
093 – Recommended guidelines for waste management in the offshore industry

PREFACE

This guideline is recommended by the Norwegian Oil and Gas Association's Committee for the Environment as well as their technical network for environmental issues and waste management. The guideline is also approved by the Norwegian Oil and Gas Association's Chief Executive Officer. Norwegian Oil and Gas Association = Norsk olje og gass, NOROG.

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This Norwegian Oil and Gas Association guideline is prepared with collaboration from a broad range of participants from the Norwegian oil and gas industry. The guideline is the property of the Norwegian oil and gas industry, represented by the Norwegian Oil and Gas Association, who are also administrating the guideline.

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1 INTRODUCTION

1.1 Objectives

This guideline is prepared to meet the industry's need for a shared waste management standard. The guideline replaces "OLF's common guidelines for waste management in the offshore industry" and "Guidelines for filling in declaration forms for special waste of April 2000". This guideline is based on a previous version established 1 Feb 2004.

Main objectives have been to:

- incorporate a shared interpretation of regulations and definitions; understanding of waste prevention and use of waste categories to enable effective waste management; raise the quality of external and internal reports; and enable comparisons between member companies of Norwegian Oil and Gas Association as well as with other domestic industries
- implement the guideline with regulation amendments regarding radioactive waste
- adapt for an improved and chemically more precise classification of hazardous waste from the offshore sector

This guideline applies to activities associated with exploration and production offshore. It excludes:

- Refineries
- Discarded offshore installations
- Health and work environment aspects when handling radioactive waste
- Discharge to sea, as that is covered by the operators' discharge permits
- Waste management after oil spill preparedness exercises

1.2 Terminology, definitions and abbreviations

Waste	"The term waste means discarded objects of personal property or substances. Surplus objects and substances from service industries, manufacturing industries and treatment plants, etc., are also considered to be waste. Waste water and exhaust gases are not considered to be waste." (The Pollution Control Act)
Hazardous Waste	Waste classified as hazardous based on the Waste Regulations § 11-4, with reference to EWL codes marked with asterisk or where the compound's hazardous substance exceeds limit values given in a separate appendix 3 to the regulations' chapter 11
Radioactive waste	"Waste as described in § 2 letter c in regulations 1 Nov 2010 no. 1394 concerning the Pollution Control Act's application for radioactive pollution and radioactive waste." (Waste Regulations)
Waste management	Collective term for reception, interim storage, treatment and other handling of waste
Waste control	All activities related to handling, managing and administration of waste
BAT	Best Available Technique
BEP	Best Environmental Practice
Bq	Becquerel: unit describing the activity of radioactive material, in which one nucleus decays per second
EWL	European Waste List
EE	Electric and electronic products
Energy utilization rate	Utilizing the waste's energy through incineration, pyrolysis or similar
Recovery	Collective term for various types of waste disposal where the waste is replacing new materials or resources, such as reuse, material recovery or energy recovery
Degree of recovery	Amount of recovered waste, as compared to the amount of delivered waste
GOMO	Guidelines for Offshore Marine Operations
HSE	Health, safety and environment

NFFA	The Norwegian Association for Hazardous Waste (trade organization for hazardous waste companies)
NPD/OD	Norwegian Petroleum Directorate (Norwegian: Oljedirektoratet, OD)
Operator	Licensee in a production licence
PL	Petroleum license (production license)
PSA/Ptil	Petroleum Safety Authority Norway (Norwegian: Petroleumstilsynet, Ptil) (coordinating authority for offshore HSE regulations)
Degree of sorting	Amount of sorted waste, as compared to the amount of delivered waste
NRPA	Norwegian Radiation Protection Authority (Norwegian: Statens strålevern)
MARPOL	International Convention for the Prevention of Pollution from Ships
IBC	International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk
CoF/INLS	Certificate of Fitness / International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk
IMDG	International Marine Dangerous Goods (applies to sea transport of dangerous goods)
IMO	International Maritime Organization
ADR	European Agreement Concerning the International Carriage of Dangerous Goods by Road
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
UN	United Nations

1.3 References

- Pollution Control Act: Act Concerning Protection Against Pollution and Concerning Waste (LOV-1981-03-136)
- Product Control Act: Act Relating to the Control of Products and Consumer Services (LOV-1976-06-11-79)
- Pollution Regulations: Regulations relating to pollution control (FOR-2004-06-01-931)
- Waste Regulations: Regulations relating to the recycling of waste (FOR 2004-06-01 nr 930)
- Activities Regulations: Regulations relating to conducting petroleum activities (FOR 2010-04-29 nr 613)
- Radioactive Pollution and Waste Regulation: Regulations on the application of the Pollution Control Act to radioactive pollution and radioactive waste (FOR-2010-11-01 nr 1394).
- Radiation Protection Regulations: Regulations on Radiation Protection and Use of Radiation (FOR 2010-10-29 nr 1380)
- Regulations on handling explosive material (FOR-2002-06-26 nr 922)
- Regulations on infectious waste from human and animal health services (FOR-2005-10-11 nr 1196)
- Norwegian Radiation Protection Authority Guideline 13: Guideline for radioactive pollution and radioactive waste from oil and gas industry
- The Norwegian Environmental Agency's TA2684 - Norwegian action plan for reducing mercury releases - 2010
- Guide to characterization and recipient control of waste for disposal (Waste Management Norway, Federation of Norwegian Industries, Norwegian Association of Heavy Equipment Contractors - MEF)
- Norsas guide: An introduction to the handling and declaration of hazardous waste 2005
- NFFA guide: Guidance on hazardous waste management
- GOMO: Guidelines for Offshore Marine Operation
- NOROG Guideline 132: Recommended guidelines for mercury handling
- NOROG Guideline 054: Recommended Guideline for work involving radioactive scale and contaminated equipment
- NORSOK S-003: Environmental care
- Norwegian Standard NS 9431:2011 - Classification of waste

Some reference documents may only have a Norwegian version.

2 AMENDMENTS

2.1 Summary

In 2012 an extensive revision of the entire guideline, including all attachments, was conducted.

