



Australian Government  
Department of Industry,  
Science and Resources

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Chief Executive Officer  
Modern American Recycling Services AS (MARS)

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### Guarantee for Management of Naturally Occurring Radioactive Materials (NORMs)

The Department of Industry, Science and Resources (DISR), acting on behalf of the Commonwealth of Australia, is the responsible Commonwealth entity for the decommissioning and recycling of the Northern Endeavour Floating Production Storage and Offloading (NEFPSO) facility.

The Commonwealth recently contracted MARS as the lead Contractor for the recycling of the NEFPSO. Under this agreement, MARS is not required to facilitate the disposal of NORMs associated with this activity.

MARS will be solely responsible for appropriate packaging and storage of the NORMs in preparation for the Commonwealths collection from your Frederikshavn facility.

This notice provides confirmation of DISR's commitment to collect all NORMs generated from the recycling of the NEFPSO within 12 months of project completion. The Commonwealth, as represented by DISR, is committed to protecting the regional environment and complying with all legal requirements and international treaties regarding the transport and final disposal of NORMs. I am writing to confirm DISR's commitment to this process and confirm DISR's full accountability for the collection and disposal of NORMs.

Should you require any further information or clarification, please contact my representative [s 22\(1\)\(a\)\(ii\)](mailto:NERecycleproc@industry.gov.au)  
or [NERecycleproc@industry.gov.au](mailto:NERecycleproc@industry.gov.au)

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Yours sincerely, ✍

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10 July 2025

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# **2407 - Northern Endeavour FPSO Decommissioning**

## **IHM Mapping Justifications Memorandum**

Department of Industry, Science and Resources

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**Table 1 List of Abbreviations**

<b>Abbreviation</b>	<b>Definition</b>
<b>CA</b>	Competent Authorities
<b>CCMD</b>	Chemical Control and Management Department
<b>DCCEEW</b>	Department of Climate Change, Energy, the Environment and Water
<b>DISR</b>	Department of Industry, Science and Resources
<b>HS</b>	Harmonised System
<b>IHM</b>	Inventory of Hazardous Materials
<b>IMO</b>	International Maritime Organization
<b>MSDS</b>	Material Safety Data Sheets
<b>NE FPSO</b>	Northern Endeavour Floating Production, Storage and Offtake Vessel
<b>NEDCOM</b>	Northern Endeavour Decommissioning
<b>NEPM</b>	National Environmental Protection Measure
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>PIC</b>	Prior Informed Consent
<b>ULAB</b>	Used Lead-Acid Batteries
<b>UN</b>	United Nations
<b>UNEP</b>	United Nations Environment Programme
<b>WCO</b>	World Customs Organisation

# 1. Introduction

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## 2. Methodology

The listed hazardous materials along with their respective sources, location and quantities were mapped to various hazardous waste classifications (refer to Appendix A). The hazardous waste codes, classes, shipping names, packaging type, etc. are detailed in the sections below.

The waste materials listed on the IHM were assigned to the waste codes after review of the following information:

- Official documents of the waste code provider (e.g., Basel Convention).
- MSDS from Safe Work Australia online database.
- Other MSDS from public/private organisations.
- Weblinks from the following parties.
  - Government organisations
  - International organisations, for e.g., UNEP
  - Private organisations/corporations.
- Peer reviewed research literature.

Appendix A also includes entries from the source data such as name of item and location.

### 2.1.1. Basel Convention (1992) Codes

The Basel Convention, adopted in 1989, is an international treaty designed to reduce the movements of hazardous waste between nations, especially from developed to developing countries. The Convention includes a list of waste categorized into hazardous and non-hazardous, with specific codes assigned to each. These codes help to identify and classify the different types of waste, to ensure proper handling, transportation, and disposal. The Basel codes are:

- Basel Annex I (Y Code): This states the categories of hazardous waste materials to be controlled [5].
- Basel Annex III (H Code): Lists all the hazardous characteristics recognised by the Basel Convention [5].
- Basel Annex VIII (A Code): Lists wastes characterized as hazardous under Article 1, paragraph 1 (a), of the Basel Convention. This designation does not preclude the use of Annex III to demonstrate that a waste is not hazardous [5].

