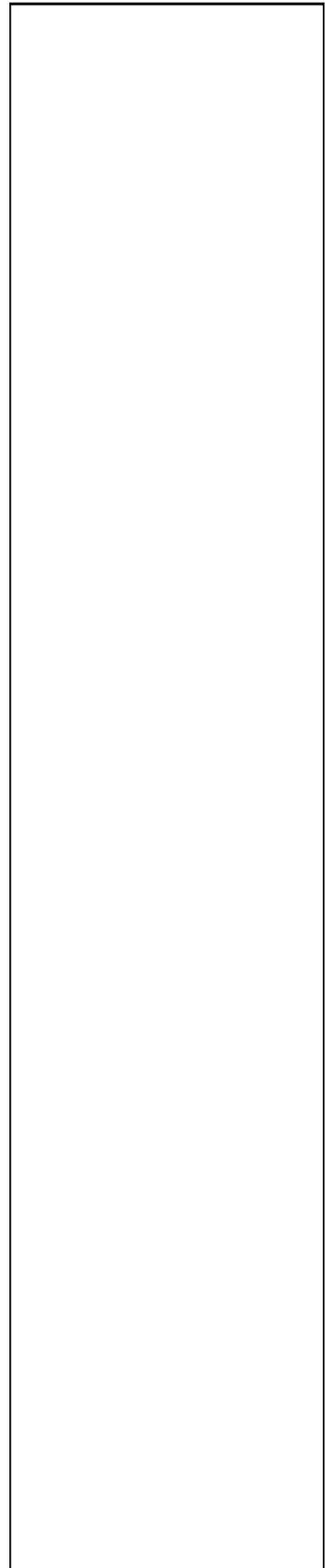
Maintenance, examination and testing

Checking and maintenance

- ✓ Make and follow schedules for preventative maintenance of plant and monitoring equipment.
- ✓ Before each use, check that portable monitors are fully charged and working properly.
- ✓ Check for signs of damage to control equipment before starting work.

RPE

- ✓ Examine and test RPE thoroughly at least monthly and infrequently used RPE at least three monthly. Replace worn parts.



- ✓ Check the airflow and air quality to air-fed RPE at least once every three months, or before use. Check in-line filters.
- ✓ Ensure that breathable air compressors take in clean air.

Records

- ✓ Keep records of all examinations and tests for at least five years.

Exposure monitoring

- ✓ Monitor the air for benzene and H₂S by meter, after venting.
- ✓ Use personal monitoring results to decide if you need to carry out biological monitoring for benzene.
- ✓ Monitor to show that workers, PPE, equipment and areas are decontaminated to background levels of radiation.
- ✓ Provide radiation workers with personal dosimeters, changed once a month.

Cleaning and housekeeping

- ✓ Place a temporary bund to contain any spillage.
- ✓ Clear up small spills with inert absorbent pads. Dispose as hazardous waste.
- ✓ Wash all PPE and test to show that it has been decontaminated.
- ✓ Label bags of dirty clothing to warn the laundry about the hazard.

Waste

- ✓ Seek advice from the radiation protection advisor (RPA) for NORM disposal.
- ✓ Any waste discharged to the sea must comply with an environmental licence.
- ✓ Drain liquid residues to appropriate drains through hoses and valve connectors.
- ✓ Residues are ‘hazardous waste’. Label containers clearly – include a UN number where appropriate. Store and dispose of waste safely.

Personal decontamination and skin care

- ✓ Provide warm water, mild skin cleansers, nailbrushes, and soft paper, fabric towels or hot air for drying. Avoid abrasive cleansers.
- ✓ Tell workers to wash hands before every break.
- ✓ Provide pre-work skin creams that will make it easier to wash dirt from the skin, and after-work creams to replace skin oils.

Caution: ‘Barrier creams’ or ‘liquid gloves’ do not provide a full barrier.

Health surveillance

- ✓ Conduct low-level health surveillance for dermatitis involving skin checks by suitably trained responsible person.
- ✓ Ask your RPA for help in deciding the workers’ classification for ionising radiation work.
- ✓ Radiation workers must be certified as fit to work with ionising radiation.
- ✓ Outside workers must have a radiation passbook. Keep this up to date.

Employee checklist

- Is your radiation passbook up to date?
- Is the equipment in good condition and working properly?
- Is your portable/personal alarm fully charged and working properly?
- Is your respirator working properly? Check it every time.
- Look for signs of leaks, wear and damage before every job.
- Do you have a spill clean-up kit handy?
- If you find any problem, get it fixed. Don’t just carry on working.
- Discard single-use gloves every time you take them off. Discard other gloves at the end of the shift.
- Wash hands before eating, drinking or using the lavatory.

Training and supervision

- ✓ Provide supervision – ensure that safe work procedures are followed.
- ✓ Check that PPE use follows the local rules.
- ✓ You need a trained RPA.
- ✓ Tell workers, including maintenance workers, what the hazards and risks are.
- ✓ Explain the dangers of NORM.
- ✓ Training includes toolbox talks on:
 - how to use equipment properly;
 - how to use the benzene monitor;
 - how to react to alarms and evacuate safely;
 - how to use RPE and check that it is working;
 - how to clean up spills correctly; and
 - what to do if something goes wrong.
- ✓ Involve managers and supervisors in health and safety training.

Essential information

OCE0 *Advice for managers*

OCM1 *Confined spaces*

OCM3 *Personal protective equipment (PPE)*

OCM4 *Respiratory protective equipment (RPE)*

OCE6 if hydrogen sulphide is present

ORE1 if NORM is present

OCE14 if mercury is present

Other legislation

Radioactive Substances Act 1993

Other hazards

- Flammability
- Hydrogen sulphide (H₂S)
- Mercury
- Substances harmful to the marine environment

Further information

Respiratory protective equipment at work: A practical guide HSG53 (Third edition)
HSE Books 2005
ISBN 978 0 7176 2904 6
www.hse.gov.uk/pubns/books/hsg53.htm

Developing process safety indicators: A step-by-step guide for chemical and major hazard industries HSG254 HSE Books 2006
ISBN 978 0 7176 6180 0
www.hse.gov.uk/pubns/books/hsg254.htm

Workplace exposure limits EH40
www.hse.gov.uk/coshh/table1.pdf

You can find the full Offshore COSHH essentials series at
www.hse.gov.uk/coshh/index.htm

This guidance was developed by representatives from the UK offshore oil and gas industry and trade unions, with HSE.