A minor amendment to the guideline in December 2013 and January 2014, has led to the following changes:

- Guideline:
 - Reference to GOMO guideline, which replaces old NWEA guidelines
 - Reference to IBC Code for bulk transport
 - Clarification of GOMO requirements regarding documentation
 - Handling of packaging
- Attachment 1
 - Description of liquid waste, and other smaller adjustments
 - Suggested conversion table from Norwegian standard for waste classification to classification of segregated waste in NOG 044 – emission and discharge reporting
- Attachment 2, Table for classification of hazardous and radioactive waste
 - Classification of water-based waste
 - Transport classification for oily rags and waste oil
 - Classification found in attachment 2 shall be used in case of discrepancy between MSDS and attachment 2.
 - Empty cans are sorted as one fraction
- Attachment 3
 - Text concerning use of organisation number on declaration forms is amended
 - Handling declaration forms
- Attachment 4
 - Example of analysis form has been given layout from GOMO requirements, rather than the former NWEA)

Attachment 2 is a table that has been hard to read on a normal printout. In this latest version this has been changed by having a fixed printerfriendly format.

In 2012 an extensive revision of the guideline was amended, as well all attachments.

3 OFFICIAL GOALS AND FRAMEWORK CONDITIONS

3.1 Authority objectives

Authority objectives and expectations to waste management are expressed in Storting White Papers: Stortingsmelding no. 58 (1996-1997), Stortingsmelding no. 8 (1999-2000) and Stortingsmelding no. 24 (2000-2001). The strategic national goals for waste management and recycling are formulated as:

“The problems associated with waste shall be resolved so as to cause least possible harm and inconvenience to humans and the natural environment while at the same time ensuring that waste and the handling of waste make the least possible demands on society’s resources”.

The Norwegian policy relating to waste has principally focused on a proper handling of waste, but has lately changed more towards waste prevention. The following goals have been stipulated regarding waste and recovery:

Performance measure 1.

The development of generated waste shall be considerably lower than the economic growth. The Government’s goal is that waste is to grow considerably less than the economy in general.

Performance measure 2.

In recognition of the demand that the quantity of waste for final treatment is to be reduced in line with what is considered to be a sensible level from a social and environmental point of view, one seeks to achieve a target where the quantity of waste for final treatment by 2010 is to be approx. 25 % of generated waste. This means that approx. 75 % of the waste is to be recovered, either by utilizing the material or energy contained in the waste. If socio-economic considerations show that recycling of materials is comparable to energy recovery, then material recycling shall have preference.

Performance measure 3.

Practically all hazardous waste shall be handled in a proper and safe manner and either be recycled or be assured satisfactory national treatment capacity.

3.2 Statutory basis

The Pollution Control Act give all offshore activities a steer concerning storing/keeping, handling, classification, labelling and transportation of waste, including hazardous waste and radioactive waste. HSE regulations also give a steer on how the offshore sector shall comply with regulatory requirements associated with safety, work environment and protection of the external environment.

The Norwegian Environment Agency uses the Norwegian term “levere med befriende virkning” for hazardous waste deliveries. This means that the waste producer is no longer responsible for the waste, provided the waste producer has fulfilled the compulsory waste declaration (according to the Waste Regulations § 11-12) and delivered the waste to a licenced waste facility (according to the Waste Regulations § 11-6 and 11-7). Documentation for this shall be presented upon request. Relevant documentation are copies or duplicates of the declaration form, or receipts from hazardous waste facilities.

Non-hazardous waste shall also be delivered to licenced waste facilities unless it is recovered or reused in accordance with the Pollution Control Act § 32. Non-hazardous waste facilities are licenced according to the Pollution Control Act § 29. The term discussed above applies to non-hazardous waste, provided the waste delivery has been done in accordance with prevailing regulations.

The operator is required to make sure that all waste handling, including that of hazardous waste, is done in compliance with prevailing regulations as stipulated in or in accordance to the Pollution Control Act, including the Waste Regulations.

The Waste Regulations' chapter 11 regarding hazardous waste and chapter 16 regarding radioactive waste concerns delivery requirements, handling, storage, declaration and labelling etc. of hazardous waste and radioactive waste.

The Activities Regulations § 72 refers to the prohibition of discarding solid waste overboard. It also refers to the possibility of adding [waste oil](#) to the production flow, as well as permit requirements for doing this (see the Pollution Control Act's chapter 3). Such disposal must be recorded in accordance with existing permits.

Waste facilities have the following restrictions for depositing of waste: it is prohibited to deposit waste of which there exists adequate recycling systems; it is prohibited to deposit biodegradable waste, except waste where the total organic carbon (TOC) is less than 10 % or the ignition loss is less than 20 % (as of the Waste Regulation § 9-4). The Waste Regulations' § 21-2 specify that it is illegal to burn waste or other materials aboard installations at the Norwegian Continental Shelf. Ground food waste may be discharged to sea (MARPOL and NORSOK S-003).

3.3 Authority

The entire offshore industry is subject to conditions that are to ensure the protection of the external environment of the offshore sector. These conditions are either contained in regulations, consents granted by the Norwegian Petroleum Directorate (NPD/Ptil), discharge permits from the Norwegian Environment Agency or permits from the Norwegian Radiation Protection Authority (NRPA). Companies handling this waste shall have the relevant permits to carry out services such as transportation, receipt, storage and treatment. The Norwegian Environment Agency is the supervisory authority concerning waste and hazardous waste, when such waste is aboard installations. The county governor or the Norwegian Environment Agency is generally responsible for the supervision of activities carried out onshore. The municipal medical officer is the supervisory authority for infectious waste when such is handled onshore. NRPA is the supervisory authority for all waste with activity exceeding the radioactive waste limit values (see chapter 5.5), both on offshore installations and handling such waste onshore.

3.4 IMO requirements

IMO's waste management requirements are expressed in [MARPOL 73/78 annex V](#) (Regulations for the prevention of pollution by garbage from ships) which applies to all ships, as well as mobile and fixed installations (including supply ships, platforms, flotel, anchored drilling rigs, etc.).

IMO's requirements relating to waste sorting categories are deemed to be a minimum requirement for mobile units and do not come into conflict with Norwegian Oil and Gas Association recommended guidelines.