### 2.1.2. OECD Codes

A series of seven codes is used to identify waste materials transported to any OECD member state. OECD codes were drafted based on the Basel Convention. Of the seven codes, three are identical to the Basel Convention Annexes. The remaining codes used for the purpose of IHM mapping include Q codes, code numbers, C codes, and A codes [6].

### 2.1.3. UN Dangerous Goods List

The UN Dangerous Goods List, maintained by the United Nations, is a globally recognized system for classifying hazardous materials for transportation. It categorizes dangerous goods into nine classes based on their primary hazard, such as explosives, flammable liquids, toxic substances, and radioactive materials. The UN Shipping Names are usually determined from descriptions or hazardous characteristics of the waste. Every UN Shipping Name is categorised into one of the UN nine classes and has a unique UN Shipping Number[7].

#### 2.1.4. NEPM Codes

The NEPM codes are the official country codes used by the Commonwealth of Australia to identify hazardous waste moving to and from Australia. The NEPM codes are drafted, amended and enforced consistent with the Basel Convention Annexes, by the DCCEEW [8].

#### 2.1.5. International Custom Codes

These international custom codes, also known as the HS codes, are 6-digit codes created by the World Customs organisation (WCO), to classify globally traded products. The HS codes are used to ease global trade by assigning a six-digit code to classify several types of goods [9].

#### 2.1.6. Singapore Customs Codes

DISR has recently advised that the vessel may transit via Singapore during the dry tow to an international recycling location. The Singaporean government does not enforce a national waste identification system to classify and regulate hazardous wastes. However, the Singapore Customs mandates all hazardous wastes under the Basel Convention, transiting Singapore, must obtain prior informed consent (PIC) from the Singapore Chemical Control and Management Department (CCMD). PIC requires the hazardous waste exporter to identify all hazardous wastes based on Harmonised System (HS) and Competent Authorities (CA) Product Codes.

- HS Codes: The HS codes are a set of 8-digit codes adopted by the Singapore Customs in the ASEAN Harmonised Tariff Nomenclature, which is based on the WCO 6-digit level HS Codes [10].
- CA Product Codes: CA Product Code is a specific code assigned by relevant Singaporean authorities for certain goods that may require additional transport permits or controls beyond the standard HS code classification [10].

#### 2.1.7. Additional Waste Codes

The hazardous waste exporter also is required to categorize hazardous wastes based on two additional waste codes in the Hazardous Waste Transboundary Permit form. The additional waste codes are follows:

- Physical characteristics code: Code for physical characteristics are required in Block 7 of the form.
- Packaging type code: The codes for packaging type are required in Block 11 of the form.

Note:

- The 2022 Basel Convention National Reports [11] allows for multiple codes of a Basel Convention Annex to be used to accurately classify a single hazardous waste item. Since OECD and NEPM codes were drafted as required by the Basel Convention, multiple codes for OECD and NEPM classifications were used for IHM mapping.
- In some instances, assigning multiple codes was necessary as multiple types of hazardous materials (classification in Appendix 1 of the IMO guidelines) were already assigned for entries in Part I-1 of the IHM.
- The waste entries with CA Product Code fields denoted as '-' means the respective waste materials do not require additional transport permits or controls beyond their standard HS code classification.

## 3. Overview of IHM Mapping

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Radioactive substances	B-8	Not applicable to any of the Basel codes, OECD code Q/No and NEPM codes.	Radioactive materials are not recognised as hazardous waste materials by the Basel Convention, OCED code Q/No. classifications and NEPM codes.
Radioactive substances	B-8	The packaging type for all recorded waste in the IHM is stated as '9 – Other (Tow)'.	Unable to be assigned to Packaging Types 1 – 8.

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## 4. Conclusion

This document mapped the Northern Endeavour IHM (dated October 4<sup>th</sup>, 2024) against the various hazardous waste codes, classes, shipping names, packaging type, etc. which must be completed in the Hazardous Waste Export Permit form.

