

**GUIDELINES:
MANAGING OFFSHORE
DECOMMISSIONING WASTE**

May 2018



Introduction	5	The FIVE Key Waste Principles	16
Development of the Guidelines	5	The Waste Framework Directive	16
What is Decommissioning Waste?	6	Waste Management Terms	17
Legal definition of waste	6	Waste Management Criteria	17
Scope	6	Re-use	18
Regulators and Regulations	8	When waste ceases to be waste	18
Regulators	8	Duty of Care	19
BEIS: the Department for Business, Environment and Industrial Strategy	8	Duty of Care: an example	19
OPRED: Offshore Petroleum Regulator for Environment and Decommissioning	9	Duty of Care Audits	19
OGA: the Oil and Gas Authority	9	Early Engagement with the Waste Management sector	19
SEPA: the Scottish Environmental Protection Agency (Onshore)	9	Active Waste Management Plans throughout the decommissioning cycle	20
EA: the Environment Agency (Onshore)	9	AWMP: an example	20
SEPA and EA (Offshore)	9	Inventory of Offshore Materials and Wastes (Materials Inventory)	21
HSE: Health and Safety Executive (onshore and offshore)	9	Stage 1 Materials Inventory	21
LA: Local Authority (onshore)	9	Stage 2 Materials Inventory	23
MS: Marine Scotland (offshore)	10	Stage 3 Materials inventory	24
MCA: Maritime and Coastguard Agency (offshore)	10	Overview of Materials Inventory Stages	25
Scottish Natural Heritage, Natural England & Natural Resources Wales (onshore & offshore)	10	Waste Classification Criteria	26
JNCC – Joint Nature Conservation Committee (offshore)	10	European Waste Catalogue	26
Regulations	11	Assessing Hazardous Properties of Waste	27
Key legislation	11	Identifying the composition of the waste	27
The Waste Framework Directive (2008/98/EC)	12	Identifying the hazard statement code	28
Hazardous or Special Waste	13	Identifying the relevant threshold concentrations	29
Duties under hazardous waste regulations	13	Waste classification and assessment	29
Consignment Notes	13	Key Waste Streams	30
Waste Hierarchy	13	NORM	30
The Environmental Protection Act 1990	13	What information is needed?	30
Transfrontier Shipment of Waste Regulations 2007	14	Regulations governing NORM	30
The Radioactive Substances Act 1993	14	Waste from Well Plugging and Abandonment	31
Water Resources Act 1991 and Water Environment and Water Services (Scotland) Act 2003	14	Mattresses	31
End of Waste	14	The Information Flow	32
Section 29: What to do	14	Operator or Tier One to the Removals Contractor	32
Transfrontier Shipment	15	Removals Contractor to their sub-contractors	32
Regulatory Contacts List	15	Onshore Recycling and Disposal yards	32
		Offshore Contractors	32
		Waste Transfer and Consignment Notes	32
		Close Out Report	32
		On Site Management	33

AFFF	Aqueous Film-Forming Foam
AWMP	Active Waste Management Plan
BEIS	Department of Business, Energy and Industrial Strategy
BFR	Brominated Flame Retardant
CLP	Classification, Labelling and Packaging of Substances and Mixtures Regulation
CoP	Cessation of Production
COSHH	Control of Substances Hazardous to Health
DNS	Decom North Sea
EA	Environment Agency
EDC	Engineer Down and Clean
EIA	Environmental Impact Assessment
EPA 90	Environment Protection Act 1990
EPR	Environmental Permitting Regulations
EWC	European Waste Catalogue
GRP	Glass-Reinforced Plastic (Fibreglass)
HSE	Health and Safety Executive
HVAC	Heating, Ventilation and Air-Conditioning
HWR	Hazardous Waste Regulations
JNCC	Joint Nature Conservation Committee
LA	Local Authority
LoW	List of Wastes (EWC)
MCA	Maritime and Coastguard Agency
MEG	(Mono)ethylene Glycol
MS	Marine Scotland
MSDS	Material Safety Data Sheet
NORM	Naturally Occurring Radioactive Material
OGA	Oil and Gas Authority
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
P&A	Plugging and Abandonment
PPE	Personal Protective Equipment
REACH	Registration, Evaluation, Authorisation and restriction of CHemicals
RPE	Respiratory Protective Equipment
RSA	Radioactive Substance Act
SEPA	Scottish Environment Protection Agency
TEG	Triethylene Glycol
TFS	Transfrontier Shipment of Waste
UKCS	United Kingdom Continental Shelf
WEEE	Waste Electrical and Electronic Equipment (Directive)
WEWS	Water Environment and Water Services (Scotland) Act

INTRODUCTION

The management of materials and wastes generated by offshore decommissioning involves numerous stakeholders and is governed by an enormous number of Regulations, mandated by many regulatory regimes. Complication is inbuilt!

Correct waste management does more than protect the environment; it reduces risks to human health. It deals with, for example, trapped gas in valves, asbestos, residual oils and fuels, mercury and Naturally Occurring Radioactive Material (NORM).

Correct waste management:

- Minimises occupational health risks by influencing the design of the decommissioning works, enabling the development of safe systems of work, the identification of appropriate personal and respiratory protective equipment (PPE and RPE) and the implementation of mitigation measures for the escape of waste or other substances
- Establishes waste management measures and protocols for waste classification and handling in accordance with the applicable Regulations
- Enables logical planning for the deployment and deck space optimisation of waste containers
- Protects the environment from spillages and pollution by implementing appropriate mitigation measures.

Decom North Sea and D3 Consulting Ltd. have developed these Guidelines because:

- The Scottish Environment Protection Agency (SEPA) and the Environment Agency (EA) have both observed that Decommissioning Programmes so far undertaken have not included enough detail to satisfy the Waste Hierarchy requirements—they need full reporting of waste volumes, content for re-use, recovery, recycle and disposal
- Regulators and the offshore oil and gas industry are looking for consistency in the management of offshore decommissioning waste
- The new BEIS Guidance Notes “Decommissioning of Offshore Oil and Gas Installations and Pipelines” (May 2018) clearly require that “decommissioning decisions are consistent with waste hierarchy principles and taken in the light of full and open consultations”

DEVELOPMENT OF THE GUIDELINES

These Guidelines, developed by Decom North Sea (DNS) and D3 Consulting Ltd. in 2018, are under continuous review and will be further developed and updated as new information comes to light. This information will include new best practices, lessons learnt and regulatory changes.

The developers of the Guidelines work in close consultation with BEIS, SEPA, the EA and the Health and Safety Executive (HSE). Additional Stakeholders will join the group as the Guidelines develop further.

Please visit the authors’ website at decomnorthsea.com to download the latest copy of the Guidelines. We welcome your comments, suggestions and case studies, which you can upload to the same site.

Legal definition of waste

The European Directive 75/442/EEC, the Waste Framework Directive, defines waste as: “any substance or object which the holder discards or intends or is required to discard.”

As far as decommissioning is concerned, then, anything removed from the asset after the date of Cessation of Production (CoP) is “decommissioning waste” unless it has already been identified for re-use, with certain knowledge that it will be re-used.

If the Operator has sought tax relief for any pre-CoP activities that relate to decommissioning, waste and materials produced during these activities are also classified as decommissioning waste. This will have been established through an exchange of correspondence between the Operator and BEIS.

Scope

This section to be further elaborated.

Confirmation on how far onto land does decommissioning waste under these guidelines count, i.e. pipelines to the high or low water mark?

The Guidelines have a particular focus on hazardous wastes, and the box below lists examples of typical types of hazardous waste to be found on offshore platforms: (Source: Kjell Arne Stålevik, Kvaerner Stord “Inventory Mapping of Hazardous Materials” OH2016, Glasgow).