IMO requires that waste shipped to shore and discharged waste is recorded in a Garbage Record Book. The rules allow for granting dispensations from the recording requirements for fixed or mobile platforms performing sea bed exploration or production (MARPOL, appendix V, Rule 10, point 4 (ii)).

Regardless of the above, waste facilities which receive waste from a shipping company or a supply base operator, will record and account for received and handled waste in accordance with requirements stipulated in the contract between the client and service provider.

Extended IMO waste control requirements came into effect 1 Jan 2013, including decisions for updated waste plans and posters. Waste posters shall, as a minimum, describe discharge requirements as in Rule 5 in appendix V (food waste, excluding cooking oil, may be discharged to sea provided it is ground down to less than 25 mm). Waste plans shall, as a minimum, include procedures for waste reduction, collection and handling, storage, disposing of waste, responsibilities and equipment use.

For periods when installations are docked for upgrading or repairs, or when not under contract, the installation owner (rig or shipping company) is responsible for waste control (administration and handling). If waste generated during such a period is left aboard the installation at the start of the next

commission, that waste is still the installation owner's responsibility. For installations that are not commissioned by any Norwegian Oil and Gas Association member companies (operators), only IMO requirements and possibly domestic coastal waste requirements apply.

3.5 IMDG Code requirements

IMDG Code requirements apply for transport of hazardous goods between offshore installations and onshore bases. IMDG is similar to ADR in that both require the documentation to include UN number, hazard class, hazard symbol and packing group. IMDG also requires the inclusion of proper shipping name, shipper's declaration, EmS number and information about whether the goods contain any marine pollutants.

Transport documentation requirements are covered by the multimodal dangerous goods form.

3.6 IBC Code requirements

Transport of hazardous liquid bulk from offshore installations to onshore bases shall be performed in accordance with IBC Code requirements, with reference to the IBC Code chapter 20. All OSV vessels certified to transport hazardous chemicals in bulk (INLS/CoF certificate) are subject to IMO resolution A.673 (16): Guidelines for the Transport and Handling of Limited Amounts of Hazardous and Noxious Liquid Substances in Bulk on Offshore Support Vessels.

3.7 GOMO – common guidelines for transport of polluted cargo

The Norwegian Oil and Gas Association has cooperated with the Chamber of Shipping and Marine Safety Forum to create a joint "best practice" document for safe managing of offshore supply and rig move operations (Guidelines for Offshore Marine Operations, GOMO). A section of the document (appendix 10 F) has information which may be useful for operators who need to describe wet backload sent to shore for treatment (using slop tanks on offshore service ships). The document further discusses relevant problems and solutions, including tests and documentation needed to prevent unwanted incidents for wet backloads.

A brief summary of the GOMO guidelines is given here in chapter 5.4.3. GOMO's chapter 10, describing bulk cargo operations, is not included in the summary.

3.8 Local Waste Plan

The Activities Regulations § 72 require that the operator prepares a waste plan. The plan should discuss waste reduction, sorting, recovery, recycling and possibly energy recovery.

Waste management should be incorporated into the company's HSE policy.

It is advisable to prepare a local waste plan for each waste producing unit (platform/ship/rig). The waste plan should describe the following main activities:

1. Framework conditions
 - Which area/ship/installation(s) the plan applies for
 - Chosen concept for sorting and interim storage of waste (waste categories and sorting station locations), routines for collection and handling of on board waste, routines for shipment to shore
 - Local waste plan audit schedule
 - What has been done to reduce waste destined for landfill and increase the degree of recovery
2. Responsibility
 - Who is responsible for waste management in different areas and locations
 - Who is authorized to purchase or make leasing agreements for equipment
 - Who is responsible for shipping waste to shore, including declaration forms and hazard labels
 - Who is the contact person between the offshore installation and shore
3. Objective
 - Which objectives have been established for the particular waste producing unit
 - Objectives regarding waste to landfill
4. Actions
 - Description of planned actions to achieve established objectives (e.g. waste reducing actions, new waste sorting categories, labelling, further training and information)
5. Documentation, objective adjustments, corrective actions
 - The waste producing unit's documentation of implemented actions and achieved results (environmental accounts and waste target figures)
 - Result evaluation to determine whether implemented actions has had the desired effect, or if the objective needs adjustment. Consideration of new actions if the implemented actions have had unsatisfactory effect.

A waste plan should be prepared early in the installation design process to allow for necessary adjustments, ref. the Installation Regulations § 67.

4 WASTE PREVENTION ACTIONS

Waste prevention is designed to prevent waste being generated at all. Waste prevention is not primarily a question of waste. It has to do with resources, and how better to utilize resources. The waste triangle (Figure 1) illustrates that by preventing waste from arising, costs are usually reduced. It also illustrates how low cost and increased environmental benefits are linked.

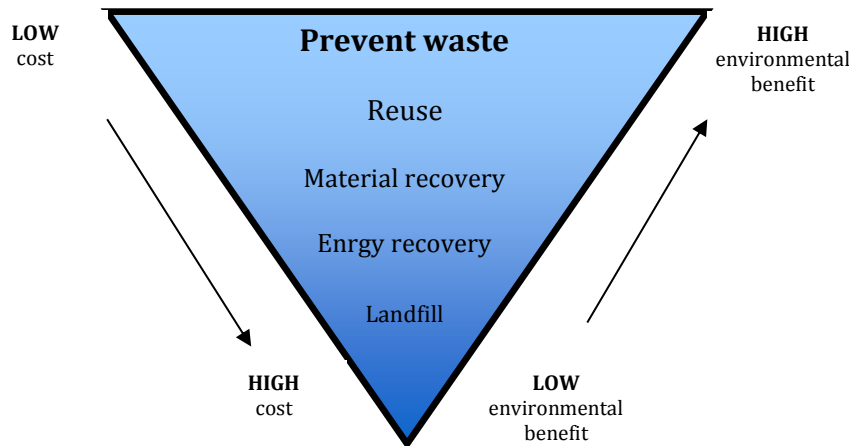


Figure 1. The waste triangle

For improved environmental and economic results, waste reduction should be a focal point during purchase processes. Important considerations are as follows:

- **Reduce** the consumption of **resource intensive** products
- Choose products with a **long lifetime**
- Choose products that can be **recovered**
- Choose products made of **recovered materials**
- Choose products with minimal, but still adequate, packaging
- **Reduce** waste with **hazardous substances** by selecting alternative products that are less harmful for health and environment

Waste prevention involves being alert to waste that can be generated in the entire value chain. This is not only a question of reduced consumption but must include a change in the pattern of consumption.