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Most wastes were assigned to the appropriate categories. However, in some instances a waste was not listed by the classifying body or there were alternatives. In those cases, the justifications for such decisions are described in Table 2.

Refer to Appendix A for the detailed waste assessment undertaken for each waste listed on the IHM.

## 5. Recommendations

The following recommendations should be considered:

1. Request two versions of the IHM spreadsheet (refer to Appendix A).
  - a. One version should incorporate all changes made from the previous revision of the IHM.
  - b. The other version will facilitate as a clean copy showing the status of hazardous materials on the FPSO.
2. Undertake site inspections to record the presence of any contaminants in areas next to the items listed under IHM codes – D-1, D-2 and D-3.

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# Appendix A. Inventory of Hazardous Materials (IHM) (IHM Oct 4, 2024)

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Appendix A - Inventory of Hazardous Materials (IHM) (IHM Oct 4, 2024)

Project: 2407 - Northern Endeavour FPSO Decommissioning  
 Client: Department of Industry, Science and Resources

Date of Review  
 13/03/2025

Entries from Source Data														Entries from IHM Mapping by Kent																				
IHM Part No.	Item No.	Application of Item	Name of Item	Location	Material No.	Material Classification in Appendix 1 of the IMO guidelines	Parts Where used	Quantity *	Unit *	PCHM/CHM *	Ship Plan Ref.	Sampling Report Ref.	Revoking Item No.	Date Added	Initials *	Other General Remarks	IHM Ref. Page No.	IHM Code	Basel Code Y <sup>[1]</sup>	Basel Code H <sup>[1]</sup>	Basel Code A <sup>[1]</sup>	OECD Code Q <sup>[2]</sup>	OECD Code No. <sup>[2]</sup>	OECD Code C <sup>[2]</sup>	OECD Code A <sup>[2]</sup>	UN Class <sup>[3]</sup>	UN No. <sup>[3]</sup>	UN Shipping Name <sup>[3]</sup>	National Code (NEPM) <sup>[4]</sup>	Custom Code <sup>[5]</sup>	Singapore Harmonised System Code <sup>[6]</sup>	Competent Authorities (CA) Product Code <sup>[6]</sup>	Physical Characteristics	Packaging Type

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Appendix A - Inventory of Hazardous Materials (IHM) (IHM Oct 4, 2024)

Project: 2407 - Northern Endeavour FPSO Decommissioning  
Client: Department of Industry, Science and Resources

Date of Review  
13/03/2025

Entries from Source Data															Entries from IHM Mapping by Kent																			
IHM Part No.	Item No.	Application of Item	Name of Item	Location	Material No.	Material Appendix 1 of the IMO guidelines)	Parts Where used	Quantity *	Unit *	PCHM/CHM *	Ship Plan Ref.	Sampling Report Ref.	Revoking Item No.	Date Added	Initials *	Other General Remarks	IHM Ref. Page No.	IHM Code	Basel Code Y <sup>[1]</sup>	Basel Code H <sup>[1]</sup>	Basel Code A <sup>[1]</sup>	OECD Code Q <sup>[2]</sup>	OECD Code No. <sup>[2]</sup>	OECD Code C <sup>[2]</sup>	OECD Code A <sup>[2]</sup>	UN Class <sup>[3]</sup>	UN No. <sup>[3]</sup>	UN Shipping Name <sup>[3]</sup>	National Code (NEPM) <sup>[4]</sup>	Custom Code <sup>[5]</sup>	Singapore Harmonised System Code <sup>[6]</sup>	Competent Product Code <sup>[6]</sup>	Physical Characteristics	Packaging Type
I-2	166	ND	Topside Components	1st Stage Separator Lam N6C	166.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NGJ	ND	14	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	167	ND	Topside Components	Test Separator N6D	167.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NGJ	ND	14	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	168	ND	Topside Components	De-gasser Drum N9A	168.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NGJ	ND	14	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	169	ND	Topside Components	1st Stage Separator Cor N6A, N6E	169.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NGJ	ND	15	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	170	ND	Topside Components	2nd Stage Separator N6A	170.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NGJ	ND	15	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	171	ND	Topside Components	Port Slops Pump Liquid Sample	171.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NGJ	ND	15	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	172	ND	Topside Components	Port Slops Sample	172.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NGJ	ND	15	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	173	ND	Topside Components	Starboard Slops Pump with Liquid Sample	173.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NGJ	ND	15	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)

s 22(1)(a)(ii)

s 22(1)(a)(ii)