Typical Hazardous materials for Oil and Gas Installations may be classified according to their chemical composition, use on the platform and manageability:

- 1. Drill cuttings**
 - Mix of cuttings and mud
 - Diesel
 - Oil-based mud
 - Synthetic oils
 - Reservoir fluids
 - Residuals in pipelines and drilling equipment
 - Drill floor
- 2. Reservoir fluids**
 - Process reservoir fluids
 - Well stream
 - Produced oil
 - Produced gas
 - Produced water
 - Drains
 - Vessel and tanks - Separators
 - Sludge tanks
 - Coolers
 - Scrubbers
- 3. Contaminated scale, NORM/Hg**
 - Produced water
 - Well flow (crude oil)
 - Separators
 - Produced gas (Pb-210)
- 4. Process chemicals**
 - Methanol
 - Monoethylene glycol and Triethylene glycol (MEG/TEG)
 - Scavengers (acids)
 - Inhibitors
 - Biocides (chlorine)
 - Aqueous film-forming foam (AFFF)
- 5. Oils and fuels**
 - Diesel and helifuel
 - Hydraulic oil
 - Seal and lube oil
- 6. Radioactive sources**
 - Smoke detectors
 - Illumination signs
 - Nucleus level transmitters
- 7. Hazardous fibres**
 - Fire dampers
 - Heating, Ventilation & Air Conditioning (HVAC) gasket
 - Pipe gaskets
 - Pipe insulation
 - Electrical cables
 - Bestobells: pipe and module sealing
 - Fire walls
 - Door insulation
 - Pipe insulation
- 8. Hazardous construction materials**
 - Chlorinated paraffins (wall penetration – Polychlorinated Naphthalenes)
 - Lead encapsulation
 - PCB sealing
 - Brominated flame retardants (BFRs)
 - Cell foam BFRs
 - Polychlorinated Biphenyl (PCB)
 - Chlorofluorocarbon (CFC)
 - Phthalates, flooring
 - Heavy metals (Cadmium, Chromium, Lead, Mercury)
- 9. Paint**
 - Most paint systems contain polyurethane, which will generate isocyanates when exposed to thermal treatment (hot cutting)
 - Orange: Pb 33 000 mg/kg
 - Red paint on Glass reinforced plastic (GRP): Pb 11 400 mg/kg
 - Yellow: Pb 32 800 mg/kg
- 10. Waste Electrical and Electronic Equipment (WEEE)**
 - Electrical components shall be segregated from the waste stream as they may contain hazardous materials (Asbestos, Mercury, Acids)
 - Cables
 - Cabinets
 - Batteries
 - Lighting

REGULATORS AND REGULATIONS

The authors recognise the importance of Operators' early engagement with the Regulators and key Stakeholders in the development of the Decommissioning Programmes; they have also taken into account the newly-published BEIS Guidance Notes of May 2018. For these reasons, the next revision of these Guidelines will clearly show the relevance of waste management to the development of Decommissioning Guidelines and to the Regulatory requirements.

The Decommissioning Programme should include a statement indicating how the principles of the waste hierarchy will be met and showing the extent to which the installation, including the topsides and the materials contained within the installation, will be re-used, recycled or disposed of on land.

Include on how waste fits into SCAPs - The OGA can step in if there is non-compliance in or with the supply chain

Regulators

BEIS: the Department for Business, Environment and Industrial Strategy

The Department regulates the decommissioning of offshore structures under the Petroleum Act 1998 and approves the Decommissioning Programme, which must include a summary waste and materials inventory.

BEIS issues Guidance Notes for the Decommissioning of Offshore Oil and Gas Installations and Pipelines. Section 9, Treating, keeping and disposing of waste, states the requirements clearly:

1. "The Environment Agency (in England and Wales) and the Scottish Environment Protection Agency (in Scotland) are responsible for administering and enforcing the waste management controls. Details of their requirements in regards to inventory of waste are at Annex D."
2. "The decommissioning process produces waste that requires effective management by those responsible for decommissioning activity to ensure all waste produced offshore is legally transported, recycled, reused or disposed of safely by competent, authorised organisations and personnel."
3. "Operators should engage directly with the relevant waste authority to ensure that they comply with the requirements, confirming that they have done so in the decommissioning programme. As a consultee to the draft decommissioning programme waste authorities will advise if requirements have been met."
4. "Operators are strongly advised to ensure that sufficient time is allocated to waste requirements as part of the project planning noting that where offshore waste is likely to be transported outside of the UK documentation requirements and approval of trans-frontier shipment permits and licences can take time to complete."
5. "Waste authorities highlight five principles that they expect companies to adhere to:
 - Early Engagement
 - Active Waste Management Plans
 - Waste Framework Directive
 - Duty of Care
 - Inventory of Offshore Waste"

OPRED: Offshore Petroleum Regulator for Environment and Decommissioning

The responsibility for ensuring that the requirements of the Petroleum Act 1998 and international obligations are complied with rests with the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) which sits within the Department of Business, Energy and Industrial Strategy. OPRED is also the competent authority on decommissioning in the UK for OSPAR (international regulations) purposes.

OGA: the Oil and Gas Authority

The OGA works with BEIS and is specifically required to assess Decommissioning Programmes on the bases of cost, future alternative use and collaboration.

SEPA: the Scottish Environmental Protection Agency (Onshore)

SEPA, created by the Environment Act 1995, is responsible for the enforcement of pollution legislation in Scotland. This legislation regulates:

- Discharges from prescribed processes under Part I of the Environment Protection Act 1990 (EPA 1990), to be progressively replaced by the requirements of the Pollution Prevention and Control (Scotland) Regulations 2012 (PPC 2012)
- The waste management regime under Part II of EPA 1990 and the waste management activities prescribed under PPC 2012
- The keeping and use of radioactive materials and the disposal and accumulation of radioactive waste under the Radioactive Substances Act 1993, which applies to installations operating in Scottish waters and their associated infrastructure
- The licensing of a controlled activity in accordance with the Water Environment (Controlled Activities) (Scotland) Regulations 2005 (to protect the water environment).

EA: the Environment Agency (Onshore)

The EA is responsible for Environmental Permitting of onshore disposal yards, registration of carriers, regulation of the movement of waste, regulation of hazardous waste and regulation of radioactive waste disposal.

SEPA and EA (Offshore)

Both SEPA and the EA maintain regulatory control over radioactive substances offshore, SEPA under the Radioactive Substance Act 1993 (RSA 93) and the EA under Environmental Permitting (EPR 2012). The two agencies also control the shipping of waste destined for final disposal outside the UK under the Transfrontier Shipment of Waste (Amendment) Regulations 2014.

HSE: Health and Safety Executive (onshore and offshore)

The HSE is responsible for enforcing regulations and legislation on health and safety. Its remit extends to transport of dangerous goods, chemical hazards, toxic substances and issuing of consents and registration for hazardous substances, and the accumulation of radioactive materials. All asbestos licensing comes under the HSE.

LA: Local Authority (onshore)

The LA is responsible for regulating the planning of new onshore oil/gas operations and onshore pipelines, enforcement of the Clean Air Act 1993, issue of consents for hazardous substances, and enforcement of noise control legislation and other statutory nuisance legislation which may affect disposal yards.

MS: Marine Scotland (offshore)

MS is an executive agency of the Scottish Government. To discharge its responsibility for marine environmental protection, it consults with and advises BEIS on development of oil spill plans and the licensing of dumping at sea (including pipelines and decommissioning).

MCA: Maritime and Coastguard Agency (offshore)

The MCA has regulatory authority over those aspects of the offshore oil and gas industry that fall under the MARPOL Convention 73/78 (the main international convention that covers prevention of pollution of the marine environment by ships), including sewage discharges and garbage at sea.

Scottish Natural Heritage, Natural England and Natural Resources Wales (onshore and offshore)

These national agencies are responsible for promoting nature conservation and protecting biodiversity within their national boundaries up to 12 nautical miles from shore.

JNCC – Joint Nature Conservation Committee (offshore)

The JNCC is a UK body responsible for promoting nature conservation outside the 12 nautical-mile limit, acting as the main advisor on offshore nature conservation issues to the government and oil industry. As a consultee on the Decommissioning Plan, it looks to ensure that any potential for oil spills or loss of waste overboard during decommissioning is addressed and minimised.