Improved utilization of resources calls for reduced waste amounts and increased recovery. The industry could contribute towards this by finding common solutions to prevent waste being produced, e.g. by using standardized reusable plastic pallets. Further examples are:

- Require the implementation of BAT/BEP (ref. IPPC Directive: Council Directive 96/61 EF concerning the prevention and limitation of pollution)
- Being conscious of waste reduction requirements and the establishment of waste reducing processes in the design or engineering phase (e.g. cuttings, drilling and well fluids)
- Change to chemicals with less environmental impact, evaluate amounts and degree of danger (ref. substitution requirements in the Product Control Act § 3a)
- Preventive maintenance
- Start-up, shutdown and maintenance procedures that consider waste reduction
- Avoid degassing and drying out of solvents and paints
- Avoid corrosion which will lead to waste production
- Check for damage on received goods
- Proper emptying of packaging such as cans, barrels, bottles, sacks, etc.
- Proper labelling of packaging such as cans, barrels, bottles, sacks, etc.
- For supplier contracts, make contractual demands of return schemes
- For supplier contracts, make contractual demands of suitable reusable packaging
- Avoid small/single packaging, give preference to larger units

- Reduce the use of disposable items such as plastic cups, polyester cups, plastic utensils, cardboard boxes etc.
- Separate food left-overs (remove food waste from packaging. etc. after mess hall meals)

The following examples will reduce the amount of waste sent to final disposition / landfill:

- Reclamation of waste (by-product) to a process or product, e.g. reuse of drilling fluids or used oils to the production flow
- Evaluate pros (possibility of pumping) and cons (increased waste) for slurrification of drill cuttings. Maybe also evaluate new technology for transfer of cuttings from installations to ships to both avoid slurrification and minimize lifting operations
- Reinjection
- Evaluate well design for exploration, e.g. use of "slimhole" drilling to reduce the amount of cuttings and use of drilling fluids
- Make contractual demands of disposition of treated drilling waste (in accordance with BAT and BEP)
- Improved sorting/categorizing of waste that can be recovered to prevent landfilling and the environmental impact of such

Compacting and/or grinding waste will reduce transport needs and the number of lifting operations both offshore and onshore. Such volume reduction is also favourable regarding storage, handling and general logistics. Waste disposal costs are normally based on weight. Consider personnel safety offshore and onshore when compressing certain waste categories.

5 CLASSIFICATION AND LABELLING

Correct classification of products and waste is vital for good waste prevention and control. It is the operator's responsibility to evaluate what is a product and what is waste. It is furthermore the operator's / waste producer's responsibility to assess whether the waste is hazardous waste and as such compromised by the Waste Regulations' hazardous waste chapter. The authorities can help decide whether the waste is hazardous or not.

5.1 Waste definition

The Pollution Control Act § 27's waste definition: "The term waste means discarded objects of personal property or substances. Surplus objects and substances from service industries, manufacturing industries and treatment plants, etc., are also considered to be waste. Waste water and exhaust gases are not considered to be waste."

At least one of the following criteria must be met for something to be defined as waste:

1. discarded: the owner has given the material up and intends to get rid of it. The owner's evaluation should weigh heavily.
2. superfluous: the material cannot be used in a practical manner unless undergoing major treatment. May be determined based on an objective evaluation.

Commonly used English waste terms are hazardous waste and non-hazardous waste. Norwegian Oil and Gas Association member companies and their service providers normally use the Norwegian term "næringsavfall" for non-hazardous waste. The Pollution Control Act uses the Waste Regulations § 11-4 definitions to determine whether or not waste is to be considered hazardous waste. The regulations refers to EWL codes marked with asterisks (*) or to hazardous substance concentrations exceeding limit values given in a separate appendix to the regulations' chapter 11. The limit values are based upon criteria in the regulations for classification, labelling, etc. of hazardous chemicals.

Radioactive waste is defined in chapter 5.5.

Non-hazardous waste is discussed in chapter 5.3, hazardous waste in chapter 5.4.

5.2 Waste or product

Any item/matter/fluid that is considered neither waste, waste water nor a waste gas, is to be regarded as a product. All products must meet the Product Control Act and its regulations, where one requirement is that all products must be accompanied by a Material Safety Data Sheet (MSDS). It may be difficult to determine when a used product (e.g. drilling fluids) no longer fulfil the product specifications and thus must be discarded. Material which is not meant to be recovered should be considered as waste.

The person responsible for evaluating a product is also responsible for ensuring correct product/waste determination. In the offshore industry this classification will also affect the reporting routines and which contractual regimes apply.

5.3 Non-hazardous waste

In order to obtain suitable recoverable waste it is important to focus on the quality of the delivery and to consider that a raw material is being delivered, and not waste. This is important to be able to achieve national and internal company goals relating to increased waste recovery.

Appendix 1 contains examples of suggested waste categories and waste groups. It is recommended to use non-hazardous waste codes as given in the Norwegian Standard "Classification of waste (NS-9431:2011)". Appendix 1 also contains an example of a waste information poster. While the waste category classification applies to waste receiving facilities and recovery systems at the time of this guideline's revision date, these categories are subject to change. They may also vary in accordance with the capacity of local onshore recovery systems or other practical issues. Limited storage space or the amount of generated waste may be such a practical issue, but lack of storage space is normally not a valid argument for sorting waste into fewer categories. Contractual issues may also influence the number of waste categories. The examples given in appendix 1 are suggestions, not requirements.

5.4 Hazardous waste

Hazardous waste is waste containing substances that are hazardous for health and the environment, thus requiring separate handling to prevent pollution, personal injuries, etc. Main requirements for handling hazardous waste are:

- Identification
- Proper storage, packaging and labelling
- Prohibition of mixing with other waste, also other types of hazardous waste

Thereafter:

- Hazardous waste declaration
- Transport
- Delivery to licenced waste facility

5.4.1 Classification of hazardous waste

Authorities require hazardous waste classification to be done in accordance with both the EU system for EWL codes and the prevailing Norwegian waste code list (ref. Norwegian Standard NS-9431:2011).