Appendix A - Inventory of Hazardous Materials (IHM) (IHM Oct 4, 2024)

Project: 2407 - Northern Endeavour FPSO Decommissioning  
 Client: Department of Industry, Science and Resources

Date of Review  
 13/03/2025

Entries from Source Data															Entries from IHM Mapping by Kent																			
IHM Part No.	Item No.	Application of Item	Name of Item	Location	Material No.	Material Classification in Appendix 1 of the IMO guidelines	Parts Where used	Quantity *	Unit *	PCHM/CHM *	Ship Plan Ref.	Sampling Report Ref.	Revoking Item No.	Date Added	Initials *	Other General Remarks	IHM Ref. Page No.	IHM Code	Basel Code Y <sup>[1]</sup>	Basel Code H <sup>[1]</sup>	Basel Code A <sup>[1]</sup>	OECD Code Q <sup>[2]</sup>	OECD Code No. <sup>[2]</sup>	OECD Code C <sup>[2]</sup>	OECD Code A <sup>[2]</sup>	UN Class <sup>[3]</sup>	UN No. <sup>[3]</sup>	UN Shipping Name <sup>[3]</sup>	National Code (NEPM) <sup>[4]</sup>	Custom Code <sup>[5]</sup>	Singapore Harmonised System Code <sup>[6]</sup>	Competent Authorities (CA) Product Code <sup>[6]</sup>	Physical Characteristics	Packaging Type
I-2	181	ND	Topside Components	Electrostatic Coalescer V2302 Pressure	181.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	15	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	182	ND	Topside Components	Hydro Cyclone V4312 Water Outlet Sample Point	182.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	15	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	183	ND	Topside Components	Hydro Cyclone V4311 Water Outlet Sample Point	183.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	184	ND	Topside Components	Closed Drain Drum Pump PM4801A Strainer	184.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	185	ND	Topside Components	Closed Drain Drum Pump PM4801B Strainer	185.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	186	ND	Topside Components	Debutaniser Column LI155 Level Diaphragm Flange Surface	186.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	187	ND	Topside Components	HP Flare Knockout Drum V4501 Strainer B	187.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	188	ND	Topside Components	HP Flare Knockout Drum V4501 Strainer A	188.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	189	ND	Topside Components	Storage Tanks Starboard 2	189.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	190	ND	Topside Components	Storage Tanks Port 3	190.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	191	ND	Topside Components	Storage Tanks Starboard 3	191.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	192	ND	Topside Components	Storage Tanks Port 4	192.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	193	ND	Topside Components	Storage Tanks Starboard 4	193.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	194	ND	Topside Components	Storage Tanks Port 5	194.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	195	ND	Topside Components	Storage Tanks Starboard 5	195.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	196	ND	Topside Components	Storage Tanks Starboard 6	196.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	17	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)

s 22(1)(a)(ii)

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Appendix A - Inventory of Hazardous Materials (IHM) (IHM Oct 4, 2024)

Project: 2407 - Northern Endeavour FPSO Decommissioning  
 Client: Department of Industry, Science and Resources