REGULATIONS**Key legislation**

- Petroleum Act 1998 (as amended by the Energy Act 2008)
- European Community (EC) Directive 2008/98/EC on Waste (Waste Framework Directive)
- The Waste (Scotland) Regulations 2012
- The Waste (England and Wales) Regulations 2011 (as amended) by The Waste (England and Wales) (Amendment) Regulations 2014
- Environment Protection Act 1990 (EPA 90)
- The Environmental Permitting (England and Wales) Regulations 2007 as amended by The Environmental Permitting (England and Wales) (Amendment) Regulations 2009 and The Environmental Permitting (England and Wales) (Amendment) Regulations 2015
- The Controlled Waste (England and Wales) Regulations 2012
- The Controlled Waste Regulations 1992 (as amended) (Scotland only)
- Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations 1991 (as amended)
- Special Waste Regulations 1996 – Special Waste Amendment (Scotland) Regulations 2004
- The Hazardous Waste (England and Wales) Regulations 2005 as amended by The Hazardous Waste (England and Wales) (Amendment) Regulations 2009
- Radioactive Substances Act 1993 (RSA 93)
- The Pollution Prevention & Control (Scotland) Regulations 2012
- The Pollution Prevention & Control (England and Wales) Regulations 2000 (as amended)
- Control of Pollution (Amendment) Act 1989
- Water Resources Act 1991
- Water Environment and Water Services (Scotland) Act 2003 (WEWS)
- Council Regulation No 1013/2006/EC, the Waste Shipment Regulations (WSR)
- The Transfrontier Shipment of Waste Regulations 2007
- Council Directive 2006/117/Euratom, transposed by the Transfrontier Shipment of Radioactive Waste and Spent Fuel Regulations 2008
- The London (Dumping) Convention is also applicable. The 1972 Convention and the later 1996 Protocol give generic guidance for any waste that can be dumped at sea. New guidelines, adopted in 2000, specify different classes of waste, including platforms and other man-made waste.

The Waste Framework Directive (2008/98/EC)

This directive:

- Provides the legislative framework for the collection, transport, recovery and disposal of waste
- Sets the basic concepts and definitions related to waste management, such as definitions of waste, recycling and recovery
- Explains the process by which waste ceases to be waste and becomes a secondary raw material (the end-of-waste criteria)
- Lays down basic waste management principles, requiring that waste be managed without endangering human health and harming the environment, and in particular without risk to water, air, soil, plants or animals, without causing a nuisance through noise or odours, and without adversely affecting the countryside or places of special interest
- Introduces the polluter pays principle to waste legislation
- Installs the Waste Hierarchy (Figure 1) into member state legislation



The Waste Framework Directive is transposed into UK legislation by the following Regulations

- The Waste (Scotland) Regulations 2012
- The Waste (England and Wales) Regulations 2011 (as amended) by
- The Waste (England and Wales) (Amendment) Regulations 2014

HAZARDOUS OR SPECIAL WASTE

Hazardous Waste (Special Waste in Scotland) is waste with hazardous properties. If such waste is mismanaged, it has a greater potential than non-hazardous waste to cause harm to the environment and human health. From the point of its production, strict controls apply to its movement, management and recovery (or disposal).

EA and SEPA control these wastes under:

- The Special Waste Regulations 1996 (as amended) (Scotland only)
- The Hazardous Waste (England and Wales) Regulations 2005 as amended by
- The Hazardous Waste (England and Wales) (Amendment) Regulations 2009

DUTIES UNDER HAZARDOUS WASTE REGULATIONS

Consignment Notes

To ensure safe handling, any organisation involved in moving hazardous waste must ensure that the transfer is covered by a Consignment Note. These Notes provide details of each party involved in the transfer and of the type of waste being moved. They must be kept on file for three years.

Waste Hierarchy

Anyone producing, handling or managing hazardous waste must take all reasonable measures to apply the Waste Hierarchy.

The Environmental Protection Act 1990

Everybody concerned with controlled waste is under a Duty of Care, mandated by EPA 90, to ensure that the waste is managed properly, recovered or disposed of safely, does not cause harm to human health or pollution of the environment and is transferred only to someone authorised to receive it. This duty applies to any person who produces, imports, carries, keeps, treats or disposes of controlled waste or acts as a broker having control of such waste. Breach of the Duty of Care is an offence, with a penalty of up to £10,000 on summary conviction or an unlimited fine on conviction on indictment.

In Scotland, the Duty of Care also applies to the storage, transfer and carriage of waste before it is exported. Those concerned with controlled waste should ensure that the correct documentation is completed for the waste movement and that the site of destination holds the appropriate environmental permit or exemption to accept the waste. This responsibility extends to destinations in other countries.

The registration of waste carriers is regulated by the Control of Pollution (Amendment) Act 1989 and the Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations 1991 (as amended). Under the Special Waste Regulations 1996 – Special Waste Amendment (Scotland) Regulations 2004 and the Hazardous Waste (England and Wales) Regulations 2005, all organisations, businesses and companies involved in Waste Management who transport controlled waste within Great Britain as part of their business (or in any other way for profit) must register with the Environment Agency as carriers of controlled waste.

Depending on its nature and composition, waste within the UK may be defined as special waste in Scotland, or as hazardous waste in England and Wales.

Special and hazardous wastes are potentially the most difficult and dangerous and are included in the European Union's Hazardous Waste List. The Regulations require all movement of special/hazardous waste to be tracked by way of a Consignment Note system.

Transfrontier Shipment of Waste Regulations 2007

The international movement of waste is controlled by Council Regulation No 1013/2006/EC, the Waste Shipment Regulations (WSR). The Transfrontier Shipment of Waste Regulations 2007 give effect to certain aspects of the WSR in UK law, nominate the competent authorities for the UK and provide them with their respective enforcement powers. The UK Plan for Shipments of Waste sets out Government policy on shipments for disposal. The Regulations are enforced by the EA (England and Wales), SEPA (Scotland) and NI Environment Agency (Northern Ireland). The regulations apply to decommissioned offshore installations, and the Secretary of State is the competent authority for the offshore area. Operators should consult the appropriate Agency when considering decommissioning activities that involve transboundary movements of waste outwith of the UK.

The Radioactive Substances Act 1993

Anyone who receives radioactive sources or radioactive waste for disposal is subject to the requirements of the Radioactive Substances Act 1993 (RSA 93).

Under this Act they must have an authorisation from the appropriate regulatory body (the EA in England and Wales, SEPA in Scotland) for the accumulation, storage or disposal of radioactive waste or be able to demonstrate compliance with the conditions contained in specific exemption orders. The Act does apply to offshore installations and the Decommissioning Programme preparations should include finding out if the selected disposal route requires such an authorisation and ensuring that the selected facility has one. It is likely that new disposal routes will require an application for authorisations.

Water Resources Act 1991 and Water Environment and Water Services (Scotland) Act 2003

It is an offence in England and Wales under the Water Resources Act 1991 to cause or knowingly permit any poisonous noxious or polluting matter to enter any “controlled” waters. In Scotland, the Water Environment and Water Services (Scotland) Act 2003 (WEWS) introduces regulatory controls over activities with the object of protecting and improving Scotland’s water environment. It is an offence for a person to carry on, or cause or permit others to carry on any controlled activity unless authorised by the Water Environment (Controlled Activities) (Scotland) Regulations 2011. Controlled waters extend to three miles from a defined baseline in England and Wales, as detailed in the Water Resources Act 1991. Coastal waters extend to three miles from a defined baseline in Scotland, as detailed in the WEWS. Other named activities under Crown control are outlined in the Continental Shelf Act 1964.

END OF WASTE

This section to be further elaborated to include ‘end point of waste’ guidance with alignment to SEPA and EA – clarity and definition has been requested by Operators.

Section 29: What to do

Under the Petroleum Act 1998 (as amended by the Energy Act 2008), Decommissioning Obligations arise when the Secretary of State serves a section 29 notice under the Act to the Operator of the field and to each licensee, requiring them to submit a Decommissioning Programme.

Section 34 of the Petroleum Act extends the right to issue a Section 29 notice to anyone who, at any time since the issue of the first section 29 notice for the installation, was liable for service of a section 29 notice (i.e., former licensees) [To be confirmed].

Once the Decommissioning Programme is approved, section 29 notice-holders have joint and several liabilities to carry it out. OGA may also serve a section 29 notice on a group of parties wider than the current licensees; the Authority can include any person having an ownership interest in the installation or pipeline, as well as a licensee’s parent or associated companies.

Thus, if an Operator or other entity is served a section 29, it takes on the Duty of Care during the decommissioning works; conversely, when the entity is released from section 29, it is also released from its Duty of Care.