- The EWL code classification prepare for source specific classification. Certain EWL codes are specific for waste shipped to shore from offshore oil drilling and production.
- The Norwegian waste code list is based upon the various chemical properties of different types of waste. This classification will thus be determinative for further waste treatment and disposal.

The Norwegian Oil and Gas Association has prepared a classification key for hazardous waste based up common practice identified for various types of waste from the offshore industry (see appendix 2, Table for Classification of Hazardous Waste in the Offshore Industry). The Environment Agency has advised that only waste directly related to oil drilling or oil production shall use the EWL codes specific for the offshore industry. Other waste from the offshore industry shall use the other, existing EWL codes. Due to that advice, the EWL 1650XX series have not been used for chemicals in the appendix 2 table. For questions about hazardous waste classification the company's hazardous waste advisor should be consulted. Should there be discrepancies between the waste information given in the MSDS (Material Safety Data Sheet) and the classification given in appendix 2, the latter shall prevail.

It is not allowed to dilute hazardous waste with the intention of meeting the limit values for hazardous waste. There may, however, be other legitimate reasons for dilution, e.g. slurrification, provided that the waste will still be handled as hazardous waste.

Waste facilities may be contacted for advice regarding classification and handling. It is important to ensure proper downstream waste systems, as there may be incidents where the waste is not handled by a waste facility.

5.4.2 Declaration forms

All hazardous waste shall be declared using the “Common declaration form for hazardous waste and radioactive waste”, which shall be signed prior to loading waste on supply ships. It is advised the manifest, declaration form and other accompanying documentation is physically handled to the ship before loading of waste. Each Norwegian waste code load aboard a ship shall have one declaration form each, and the form shall physically accompany the waste during transport from the installation to shore. It is advised that a dedicated person or job position, e.g. the storekeeper or other personnel with hazardous waste and ADR/IMDG knowledge, fills in the declaration form and sign it on behalf of the operator.

Waste produced by the supply ship shall not be mixed with the installation’s waste, but be declared on separate forms, declared and signed by the ship or shipping company.

NB! The declaration form’s declaration number is a serial number that functions as a tracking ID for the waste, and shall therefore be written on the associated waste packaging. A copy of the declaration form’s first page shall be kept aboard the installation for reference. Weight and volume shall be added to the declaration form when offshore. Weight and volume may be difficult to decide, especially for large items that can only be measured as the item is offloaded from installation to ship. Weight and volume will always be remeasured by onshore waste recipients, and the updated information added to the declaration form.

See appendix 2 and 3 for waste codes and how to fill in the declaration form. Be especially aware of the fact that there are different Norwegian waste codes for radioactive waste for disposal and radioactive waste not for disposal. For transport in bulk, a GOMO analysis form (see below) shall be filled in, as well as the declaration form.

For transport of fluids in transportation tanks, it is recommended to perform gas metering (H₂S and LEL) and add the gas test results to the declaration form, and maybe also the GOMO analysis form (see chapter 5.4.3).

Do not fill in a declaration form for waste to be reinjected by the same or other installations. Reinjection shall be a part of the installation’s permit issued by the Norwegian Environment Agency, and shall be recorded as stipulated in the permit.

As of December 2013, the electronic system for the declaration of hazardous waste has not been finalised.

For practical reasons, hazardous waste is often declared by a third party on behalf of the operator. An example is hazardous waste generated from drilling and well operations, which is declared by the rig owner’s personnel. In situations like that it is particularly important that all parties involved contribute necessary information of the different types of waste.

The operator, being responsible for the waste, should make formal demands and establish good routines (e.g. contractual demands and procedures) to ensure the information flow mentioned above.

5.4.3 Other documentation

GOMO:

Membership in the Norwegian Oil and Gas Association requires operators to comply with “Guidelines for Offshore Marine Operations” (GOMO). The GOMO document’s appendix 10-F contains a recommendation of how to ensure “good practice for the carriage of oil contaminated cargoes for transportation by offshore supply vessel”. Those guidelines are prepared to make sure that transport of waste fluids are carried out safely, especially regarding fire hazards and gas development. This implies that the waste fluid must be tested for flash point, LEL, H₂S, pH, etc. on the installation, prior to

transport. The GOMO analysis form shall, together with the hazardous waste declaration form, be made available for the supply ship captain before the waste fluid is transferred to the ship. The captain shall reject waste that does not have sufficient documentation, or waste that is unsuitable for the ship's tanks. A copy of the declaration form and the NWEA analysis form may be sent electronically in advance, to cut down on the approval waiting time. Original documents shall be transferred as before. The guidelines also stipulate that backload documentation copies shall be made available for onshore recipients.

The waste fluid's H₂S level shall be zero before transfer from installation to ship. Onshore recipients shall test the fluids for LEL and H₂S prior to offloading from the ship. If any H₂S gas has developed during transport, this shall be removed before offloading starts. The fluid's upper layers should also be flash point tested. Fluids with a flash point less than 60 °C, or fluids that may contain crude oil or condensate, shall under no circumstances be transported by other ships than those especially classified for such fluids. Should the LEL test (LEL = lower explosive limit) detect flammable gases, the test should be repeated after the fluids have settled for a while. It is important to ensure that the test, which as a minimum shall contain the upper layer, is representative for the backload fluid. Pre-defined recipients shall receive reports of any non-conformances.

The GOMO guideline is available at the Norwegian Shipowners' Association [website](#). Norwegian Oil and Gas Association members are advised to implement this guideline in their governing documentation and ensure that it is always used when transporting liquid waste in vessel bulk tanks. The GOMO documentation requirement does not apply to skips, mobile transport tanks and iso tanks (including pneumatic blowing of drill cuttings). There may still be situations when waste transported on such mobile units must be tested and documented in accordance to GOMO.

Multimodal dangerous goods form:

Sea transport of hazardous waste which is also defined as dangerous goods shall be accompanied by a multimodal dangerous goods form (see appendix 4). The IMDG Code does not stipulate how the information shall be presented, only which information is required. Still, the Norwegian Oil and Gas Association recommend using the set multimodal dangerous goods form for easy recognition and common practice.