Date of Review  
 13/03/2025

Entries from Source Data															Entries from IHM Mapping by Kent																			
IHM Part No.	Item No.	Application of Item	Name of Item	Location	Material No.	Material Classification In Appendix 1 of the IMO guidelines	Parts Where used	Quantity *	Unit *	PCHM/CHM *	Ship Plan Ref.	Sampling Report Ref.	Revoking Item No.	Date Added	Initials *	Other General Remarks	IHM Ref. Page No.	IHM Code	Basel Code Y <sup>[1]</sup>	Basel Code H <sup>[1]</sup>	Basel Code A <sup>[1]</sup>	OECD Code Q <sup>[2]</sup>	OECD Code No. <sup>[2]</sup>	OECD Code C <sup>[2]</sup>	OECD Code A <sup>[2]</sup>	UN Class <sup>[3]</sup>	UN No. <sup>[3]</sup>	UN Shipping Name <sup>[3]</sup>	National Code (NEPM) <sup>[4]</sup>	Custom Code <sup>[5]</sup>	Singapore Harmonised System Code <sup>[6]</sup>	Competent Authorities (CA) Product Code <sup>[6]</sup>	Physical Characteristics	Packaging Type
II	33	ND	ND	PX13, Lower Process Deck and PX15, Lower Process Deck	ND	Laminaria 1st Stage Separator Tank and Corallina 1st Stage Separator Tank, Sludae	ND	s 47C, s 47D	L	ND	ND	ND	ND	ND	ND	Dry - Sand - Needs Demucking NORMS	25	C-31	Y9	H3, H11, H12	A4060	Q11	11	C51	A936, A941	9	3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	J120	2709.00	38259000	PCTWCB014	5	9 - Other (Tow)

s 22(1)(a)(ii)

s 22(1)(a)(ii)

Appendix A - Inventory of Hazardous Materials (IHM) (IHM Oct 4, 2024)

Project: 2407 - Northern Endeavour FPSO Decommissioning  
 Client: Department of Industry, Science and Resources

Date of Review  
 13/03/2025

Entries from Source Data															Entries from IHM Mapping by Kent																			
IHM Part No.	Item No.	Application of Item	Name of Item	Location	Material No.	Material Classification in Appendix 1 of the IMO guidelines	Parts Where used	Quantity *	Unit *	PCHM/CHM *	Ship Plan Ref.	Sampling Report Ref.	Revoking Item No.	Date Added	Initials *	Other General Remarks	IHM Ref. Page No.	IHM Code	Basel Code Y <sup>[1]</sup>	Basel Code H <sup>[1]</sup>	Basel Code A <sup>[1]</sup>	OECD Code Q <sup>[2]</sup>	OECD Code No. <sup>[2]</sup>	OECD Code C <sup>[2]</sup>	OECD Code A <sup>[2]</sup>	UN Class <sup>[3]</sup>	UN No. <sup>[3]</sup>	UN Shipping Name <sup>[3]</sup>	National Code (NEPM) <sup>[5]</sup>	Custom Code <sup>[5]</sup>	Singapore Harmonised System Code <sup>[6]</sup>	Competent Authorities (CA) Product Code <sup>[6]</sup>	Physical Characteristics	Packaging Type
II	57	ND	ND	PX19, Lower Process Deck	ND	V-4501 HP Flare Knock-out Drum, Sludge	ND	s 47C, s 47D	L	ND	ND	ND	ND	ND	ND	Dry - Sand - Needs Demucking NORMS.	27	C-31	Y11	H3, H8, H11, H12	A3190	Q11	11	C51	A936, A941	9	3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	J160	2709.00	38259000	PCTWCB014	5	9 - Other (Tow)

s 22(1)(a)(ii)

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# Appendix B. Inventory of Hazardous Materials (IHM) (Marked-up Version)









Appendix B - Inventory of Hazardous Materials (IHM) (Marked-up Version)

Project: 2407 - Northern Endeavour FPSO Decommissioning  
 Client: Department of Industry, Science and Resources

Date of Review  
 13/03/2025

IHM 4/10/2024 - Entries unchanged since 07/08/2024  
 IHM 4/10/2024 - Entries added since 07/08/2024  
 IHM 4/10/2024 - Entries deleted since 07/08/2024  
 IHM 4/10/2024 - Entries modified since 07/08/2024