Transfrontier Shipment

Any movement of waste from the UK Continental Shelf (UKCS) to another Member or Non-member State is deemed to be a transboundary movement, subject to transfrontier regulations. Unless wastes are exempt from the scope of either Council Regulation No 1013/2006 (the WSR) or the UK Plan for Shipments of Waste, any movements for disposal are prohibited. While wastes generated by the normal operation of oil platforms may be exempt from the scope of the WSR, decommissioned installations are not. Any transboundary shipment for recovery operations not exempt from the scope of WSR could be classified as a shipment of unlisted waste. Unlisted waste shipments require prior written notification to, and the written consent of, the competent authorities involved in the shipment. Given the highly specialised nature of waste shipment controls, Operators planning to carry out any decommissioning or an associated activity involving waste generated on offshore platforms should contact the relevant Agency. Council Directive 2006/117/Euratom, transposed by the Transfrontier Shipment of Radioactive Waste and Spent Fuel Regulations 2008, excludes NORM wastes and the shipment of disused sources to authorised storage facilities, so transfer of such material does not require authorisation under the rules governing transfrontier shipment of radioactive waste.

Regulations governing transfrontier shipment of waste (TFS) are now implemented in the UK by the Transfrontier Shipment of Waste Regulations 2007, which detail the UK procedures, offences, penalties and relevant enforcement authorities.

Note that the procedure to obtain authorisation can often be a long one—possibly four months. The ease or difficulty depends on factors such as destination country, application fee processing, financial guarantees and liability insurance cover.

Further details are available at <https://www.sepa.org.uk/regulations/waste/transfrontier-shipment-of-waste/>. The BEIS Guidance Notes of May 2018 reaffirm that, during consultation on the draft decommissioning programmes, consideration may take into account “Any onshore disposal consents or licences which may be necessary, including any trans-frontier shipment of waste issues.”

Regulatory Contacts List

Include here in subsequent revision of these Guidelines a contacts list to the various relevant regulators such as SEPA, EA, HSE etc.

THE FIVE KEY WASTE PRINCIPLES

The BEIS Guidance Notes of May 2018 list five key principles of managing offshore decommissioning waste:

- Adopt the Waste Framework Directive
- Ensure Duty of Care through the whole decommissioning cycle
- Demonstrate Early Engagement with the Waste Management industry
- Develop and maintain Active Waste Management Plans for the decommissioning works
- Develop and maintain robust and detailed Waste and Materials Inventories for the assets to be decommissioned.

These principles have been developed because the industry was not managing properly and was suffering the following consequences:

- A loss of overall management control of decommissioning waste over the full life cycle
- Sub-optimal decommissioning waste solutions, resulting in double handling of hazardous waste
- Failure to assess the full risks and consequences of handling and transporting waste and to communicate the assessments to all.

The enactments of each of these principles are described in the sections below.

The Waste Framework Directive

The international Waste Hierarchy (Figure 2) is a conceptual framework enshrined in the Waste Framework Directive (2008/98/EC) (WFD). It ranks the options for dealing with waste, beginning with its prevention. If unwanted material cannot be prevented, re-used or recycled, it is mandatory to consider recovering its energy as electricity and/or heat.

The adoption of the Waste Hierarchy is clearly defined as a principle in the BEIS Guidance Notes as a requirement of the Decommissioning Programme to:

“Describe the decommissioning solution for each item explaining why the solution has been selected, providing appropriate supporting evidence. In doing this the programme must consider how the principles of the waste hierarchy will be met and show the extent to which the installation, including the topsides and the materials contained within the installation, will be re-used, recycled or disposed of on land” (Section 6.2).

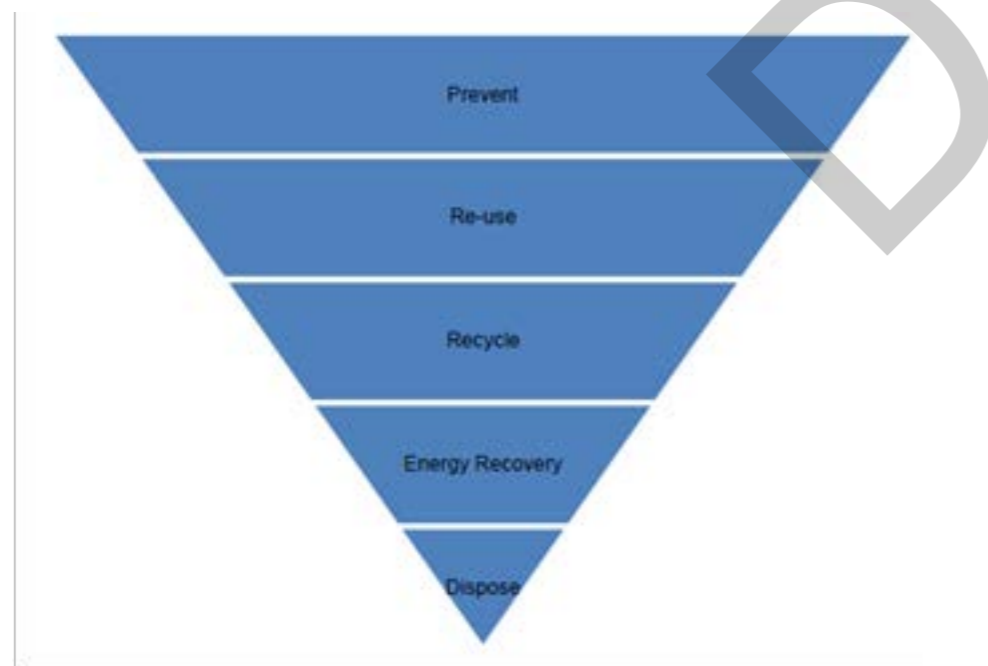


Figure 2: Waste Hierarchy (b)

UK waste legislation prioritises the application of the WFD Waste Hierarchy to prevent and manage waste.

At each level of the Hierarchy, the yard must define the optimal route for each type of material, considering finance, the need for health and safety to be maintained, environmental impact and time, as well as the use of proven technology.

The Company regards waste prevention as a key component of its waste management strategy. It is achieved by:

- Identifying waste produced during a given process
- Designing ways to minimise the waste produced by altering the process or materials used
- Understanding requirements to ensure that correct materials are ordered
- Returning any unused items to the original supplier
- Reusing materials when possible

Audits and reviews of processes must be completed to identify ways to further reduce the amount of waste produced at the site. All personnel must be aware of, and contribute to, waste minimisation. Site and support personnel must communicate with each other to ensure a full understanding of the material supply chain and to establish areas for waste minimisation.

Waste Management Terms

Preparing for re-use Checking, cleaning or repairing recovery operations to prepare products (or their components) that have become waste so that they can be re-used without further processing.

Re-use Any operation that enables non-waste products or components to be used again for their original purposes.

Recycling Any recovery operation by which waste materials are reprocessed into products, materials or substances that can be used for their original or other purposes. Recycling includes the reprocessing of organic material but not energy recovery or reprocessing into materials to be used as fuels or for backfilling operations.

Recovery Any operation with the principal intention of making waste serve a useful purpose by replacing materials which would otherwise have been used to fulfil a particular function in, for example, a production plant or in the wider economy.

Disposal Any operation that is not re-use, recycling or recovery, even where its secondary consequence is the reclamation of substances or energy.

Other recovery is not specifically defined in the revised Waste Framework Directive, although energy recovery is referenced as an example. It can be assumed, because the definition of recycling excludes materials to be used as fuels or for backfilling operations, their processing comes under the heading of other recovery.

Waste Management Criteria

Wastes should be segregated and kept separate to allow more effective adherence to the Waste Hierarchy. When considering disposal options, Operators and their Contractors must prove that they have fully considered the Hierarchy by answering the following questions:

- Can any materials (for example, plant such as pumps and equipment such as cranes) be removed and refurbished for re-use?
- Have steelwork and other materials for recycling been sufficiently segregated and decontaminated of potential hazardous substances to allow for re-use? Examples include using anchor chains as fishing net weights and concrete mattresses as agricultural flooring.
- Have other materials been sufficiently segregated for recycling?
- Have materials for disposal (including hazardous materials) been properly segregated and stored for shipment ashore?

Re-use

The Waste Framework Directive draws a clear distinction between “re-use” and “preparing for re-use”. Re-use is an activity which **does not** involve waste and preparing for re-use is an activity which **does** involve waste. The Waste Framework Directive defines these terms as follows:

Re-use means any operation by which products or components that are not waste are used again for the same purpose for which they were conceived

Preparing for re-use means checking, cleaning or repairing recovery operations, by which products or components of products that have become waste are prepared so that they can be re-used without any other pre-processing.