5.4.4 Hazardous waste export

Operators who chose waste facilities abroad must comply with the Waste Regulations' chapter 13 regarding transport across borders. This applies to both non-hazardous and hazardous waste.

The operator will be responsible for the export, including applying for an export permit in their own name. The export regulations are complex and require permits issued by the exporting, transiting and importing countries' environmental authorities. The permits shall specify the type of waste, importing country and chosen transport company. It is prohibited to export hazardous waste to non-OECD member countries.

In a situation where a waste facility performs the paper work and is listed in the export documents as the exporter, the waste shall be declared prior to export, regardless of whether the waste is physically handled by the waste facility or transported directly abroad.

5.4.5 Refundable waste oil, quality requirements

The Norwegian system for refundable waste oil covers used oil from motor oils, gear oils, industrial lubricating oils, hydraulic oils, transformer and switch oil.

Refundable waste oil must:

- a) fulfil quality requirements regarding flash point (more than 70 °C), chlorine content (less than 500 ppm) and sulphur content (less than 6000 ppm)
- b) originate from oil types stipulated above
- c) be kept away from other all other waste

The system for refundable waste oil does **not** cover:

- a) used lubricating oils mixed with other types of hazardous waste, such as solvents, diesel, fuel remnants, slop etc.
- b) used lubricating oils from ships over 250 feet length overall, sailing in international waters
- c) imported waste oils

Cans containing oil residues are normally not refunded, as the administration costs for so small volumes are less than the actual refund. Re-declaration from non-refundable to refundable oil is not accepted. Refundable waste oil that does not fulfil the requirements must be re-declared from refundable to non-refundable oil.

Use Norwegian waste code 7011 for declaring refundable waste oil. The EWL code must correspond with the text given in the field for additional information. Use waste code 7012 and EWL code 130899 for non-refundable waste oil, the latter which covers the actual deliveries from the waste producer.

5.4.6 Waste containing mercury

Mercury from oil reservoirs may pollute production material and equipment. To prevent mercury from becoming an added environmental issue when handling and recovering waste, each waste producing installation must evaluate whether mercury content may represent an environmental impact for further waste handling.

Metallic mercury or mercury from scale, e.g. on process equipment, may represent an environmental problem for recycling of metals, even when the waste's total mercury content is less than the limit values for hazardous waste. Unless the waste producer can verify that the process steel waste is not mercury contaminated, all the process steel waste shall be handled as being mercury contaminated. Chosen mercury cleaning methods must be applicable for the relevant mercury stage. Handling of mercury contaminated waste must be done according to the Waste Regulations and in a way that prevents formation of dangerous mercury compounds. Steel recycling should be done at smelting plants that cleans the exhaust for mercury.

5.5 Radioactive waste

5.5.1 Definition and classification of radioactive waste

The Regulations on the application of the Pollution Control Act to radioactive pollution and radioactive waste defines what should be managed as radioactive waste. Nuclide specific value limits are given in the regulations' appendix 1a) Waste that is over the limit values, describing radioactive waste.

Nuclide specific limit values are also given for specific and total activity for radioactive waste for disposal. Radioactive waste where both the specific and total activity exceeds the limit values must be sent to landfills specifically designated for that kind of waste. Reinjection of the radioactive waste may be an alternative, provided the issued discharge permit allows for that.

Personnel handling radioactive waste are required to use personal protective equipment (PPE). The radiation protection supervisor should be consulted to decide the type and extent of PPE needed, which will depend on the waste's properties (amount, specific activity, consistency, exposure over time).

The table values below show limit values for when to consider waste as radioactive waste, and when that waste is considered radioactive waste for disposal. The values shall be calculated as the sum of the three nuclides: Pb-210, Ra-226 and Ra-228. Radioactive waste for disposal shall be sent to specially licenced waste facilities for final disposal.

Radionuclide	Limit values for radioactive waste	Limit values for radioactive waste for disposal	
	Specific activity (Bq/g)	Total activity (Bq/year)	Specific activity (Bq/g)
Pb-210	1	10 000	10

Ra-226	1	10 000	10
Ra-228	1	100 000	10

Radioactive waste with activity over 10 Bq/g is classified as Category 1 (e.g. 3035-1).

Radioactive waste with activity between 1 Bq/g and 10 Bq/g is classified as Category 2 (e.g. 3035-2).

5.5.2 Principles for testing and identifying radioactive waste

Tests of radioactivity shall be performed when opening production and drain systems, for pipelines and tripping out of well tools to determine the existence of radioactive waste. Performing personnel shall be informed of potential dangers and protective measures. A suitable instrument (Geiger counter with probe) shall be made available.

Activity identification (identification of Bq/g levels) shall be performed using quality controlled methods: screening of storage containers; representative samples taken using calibrated handheld test equipment; or laboratory analyses of representative samples. The test results shall be used when filling in the waste declaration form. Specific activity for each nuclide, determined by gamma spectrometry, as well as oil content analysis of each package/barrel, is required for radioactive waste for disposal.

The Pb-210 nuclide content cannot be determined using handheld test equipment. The normal levels of radioactive lead are approx. 10-20 % of the radium level. It is usually well known if a certain installation has abnormally high levels of radioactive lead.

5.5.3 Principles for handling radioactive waste

Radioactive waste shall not be mixed with other types of waste. Different types of radioactivity shall not be mixed if that may cause a pollution risk or create problems for further waste handling. It is not allowed to dilute radioactive waste with the intention of meeting the limit values for radioactive waste.

The radioactive waste handler (as in receipt, interim storage, treatment and other handling of radioactive waste) shall have an issued licence from the Norwegian Radiation Protection Authority (NRPA). As a transitional arrangement until 31 Dec 2013, facilities that at the time of the Radiation Protection Regulations' commencement had valid hazardous waste permits, may handle radioactive waste not for disposal. Facilities without hazardous waste permits, that still handle radioactive waste not for disposal, must have a permit issued by the NRPA. Every company handling radioactive waste must have a designated and trained radiation protection supervisor, as stipulated in the Radiation Protection Regulations § 16.