It should be noted that in the BEIS Guidance Notes of May 2018, the option to re-use a complete installation is “first in the order of preferred decommissioning options. OPRED is keen to encourage the re-use of facilities wherever this is practical and cost effective, and the decommissioning programme must demonstrate that the potential for re-use has been examined and discussed with the OGA, who would give OPRED a view on the reuse option” (Section 6.9)

Certainty of future use A substance or object is not waste when it is being used for the purpose for which it was conceived. There must be a genuine demand for it, and one way in which certainty of further use may be shown is through the existence of contracts. If there is no demand, the owner may have to store it for a significant period while waiting for a customer. In those circumstances, the substance or object is regarded as a burden on the holder and hence can now be considered waste.

Some examples of re-use:

A shipping container can be removed from the asset and sold on or re-used for its original purpose without any preparation it therefore **does not** become waste

A pump could be re-used, but as it will require cleaning, testing and preparing for re-use, it **does** become waste.

When waste ceases to be waste

Materials that are waste can become non-waste in certain circumstances. This occurrence is called end of waste and may involve a range of activities from a simple check to extensive processing.

Every decision on whether an item or substance is waste is taken on the circumstances of the individual case. The aim is always to ensure that the aims of the Waste Framework Directive (protection of the environment and human health) are not undermined.

Duty of Care

The Environment Protection Act 1990 Section 34 covers the Waste Duty of Care obligations. Duty of Care lies with the Decommissioning Operator throughout the waste life cycle, which ends when the waste is finally disposed of or ceases to be classified as waste. Further reference can be sought from the DEFRA Waste Duty of Care Code of Practice.

Note that the Duty of Care continues even if the waste is involved in a transfrontier shipment under TFS regulations.

Section 34 of the Environmental Protection Act 1990 requires waste holders to take all reasonable steps to:

- Prevent unauthorised or harmful deposit, treatment or disposal of waste
- Prevent a breach (failure) by any other person to meet the requirement to have an environmental permit, or a breach of a permit condition
- Prevent the escape of waste from the waste holder’s control
- Ensure that any person to whom the waste is transferred has the correct authorisation
- Provide an accurate description of the waste when it is transferred to another person

In Scotland, there is a further duty to take reasonable steps to promote high-quality recycling. Waste producers should work with other organisations and sectors to develop innovative sustainable approaches to re-use and recycling of waste and to pilot new technologies and techniques to maximise its economic value. Further reference can be sought from Natural Scotland’s Duty of Care – A Code of Practice.

Waste holders have a responsibility to take all reasonable steps to ensure that when they transfer waste to another waste holder that the waste is **managed correctly** throughout its **complete journey to disposal or recovery**.

Each holder in the waste chain shares the Duty of Care obligations, and failure to comply is an offence subject to an unlimited fine on conviction.

The Duty of Care applies to anyone who imports, produces, carries, keeps, treats or disposes of controlled waste, or is a dealer or broker that has control of such waste.

Duty of Care: an example

A Heavy Lift Contractor would typically be a:

- **Waste carrier** Any person who normally and regularly collects, carries or transports waste in the course of any business or with a view to profit, including those that produce and transport their own waste
- **Waste broker** Any person, business or organisation that arranges waste transportation and management of waste on behalf of another party

To comply with the Duty of Care, the Contractor should:

- Check that the onshore disposal yard is authorised to take the waste
- Ask the yard where it is going to store the waste
- Make detailed checks, such as requesting evidence that the waste has arrived at its subsequent intended destination and that it has been accurately described
- (If receiving waste from the platform Operator) cooperate with previous waste holders in any measures that they are taking to comply with their Duty of Care; this includes supplying evidence that previous holders may need to ascertain that their waste has reached its end of waste location.

Each holder in the waste chain shares the Duty of Care obligations.

Duty of Care Audits

The purpose of these audits is to ensure and document that all reasonable steps have been taken to ensure compliance throughout the waste chain. Audits should include:

- Obtaining licences and permits for sites receiving waste to ensure they are permitted to take it; it is important at this stage that all wastes are correctly classified
- Checking that the site complies with conditions set out in the permit; these will include limits to the amount of waste that can be handled, restrictions to the types of waste that can be handled, and measures to be taken to protect the environment and human health
- Checking that waste is handled and stored safely and securely
- Checking that wastes are accurately described, using EWC codes
- Checking that the duty to apply the Waste Hierarchy has been fulfilled and that considerations to re-use, recycle, recover or dispose have been documented
- Check that waste documents are retained for the correct timescales

Early Engagement with the Waste Management sector

This section to be further elaborated with feedback from the Waste Industry during consultation of Guidelines.

Active Waste Management Plans throughout the decommissioning cycle

To gain oversight of the waste management processes and to demonstrate compliance with Duty of Care, the Regulators require Operators to provide an Active Waste Management Plan (AWMP) that specifically states the destinations of all waste leaving the offshore location and provides for the monitoring of the handling and management of the wastes arising from the decommissioning works.

The AWMP should encompass:

- The operator's intentions for the active management of offshore waste, outlining the transition from the operational phase to decommissioning and thus encompassing the whole decommissioning cycle.
- A process for advising the various waste regulators (onshore and transboundary) of changes in a waste stream's volume or location.
- The process by which the Operator will actively monitor compliance with regulatory requirements through the whole supply chain.
- Identification and categorisation of the waste streams (including non-hazardous materials, steels, hazardous materials, radioactive materials), with a clear statement of the endpoint with regards to the Waste Framework Directive.

AWMP: an example

1. PROJECT DETAILS
 - 1.1 Operator
 - 1.2 Field/Installation
 - 1.3 Scope of Decommissioning
 - 1.4 Decommissioning Dates
- 2.0 ABBREVIATIONS AND DEFINITIONS
- 3.0 INTRODUCTION TO THE PLAN
- 4.0 PURPOSE/OBJECTIVE
- 5.0 SCOPE
- 6.0 REGULATORY
 - 6.1 Legislation/Guidance
 - 6.2 Company Internal Procedures
 - 6.3 Documentation
- 7.0 ROLES AND RESPONSIBILITIES
 - 7.1 Waste Competent Person
 - 7.2 Offshore Waste Manager
- 8.0 MANAGEMENT OF WASTE
 - 8.1 The Waste Hierarchy
 - 8.2 Waste Management Terms
 - 8.3 Waste Management Criteria
 - 8.4 The Waste Management Process
 - 8.4.1 What is waste?
 - 8.4.2 Waste streams
 - 8.5 Hazardous or Special Waste
 - 8.5.1 Weight records
 - 8.5.2 Audit trail
 - 8.6 Offshore Waste Handling Strategy
 - 8.6.1 Waste Segregation and Storage
 - 8.6.2 Waste Protocols
 - 8.6.3 Waste Documentation
 - 8.6.4 Consigning Waste

- 8.7 Onshore Waste Handling Strategy
 - 8.7.1 Waste Segregation and Storage
 - 8.7.2 Waste Protocols
 - 8.7.3 Waste Documentation
 - 8.7.4 Consigning Waste
- 8.8 Performance Management
 - 8.8.1 Reporting
 - 8.8.2 Non-conformances
 - 8.8.3 Waste audits
 - 8.8.4 Training
- 9.0 SUMMARY OF MATERIALS INVENTORY
- 10.0 ACTIVE WASTE AND MATERIALS INVENTORY
- 11.0 RECONCILIATION

Inventory of Offshore Materials and Wastes (Materials Inventory)

Waste Management begins by gaining an understanding of the wastes and materials that are expected to require management.

The BEIS Guidance Notes of May 2018 includes the statement:

"For all items described under 4 above, include an inventory listing the amount, type and relative location of all materials including hydrocarbons, sludges, heavy metals, sacrificial anodes and any radioactive material including LSA (Low Specific Activity) scale. Where exact quantities cannot be verified, estimates should be calculated. These should be supplied alongside an assurance that the relevant waste regulations will be complied with" (Annex C, Section 5).

The Materials Inventory needs to be fit for purpose and timely. As the Decommissioning Programme develops, so does the Inventory, as decisions are made as to which materials will be re-used (and are thus not waste) and which will be discarded and thus become classified as waste.

The Operator must summarise the Materials Inventory's current status in the Decommissioning Programme (consultation draft and final submission) and finalise it at the point of removal ashore of offshore waste.

The Inventory's contents should be determined by the results of offshore surveys, sampling and evidence-based study. It must be finalised, as far as practicable, at the point of removal ashore and contain sufficient information to meet all waste permitting, waste licensing, waste notification and waste transfer documentation.

It is important to note that if information is not provided and the Waste Authority cannot determine the inventory content when the waste arrives onshore, the waste will be held, classed as hazardous waste and dealt with appropriately at the port of entry.

The Regulators are looking to the Operators and the decommissioning supply chain for an accurate description of the waste when it changes custody. They noted that, in earlier approved Decommissioning Programmes, the Materials Inventories were typically too simple and did not meet the requirements of waste Stakeholders and waste Contractors. As a result, the waste inventories received at licensed sites exceeded the volumes or tonnages listed in the approved Decommissioning Programme's Materials Inventory.

Since the decommissioning cycle follows a multi-year and multi-activity pathway, the Materials Inventory is not a static listing. The following three stages in the development and adoption of a Materials Inventory are relevant. Stage 1 covers development during the preparation of a draft Decommissioning Programme, Stage 2 takes place at or near to Cessation of Production (CoP) and Stage 3 is finalised when the asset or installation arrives at the quayside so that detailed verification surveys and sampling can provide actual waste streams and quantities.

Stage 1 Materials Inventory

The Stage 1 Inventory is included in the Decommissioning Programme and feeds into the comparative assessment, environmental impact assessment and energy-and-emissions calculations required by the Programme.

It may be desk-based but may also need a walkdown of the platform if insufficient information is available.

Information generally needed to create the Stage 1 inventory includes:

- A weight report
- A Chemical Inventory
- A Material Safety Data Sheet (MSDS) for chemicals
- The Asbestos Register (if the installation construction date is pre-1999)

The MSDS must be used to assess if any of the materials would be regarded as hazardous. Guidance on this process can be found in Waste Classification: Guidance on the classification and assessment of waste (Technical Guidance WM3).

Enough information must be gathered to satisfy the requirements of the AWMP. At a minimum, this should include:

- **Area** The material's whereabouts on the platform—this is especially important if the asset is to be dismantled offshore or subject to piece small decommissioning
- **Functional Category** A description of the type of material, based on its function
- **Description** A description of the item and identification of any hazardous components
- **EWC code** An EWC code must be allocated
- **EWC Classification** Hazardous or Non-Hazardous; at this stage, without sampling, the nature of some materials may be unknown, so any material that might be hazardous must be considered to be hazardous until proven otherwise
- **Weight** In tonnes
- **Comments**

The example table below shows a typical layout of a Stage 1 Materials Inventory. At this stage, the following items should be listed:

- All known hazardous materials (e.g., asbestos, known chemicals, PCBs)
- All potential hazardous materials (e.g. lead paint, sludges contaminated with hydrocarbons)
- Steel tonnage
- NORM if known; unless evidence is seen to prove NORM is not present on the asset it should be assumed to be present

Example Stage 1 Materials Inventory

Area	Functional Category	Description	EWC Code	EWC Classification	Weight [Te]	Comments
Topside	Plant and Equipment	Powder extinguisher	16 05 09	Non-Haz	0.001	
Topside	Plant and Equipment	Lead Acid Batteries	16 06 01*	Haz	0.002	
Topside	Plant and Equipment	Separator	17 04 05	Non-Haz	1.2	Assume NORM contaminated
Topside	Plant and Equipment	Corrosion inhibitor	16 03 05*	Haz	TBC	
Jacket	Structural	Jacket Structural steel	17 04 05	Non-Haz	10000	

Stage 2 Materials Inventory

This stage of the Materials Inventory should be done near to or at COP. The purpose is to refine and improve on the Stage 1 Inventory and should include offshore verification and sampling where possible. The main object of this stage is to gain a fuller understanding of the quantity and location of hazardous materials on the asset and to confirm or correct any assumptions made during Stage 1.

Information needed at this stage includes sampling results from any potentially hazardous materials. The main purposes of the Stage 2 Materials Inventory are:

- To inform the Engineer Down and Clean (EDC) and dismantling processes
- To provide data for the disposal tender process
- To ensure that any disposal contractors being considered have the capacity and capability to handle the wastes
- To inform spill-prevention and pollution control measures during dismantling and lifting operations
- To supply important information for the TFS paperwork if transfrontier movements are involved

At this stage the platform may still be producing, so a fully intrusive survey may not be possible. Remaining chemicals can be quantified and mapped.

Samples may be taken of paints, coating, contaminated surfaces and equipment where access allows.

Example Stage 2 Materials Inventory

Area	Functional Category	Description	EWC Code	EWC Classification	Weight [Te]	Comments
Main Deck Battery Room	Plant and Equipment	Powder extinguisher	16 05 09	Non-Haz	0.001	
Main Deck Battery Room	Plant and Equipment	Lead Acid Batteries	16 06 01*	Haz	0.02	
Main Deck Battery Room	Plant and Equipment	Separator	17 04 05	Non-Haz	1.2	
Main Deck	Plant and Equipment	Separator Contents - Scale	NORM	N/A	0.1	Volume estimated. Sludge contaminated with NORM and Mercury
Main Deck	Plant and Equipment	Separator Contents - Liquid	13 05 07*	Hazardous	0.02	Volume estimated. Liquid contents Water/Oil mix
Mezzanine Level	Plant and Equipment	Corrosion inhibitor	16 03 05*	Haz	0.05	
Jacket	Structural	Jacket Structural steel	17 04 05	Non-Haz	10000	
Jacket	Structural	Marine Growth on Jacket			1.5	Estimate based on Consultant Report

Stage 3 Materials inventory

This is the final stage before dismantling and should include all information needed to inform a safe dismantling process and enable the asset owner to fulfil Duty of Care requirements when passing the asset on to a disposal yard. Note that, if the topside is being lifted as one, the survey and sampling work may be conducted at the disposal yard when the Heavy Lift Vessel reaches the quayside.

At this stage the following information should be available and must be added to the inventory:

- Asbestos demolition survey
- Full Hazardous Materials Survey, including the locations and amounts of all hazardous wastes
- Records of any cleaning or removals undertaken offshore
- Any items added for lifting or shipping

At this point in the process, the disposal yard may conduct the surveys prior to acceptance of the waste. Whoever carries it out, the Stage 3 Materials Inventory provides a vital link in the Duty of Care process, as it is a final acceptance that the listed wastes are present. It must be accurate enough to enable reconciliation on the disposal routes once the project finishes.

Example Stage 3 Materials Inventory

Area	Functional Category	Description	EWC Code	EWC Classification	Weight [Te]	Comments
Main Deck Battery Room	Plant and Equipment	Powder extinguisher	N/A	N/A	0.001	To be re-certified and reused – not waste
Main Deck Battery Room	Plant and Equipment	Lead Acid Batteries	16 06 01*	Haz	0.01	Amount confirmed by Hazmat survey
Main Deck	Plant and Equipment	Separator	17 04 05	Non-Haz	1.2	
Main Deck	Plant and Equipment	Separator Contents - Scale	NORM	N/A	0.1	Volume estimated. Sludge contaminated with NORM and Mercury
Main Deck	Plant and Equipment	Separator Contents - Liquid	13 05 07*	Hazardous	0.02	Volume estimated. Liquid contents Water/Oil mix
Mezzanine level	Plant and Equipment	Corrosion inhibitor	16 03 05*	Haz	0.05	Volume confirmed by hazmat survey
Jacket	Structural	Jacket Structural steel	17 04 05	Non-Haz	10,000	
Jacket	Structural	Marine Growth on Jacket		Non-Haz	0.02	Original estimate too high or amount lost during lifting
Jacket	Structural	Strengthening added for lift	17 04 05	Non-Haz	15	Information from HLV contractor

Overview of Materials Inventory Stages

Stage	1	2	3
When	During planning for decommissioning	Near to Cessation of Production	For single life, when the asset arrives on the quayside For piece small, when the asset is cold and dark, prior to dismantling works
Information needed at this stage	Weight control reports Asbestos Register COSHH information Drawings MSDS	Offshore verification reports and survey and sampling results.	Intrusive sampling Demolition Asbestos Survey Full Hazmat survey Decontamination/Clean Down reports
Uses	Decommissioning Programme Comparative assessment Environmental Impact Assessment (EIA) Energy and Emissions	Yard selection and tendering Specification for EDC Risk Assessments for offshore dismantling	Inform dismantling procedures and Risk Assessments and Method Statements (RAMS) Enable waste tracking and duty of care to be fulfilled Ensure correct environmental protection and worker protection measures taken during works

WASTE CLASSIFICATION CRITERIA

Waste is to be classified into three broad categories: hazardous, non-hazardous and inert, dependent on the composition of the waste and its potential effects on human health and the environment.