Radioactive waste for disposal shall only be delivered to facilities with specific permits for receiving such waste. Radioactive waste shall be delivered to a waste facility at least once a year. The waste producer must provide sufficient information regarding the waste's origin, content and properties to ensure proper waste handling. The declaration form must be filled in when delivering the waste. The packaging shall be clearly marked with the declaration number. The labelling must be transport proof.

The radioactive waste handler shall make sure that waste has been properly declared, and see to that the declaration form accompanies the waste for all further transport.

Do not use the declaration form for scrap metal and steel (pipes, valves, tubes) with proven radioactive scale/contamination, as the weight of the radioactive waste will be very low compared to the total metal weight. Such metal should only be considered waste after it has been through a decontamination process (rinsing, mechanical/chemical cleansing), from which point the declaration form requirement sets in. Still, for transport such metal waste should be marked as potentially radioactive waste. Radioactive waste that occurs after the metal decontamination process shall be declared with the operator put down as the waste producer.

5.5.4 Dangerous goods regulations' labelling and declaration requirements

The dangerous goods regulations (ADR/IMDG) require dangerous goods documentation for equipment contaminated with a radioactive layer where the specific activity is over 10 Bq/g for the nuclides Ra-226, Ra-228 or Pb-210. This applies regardless of what the relevant hazardous waste regulations stipulate.

The same dangerous goods documentation demand applies for bulk transport of radioactive waste for disposal, with activity over 10 Bq/g for the same nuclides. Such bulk waste deliveries will require both the dangerous goods documentation and the common declaration form for hazardous waste and radioactive waste.

5.6 Other types of waste

5.6.1 Infectious waste

Infectious waste is, according to the regulations on infectious waste from human and animal health services, defined as "waste from medical treatment or veterinary treatment and/or corresponding education, research and diagnostics involving microorganisms capable of living or their toxins which may cause diseases among humans or other living organisms". Infectious waste will, *as far as the Norwegian Oil and Gas Association is concerned*, be waste from medical offices containing infectious sharps such as syringes and scalpels, or blood-stained bandages or other wound cleaning waste.

Infectious waste must be collected and shipped in suitable containers. Infectious waste is not subjected to the Waste Regulations' chapter 11 concerning hazardous waste. Due to this, the declaration form shall not be filled in, but shipped infectious waste must still comply with the dangerous goods regulations (ADR/IMDG), and have the appropriate transport documents.

Waste facilities are normally not licenced to receive infectious waste. Waste facilities may still be contacted for advice about transport and local handling of infectious waste. See the Infection Regulations § 8 for requirements regarding documentation and records of infectious waste.

5.6.2 Explosives

Explosives, such as detonating charges, emergency flares and distress rockets, are not subjected to the Waste Regulations' chapter 11 concerning hazardous waste. Due to this, the declaration form shall not be filled in, but shipped explosives waste must still comply with the dangerous goods regulations (ADR/IMDG), and have the appropriate transport documents. Discarded explosives must have proper packaging (preferably original), be placed in clearly labelled boxes and shipped ashore to be returned to the supplier.

Those who produce, import or distribute explosive products or goods with any explosive content, are required to accept the return of similar discarded products. Explosive goods and products shall be delivered to a licenced return/disposal facility (see Regulations on handling explosive material § 16-2). Waste facilities are normally not licenced to receive explosives of any kind. Waste facilities may be contacted for advice about transport and local handling of discarded explosives, but the general rule is that explosives shall be returned to the supplier.

5.6.3 Radioactive isotopes

Radioactive sources, other than naturally occurring radioactive material, shall be delivered back to the supplier. Radioactive sources are not classified as waste, but are classified as dangerous goods (class 7) and must comply with ADR/IMDG regulations.

5.7 Packaging

5.7.1 Use of packaging

All waste that is also considered dangerous goods must have UN approved packaging.

- The packaging shall not be filled to more than 90 % of the total capacity.
- A rule of thumb is that all corrosive waste, e.g. acids or bases within the ADR/IMDG class 8, should have plastic packaging.
- A main rule for using barrels is to use open top barrels with clamp tops for solid waste, and tight head barrels with bung holes for fluid waste.
- Do not use big bags for transporting fluids, due to the spill risk. Drill cuttings and oily rags/absorbents may contain fluids, and should not be transported using big bags.

5.7.2 Labelling of packaging

All hazardous waste packaging shall always be labelled with:

- Declaration number

Hazardous waste that is also classified as dangerous goods shall have the additional labelling of:

- UN number
- Hazard label
- Proper shipping name (IMDG)

It is also recommended to number serial items (e.g. item 1/10, item 2/10 etc.)

5.7.3 Empty packaging

Empty, un-cleaned packaging from classified substances shall be handled as hazardous waste; packaging with residue of hazardous substances, with Norwegian waste code and EWL code as stated in appendix 2. See appendix 1 for more information.

Empty, clean and dry packaging, unless the previous content was labelled "poisonous", may be handled as plastic/metal waste, dependent of the packaging material.

5.8 Basic characteristics of waste destined for landfilling

Specific guidelines apply for waste sent directly from the operator to landfill disposal, without further handling or treatment. See [Guide to characterization and recipient control of waste for disposal](#).

5.9 Dangerous goods safety officer

Any enterprises with activities that include transportation of dangerous goods, or related packaging, loading or off-loading, shall have one or more designated safety officers for dangerous goods transportation. As such, operators handling, packaging or transporting dangerous goods, should have their own, or an associated, dangerous goods officer.

5.10 Non-conformances and corrections

The waste producer shall be informed if the waste facility receives waste that is not in accordance to regulations, contracts, governing documentation, or waste management plans. Incorrect waste handling that may represent a danger to occupational health and the environment shall be reported to the operator as a non-conformance.

Waste registration, waste invoicing and waste reports are based on information from the hazardous waste declaration form (and its corrections, if any). Corrections made to the declaration form will be communicated to the waste producer.

Non-conformances related to in-house guidelines for waste management shall be reported internally in the company, the same way as other non-conformances.