- **Inert Waste** Material that when disposed does not undergo any significant physical, chemical or biological transformation; does not adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm to human health; and does not endanger the quality of any surface water or groundwater; examples are glass, brick and concrete
- **Non-hazardous Waste** Material that is neither inert nor classed as hazardous and does not fall within the hazardous waste classification; examples are timber and paper
- **Hazardous Waste** Material with properties that may make it harmful to human health or the environment; for example, gauges containing mercury

The methods used to classify the wastes likely to be generated during decommissioning are in accordance with pertinent UK legislation and are discussed in the next section.

European Waste Catalogue

Before being removed from the site, all waste must be designated with an appropriate European Waste Catalogue (EWC) code from the List of Wastes (LoW). The EWC was established by European Commission Decision 2000/532/EC dated 3 May 2000 and has undergone amendments since then.

The List of Waste (LoW) contains 20 chapters, each based on the source that generated the waste or on the type of waste. Each chapter is identified by a two-digit number (e.g., 17 Construction and Demolition Wastes). Waste producers have a Duty of Care to classify and describe their waste correctly; this includes selecting the most appropriate six-digit code from the list.

Certain materials can be classified visually without the need for laboratory testing. However, when the waste material cannot be conclusively classified in this way, it must undergo testing to determine its waste classification. There are four types of waste entry in the LoW: absolute hazardous waste; mirror hazardous waste; absolute non-hazardous waste and mirror non-hazardous waste.

Absolute hazardous waste Where wastes are marked in the LoW with an asterisk (*), they are automatically considered hazardous, irrespective of concentration or the levels of hazardous substances present. Therefore, there is no requirement to undertake analytical testing to ascertain if the waste is hazardous.

The European Commission has agreed that any wastes are conclusively hazardous that have one or more of the Hazardous Properties HP1 to HP14 listed in the Environment Agency Guidance Document WM3 (e.g., 20 01 21* fluorescent tubes and other mercury-containing waste). All absolute hazardous wastes must be consigned and disposed of appropriately as a Hazardous Waste.

Mirror hazardous and mirror non-hazardous wastes Some wastes can be either hazardous or non-hazardous, depending on a threshold value of dangerous substance content. Mirror entries are covered by linked (usually paired) entries in the LoW; these mirror entries are made up of a hazardous waste entry marked with an asterisk (*) and an alternative, linked, non-hazardous waste entry not marked with an asterisk; there may be more than one alternative entry.

For example:

- 17 08 01* Gypsum based construction materials contaminated with dangerous substances; and
- 17 08 02 Gypsum based construction materials other than those mentioned in 17 08 01*.

These wastes can be appropriately classified by undertaking chemical analyses for specific hazardous substances. If the specific hazardous substances are present and above the relevant thresholds, then the material will be classified as hazardous.

Absolute non-hazardous Where waste appears in the EWC without an asterisk, it is not hazardous and can be disposed of as a non-hazardous waste (e.g., 17 02 02 Glass). Depending on the actual material involved there may be the potential for the waste to be classified as inert.

Assessing Hazardous Properties of Waste

To identify whether a waste is hazardous and to ensure its safe disposal, Waste Managers must consult the following Regulations and guidance documents:

- The Hazardous Waste Regulations 2005 (HWR)
- Technical Guidance WM3: Guidance on the classification and assessment of waste (EA 2015)
- The Classification, Labelling and Packaging of Substances and Mixtures Regulation 1272/2008 (CLP).

Once the EWC code has been decided, the following steps will ensure the appropriate classification of wastes suspected to be hazardous:

1. Identify the composition of the waste (through analytical testing as appropriate).
2. Identify the hazard statement codes that apply to each component in the waste from the CLP or alternative sources, such as MSDSs.
3. Using Table 2.1 in WM3, which presents hazard statement codes with the associated hazardous property, identify the relevant hazards and threshold concentrations that apply to each component.
4. Record the hazards and threshold concentrations for each component.
5. If any of the threshold concentrations recorded are exceeded, the whole consignment will be hazardous. Note that, for some hazardous concentrations of components, the waste must be aggregated to calculate the total concentration of the substances with that hazard (further details are given in WM3).

Identifying the composition of the waste

If the composition of the waste is unknown, sampling and laboratory analysis may be required to identify its chemical makeup. Sampling must be in accordance with Appendix D of WM3 – Waste Sampling. This is based on the European and British Standards with their supporting Technical Reports on the characterisation of waste and sampling of waste materials:

- Framework for the preparation and application of a sampling plan (BS EN 14899:2005)
- Part 1: Guidance on selection and application of criteria for sampling under various conditions (PD CEN/TR 15310-1:2006)
- Part 2: Guidance on sampling techniques (PD CEN/TR 15310-2:2006)
- Part 3: Guidance on procedures for sub-sampling in the field (PD CEN/TR 15310-3:2006)
- Part 4: Guidance on procedures for sample packaging, storage, preservation, transport and delivery (CEN/TR 15310-4:2006)
- Part 5: Guidance on the process of defining the sampling plan (PD CEN/TR 15310-5:2006).

A sampling plan should detail all the information pertinent to a particular sampling exercise and should contain the following information:

- Background to the need for sampling
- Parties involved
- Existing information about the waste
- Constituents to be analysed
- Population represented by the sampling results
- Reliability of the results
- Statistical parameters to be determined
- Choice of sampling methodology (probabilistic or judgemental)
- Sampling technique

Once the plan is written, the sampling can be conducted and results from the laboratory assessed to see what hazardous substances are present in the waste.

Identifying the hazard statement code

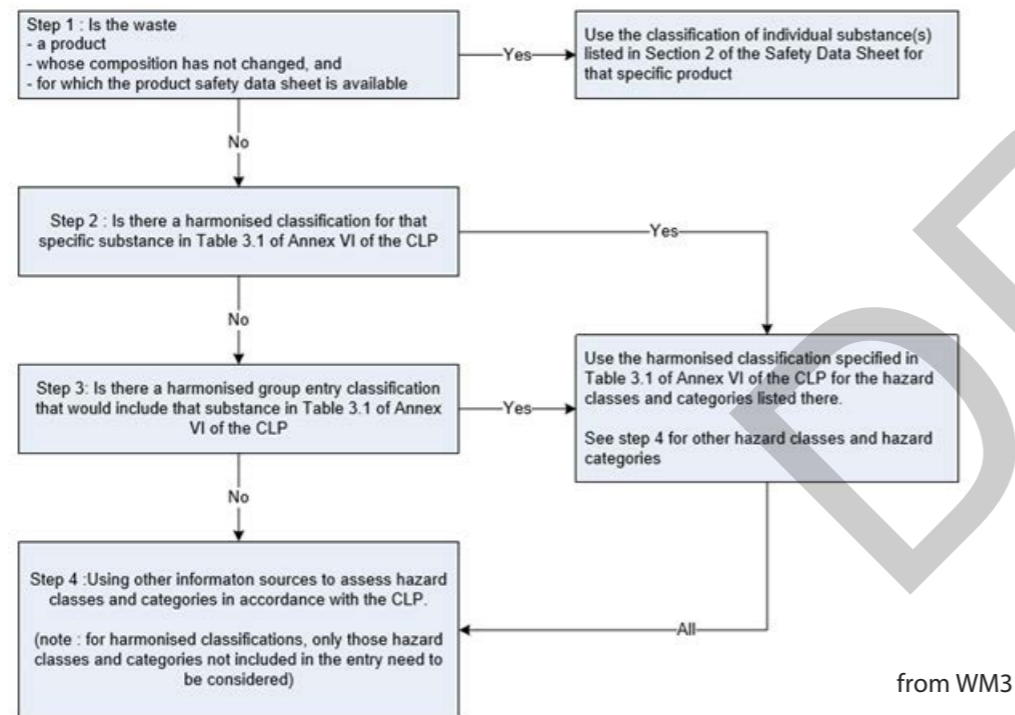
As stated previously, the presence of a hazardous substance (one with a hazard statement code) can require waste to be classified as hazardous waste. The hazard statement code for a substance can be found from the following sources:

- Safety Data Sheets
- Annex VI, Table 3.1 to the CLP using the European Chemical Agency’s guidance on how to apply it
- Reliable data sources that have been peer-reviewed

Classification given in the CLP takes precedence over a classification found elsewhere. The CLP contains both Harmonised and Non-Harmonised entries, and in the first instance only Harmonised entries should be used, as these have been agreed at a European level and take legal precedence over other information sources. The CLP may be incomplete, so other sources must also be considered. The next step is to gather any information from other sources relevant to working out the substance classification. The information should be researched from:

- Data generated from any test methods appropriate to the CLP
- Epidemiological data and experience on the effects on humans, such as occupational data and data from accident databases
- Any other information generated in accordance with the Registration, Evaluation, Authorisation and restriction of Chemicals (REACH) Regulation
- Any new scientific information
- Any other information generated under internationally recognised chemical programmes

The flowchart below shows how each source should be applied.



This process will provide the hazard class, hazard category and hazard statement code for each substance in the waste.

Hazard class the nature of the hazard. For example, a carcinogen is ‘Carc.’

Hazard Category a sub-category of the hazard class that describes the severity of the hazard. For example, a carcinogen could be ‘1A’, ‘1B’ or ‘2’.

Hazard Statement Code is the code assigned to the hazard class and category. For example, a carcinogen could be ‘H350’ or ‘H351’.

Identifying the relevant threshold concentrations

Once the composition of the waste is known, the next step is to find out if a hazardous substance is present in the waste above the threshold concentrations that would make the waste (as a whole) hazardous. Further information relating to the thresholds applicable to hazardous waste classification can be found in Technical Guidance WM3: Guidance on the classification and assessment of waste (EA 2015).

Waste classification and assessment

As part of waste Duty of Care, a waste holder must:

- Classify the waste produced before it is collected, disposed of or recovered
- Identify the controls that apply to the movement of the waste
- Complete waste documents and records
- Identify suitably authorised waste management options
- Prevent harm to people and the environment.

KEY WASTE STREAMS

These sub-sections to be further elaborated for specific waste streams that can be challenging, limited previous experience and / or high risk.

NORM

Naturally Occurring Radioactive Materials (NORM) occur naturally in the Earth's crust and NORM wastes arise when these materials are concentrated through industrial activities such as oil and gas extraction. This NORM contains uranium and thorium radioactive decay products that emit alpha, beta and gamma radiation.

NORM waste can also present significant chemical hazards because the processes that cause the natural radioactivity to be concentrated often also cause concentration of other pollutants such as mercury. On an offshore platform, NORM is commonly found in:

- Produced water pipelines
- Well flow (crude oil)
- Separators
- Produced gas (Pb-210)

NORM can be found in any areas where process fluids are present, especially where there is a change in flow, pressure or temperature.

What information is needed?

NORM's nature means that it is often not possible to make an accurate inventory of NORM materials until the asset has been decontaminated onshore, but the Operator should be able to provide (as a minimum):

- Evidence of the presence or absence of NORM
- Other contaminants present (heavy metals)
- If present, the expected activity levels
- If present, the isotopes found
- Form of NORM (liquid, sludge, scale)

These factors affect the handling of the waste when it comes ashore as well as the cost of dealing with it.

Regulations governing NORM

Storage, treatment and disposal of NORM wastes are controlled under Environmental Permitting Regulations in England and by the Radioactive Substances Act in Scotland. Both require a site to have specific procedures for handling NORM wastes.

Unless it has been proved that an asset contains no NORM, all waste should be sent to a yard with the correct permit and procedures to handle NORM waste. Monitoring should then confirm the presence or absence of NORM.

If an installation is sent from the UK to another country, then it is key to note that radioactive waste must be returned to the UK for disposal. This entails high costs for the repatriation of concentrated NORM.

Once ashore, any NORM-contaminated infrastructure cannot be sent back offshore for disposal.

Waste from Well Plugging and Abandonment

This section to be further elaborated.

The following waste types arise from the plugging and abandonment (P&A) of wells. Management of these wastes will be included in the next revision of the Guidelines:

- Steel alloy XTs – Also with NORM/LSA
- Control systems c/w control fluids, seals, electronic components
- Steel wellheads, guidebases and over trawlable structures, with cement
- Steel Tubulars with potential plastic coating, and HC, NORM and scale contamination
- Steel/Cast(some completions have a level of chrome also) Iron Completion components with electronic components, electrical cabling and thermoplastic resin coatings, rubber sealing
- Down hole safety valves which are charged and need a specialist to de energise
- ESP pumps which may need to be hot tapped as there can be trapped pressure (but this can be done at the field)
- Control line with control fluids
- Plastic & metal control clamps
- Oil based muds contaminated with barites
- Water based muds contaminated with barites
- HC and solids contaminated brines
- HC/mud contaminated casing swarf
- HC and solids contaminated filtration unit cartridges
- Cement possibly if we have to drill a plug out
- A lot of the subsea components subsea trees & well heads are heavily contaminated in marine growth
- Drill cuttings piles (subsea) difficult to handle – 2 types oil and non-oil based mud.

Noting that fluid waste streams may be disposed of downhole/annuli where possible – Agree, if access to a donor well, but this tends to limit you to clear fluids, companies are less happy about dumping slops between cement plugs these days for whatever reason. Also dependant on well type and structure.

Mattresses

This section to be further developed with integration to Decom North Sea's ongoing work on management of mattresses.

The polypropylene plastic in mattresses turns to microbeads in the sea, creating a problem to be dealt with. Around 1989 mattresses changed in composition, used chromium in cement kiln? Human health risk and env risk

THE INFORMATION FLOW

This section to be further elaborated to detail the data, information and documentation to be passed from the Operator into the Supply Chain and then from typical supply chain contractor's to the next waste handler.

Operator or Tier One to the Removals Contractor

1. Robust and accurate Materials Inventory – point in time defined
2. Ensure hazardous wastes are taken into account / sampled for, i.e. Mercury. Also good to ask for any 'unknowns' within the waste inventory to help identify gaps
3. NORM readings to understand activity levels so can match with yard capabilities
4. Copy of the topside cleaning certificates – definition for state of cleanliness
5. Ensure the asbestos survey is a Refurbishment & Demolition Asbestos Survey and not just a Management Survey. In the Refurbishment & Demolition Survey take note of any caveats
6. Ask for condition of plant, equipment etc on the topside re: stored energy, de-pressurised, preparatory work since risks/hazards may still be present
7. Access to the Active Waste Management Plan and if none, ask for a Waste Management Plan or equivalent
8. Ask for the Operator's nominated Waste Competent person as point of contact for all waste related issues
9. Ask for the Platform (operational) waste management procedures since Boskalis taking over waste management albeit under decommissioning

Removals Contractor to their sub-contractors

Onshore Recycling and Disposal yards

Ensure the onshore disposal yard has the correct and applicable permit:

- Does the permit name all waste types expected from the client
- Does the permit have sufficient allowance for the volume of both hazardous and non hazardous wastes
- Do they hold all relevant licences for wastes on their permit
- Competent person's certification up to date

Offshore Contractors

Offshore (support) contractors such as pile cutting/welding or contractors impacting waste:

- The contractor's procedures and systems in case of waste escaping their control, i.e. asbestos, oils spillages or leaks during the works
- Confirmation that the contractor's personnel are aware of risks and hazards associated with wastes
- Confirmation that the contractor understand the surveys provided (i.e. asbestos) and the caveats included

Waste Transfer and Consignment Notes

This section to be further elaborated with flow chart of waste transfer and consignment notes through the whole decommissioning cycle.

Close Out Report

This section to be elaborated.

Close Out report must disclose details of where the waste has gone to fulfil your Duty of Care.

In addition, the BEIS Guidance Notes of May 2018 stipulate that the Close Out Report is to provide "An explanation why any major variances from the programme occurred and an indication of any permits required as a result. Where appropriate this should include exact quantities of recovered hydrocarbons, sludges, heavy metals, sacrificial anodes and radioactive material including LSA (Low Specific Activity) scale.

ON SITE MANAGEMENT

This section to be further elaborated.

Can installations be 'cold stacked' at the onshore disposal yard for future recycling and disposal? How long can an asset sit on the quayside for? Or can the asset be cold stacked inshore?



DECOM North Sea

DRAFT

For further information on this report please contact:

Decom North Sea
21 Abercrombie Court, Prospect Road, Arnhall Business Park,
Westhill, AB32 6FE
T: +44 1224 900139
E: projects@decomnorthsea.com
www.decomnorthsea.com