5.11 Recovery

Recovery is a common term for all types of waste disposition that utilizes waste as a replacement for new materials or resources, such as:

- reuse/recycling
- material / energy recovery
- incineration / destruction with energy utilization

Recovery does not include the following ways of disposition:

- incineration without energy utilization
- landfilling (landfills with or without gas capturing)
- sea discharge after cleaning/treatment *

Use the following when calculating the degree of recovery:

- material recovery is considered 100 % recovery unless otherwise specified
- the incineration with energy utilization percentage should be based upon last year's mean degree of energy utilization
- water discharged to sea after cleaning/treatment shall be excluded from the total amount *

* It is recommended that water discharged to sea is reported separately as a recipient, e.g. described as "discharge of water to sea after treatment".

5.12 Colour coded labelling

Based on onshore and offshore experience and research, it is recommended to use a colour labelling system based on the following three colours:

- red for hazardous waste (colour code PMS 032)
- grey for remaining waste
- green for all other types of non-hazardous waste (colour code PMS 350)

It is advisable to use posters and labels with symbols and Norwegian/English text. Additional information may be given in info posters such as the example in appendix 1.

6 TARGET FIGURES, WASTE REPORTS AND ENVIRONMENTAL REPORTS

6.1 Target figures

Target figures / performance measures for waste amounts and waste control should be established to give the company a tool to measure waste reduction. Such target figures should be chosen according to the type of activity, see examples below:

Waste fluids and other waste related to drilling

Amount of waste per drilled meter
Amount of waste per section or well
Degree of recovery for drilling fluid
Degree of recovery for drill cuttings
Degree of recovery for fluid drilling waste

The last two will give an indication of how much oil is recovered from cuttings and fluid drilling waste. Dry solids used as a top cover, or in another way that substitutes new resources, may also be considered recovery.

Other types of waste

Degree of sorting
Degree of recovery for non-hazardous and/or hazardous waste
Non-conformances
Amount of waste per day

Suggestions of various ways of calculating the degree of sorting is shown in appendix 5.

Economic:

Waste handling costs
Costs related to non-conformances
Costs per drilled meter or drilled well
Costs per day
Costs for each ton/kilo of waste per produced barrel of oil

It is recommended to prepare a waste report (preferably monthly) for each waste producing unit; such as offshore installations, supply bases, ships, office building etc. Regular waste reports will allow for monitoring of the unit's waste results, feedback and comments, and should be actively used for follow-up and motivation, e.g. during HSE meetings. The waste report should present the results both as number statistics and graphs, as well as showing trends, future focus areas etc. A proper educational presentation of the results will improve understanding and motivation.

Performance measures for installation / waste producing units:

- Non-conformances
- Degree of sorting
- Amount / waste amount frequency

Performance measures for operators:

- Degree of recovery – total of all waste categories
- Costs

6.2 Environmental accounts

Environmental accounting is an important tool to gain an overview of a company's discharges and waste. It will also enable monitoring of on-going development, e.g. the effect of implemented improving actions.

Environmental accounts provide a historic database of knowledge that can be used for evaluating the company's state of the environment and for choosing the best environmental actions.

Environmental accounts shall, as a minimum, fulfil the demands of external environmental reports (e.g. the Norwegian Environment Agency's annual report) and any in-house demands and requirements. Environmental accounting shall cover waste shipped to shore, injected waste and all discharges.

It is recommended to register all waste in the company's environmental account. Such accounting should use databases, such as Excel, TEAMS or NemsAccounter. The databases should include all the company's offshore installations, flotels, ships and land facilities (process plants, offices, bases).

6.3 Reports

Only reported waste produced by offshore installations performing drilling, well activity and/or production shall be included in the Norwegian Environment Agency's annual report. This also includes installation-related flotel activity. Waste produced from pipe laying activities and related support activity (supply and stand-by services from ships or shore) shall not be included in the Norwegian Environment Agency's annual report.

Report requirements are sanctioned by the Act of 13 March 1981 No.6 Concerning Protection Against Pollution and Concerning Waste (the Pollution Control Act). Operators shall prepare discharge reports where all operational discharges and all acute spills are reported. Oil fields where several installations are covered by a common discharge permit shall prepare individual reports for each installation. Amounts of any radioactive waste shipped to shore shall be reported in a separate report section (chapter 5).

Operators shall record all discharge data and necessary accompanying text into the discharge database "EnvironmentWeb" (EW) within 1 March in the year following the reporting year.

The company shall give a brief presentation of their systems for handling installation generated radioactive waste that is shipped to shore for final disposition. The report shall include radioactive waste originated at the installation, but also waste generated as a result of shore cleaning of the installation's contaminated equipment. The annual report shall only include already classified waste that during the year has been sent ashore for disposal or other final disposition.

The report shall state which facilities ashore are responsible for handling the radioactive waste, both cleansing and waste facilities.

Table 5.1 Radioactive waste

Type of waste	Description of waste	Norwegian waste code ¹⁾	Nuclides	Waste sent to final disposal	
				Amount (tons)	Total activity (GBq)

¹⁾ Norwegian waste codes as defined on the declaration form

Example of Type of waste: oil-contaminated waste

Example of Description of waste: oil contaminated matter, waste from scale cleansing, pigging waste.

The waste's amount in tons and total activity in GBq shall be based on weights and activities stated on the forms that accompanied the waste as it was sent from base and/or equipment cleansing facilities to disposal site or other final disposition.

7 CONTRACTUAL REQUIREMENTS

Most companies have standard contractual HSE clauses regulating contractor requirements to governing systems (e.g. ISO-14001), Achilles pre-qualification (including NORSOK standard S-006), HSE target goals, etc., which will be sufficient for most contracts.

It could be practical if the waste contract had the added option of third party participation to enable the operator to include other operators, e.g. during exploration (short term regional activity) or field production where shorter/longer term regional services will be needed.

This should be done in collaboration with the service providers to ensure satisfactory capacities. It should, however, be stipulated in the contract that the waste producer must give the waste facility advance notice of larger waste shipments sent ashore to allow for proper logistic planning (tank capacity, personnel, etc.).

It should be required that documentation of final waste disposition is kept for three years. It is recommended that this documentation is archived at the supply base by the waste contractor or another service provider. This waste record requirement does not affect the Accounting Act's 10 year invoice record requirements.

There should be a hazardous waste traceability requirement, based on the established system for declaration of hazardous waste and radioactive waste.

It is recommended that the operator acquires an overview of utilized waste facilities and makes sure that these hold the requisite licences.