Entries from Source Data																Entries from IHM Mapping by Kent																			
IHM Part No.	Item No.	IHM Version 4/10/2024	Application of Item	Name of Item	Location	Material No.	Material (classification in Appendix 1 of the IMO guidelines)	Parts Where used	Quantity *	Unit *	PCHM/CHM *	Ship Plan Ref.	Sampling Report Ref.	Revoking Item No.	Date Added	Initials *	Other General Remarks	IHM Ref. Page No.	IHM Code	Basel Code Y <sup>[1]</sup>	Basel Code H <sup>[1]</sup>	Basel Code A <sup>[1]</sup>	OECD Code Q <sup>[2]</sup>	OECD Code No. <sup>[2]</sup>	OECD Code C <sup>[2]</sup>	OECD Code A <sup>[2]</sup>	UN Class <sup>[3]</sup>	UN No. <sup>[3]</sup>	UN Shipping Name <sup>[3]</sup>	National Code (NEPM) <sup>[4]</sup>	Custom Code <sup>[5]</sup>	Singapore Harmonised System Code <sup>[6]</sup>	Competent Authorities (CA) Product Code <sup>[6]</sup>	Physical Characteristics	Packaging Type

s 22(1)(a)(ii)

I-2	15	Yes	ND	Closed Drain Pump	HD40, Cargo Deck	15.1	Radioactive substances	Radiation	ND	ND	PCHM	V-4801	ND	ND	01/06/2024	NGJ	ND	10	B-8	-	-	-	Q12	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
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s 22(1)(a)(ii)













Appendix B - Inventory of Hazardous Materials (IHM) (Marked-up Version)

Project: 2407 - Northern Endeavour FPSO Decommissioning  
 Client: Department of Industry, Science and Resources

Date of Review  
 13/03/2025

IHM 4/10/2024 - Entries unchanged since 07/08/2024  
 IHM 4/10/2024 - Entries added since 07/08/2024  
 IHM 4/10/2024 - Entries deleted since 07/08/2024  
 IHM 4/10/2024 - Entries modified since 07/08/2024

Entries from Source Data															Entries from IHM Mapping by Kent																				
IHM Part No.	Item No.	IHM Version 4/10/2024	Application of Item	Name of Item	Location	Material No.	Material (classification in Appendix 1 of the IMO guidelines)	Parts Where used	Quantity *	Unit *	PCHM/CHM *	Ship Plan Ref.	Sampling Report Ref.	Revoking Item No.	Date Added	Initials *	Other General Remarks	IHM Ref. Page No.	IHM Code	Basel Code Y <sup>(1)</sup>	Basel Code H <sup>(1)</sup>	Basel Code A <sup>(1)</sup>	OECD Code Q <sup>(2)</sup>	OECD Code No. <sup>(2)</sup>	OECD Code C <sup>(2)</sup>	OECD Code A <sup>(2)</sup>	UN Class <sup>(3)</sup>	UN No. <sup>(3)</sup>	UN Shipping Name <sup>(3)</sup>	National Code (NEPM) <sup>(4)</sup>	Custom Code <sup>(5)</sup>	Singapore Harmonised System Code <sup>(6)</sup>	Competent Authorities (CA) Product Code <sup>(6)</sup>	Physical Characteristics	Packaging Type

s 22(1)(a)(ii)

I-2	166	Yes	ND	Topside Components	1st Stage Separator Lam N6C	166.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	14	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	167	Yes	ND	Topside Components	Test Separator N6D	167.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	14	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	168	Yes	ND	Topside Components	De-gasser Drum N9A	168.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	14	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	169	Yes	ND	Topside Components	1st Stage Separator Cor N6A, N6E	169.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	15	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	170	Yes	ND	Topside Components	2nd Stage Separator N6A	170.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	15	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	171	Yes	ND	Topside Components	Port Slops Pump Liquid Sample	171.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	15	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	172	Yes	ND	Topside Components	Port Slops Sample	172.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	15	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	173	Yes	ND	Topside Components	Starboard Slops Pump with Liquid Sample	173.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	15	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)

s 22(1)(a)(ii)

Appendix B - Inventory of Hazardous Materials (IHM) (Marked-up Version)

Project: 2407 - Northern Endeavour FPSO Decommissioning  
 Client: Department of Industry, Science and Resources

Date of Review  
 13/03/2025

IHM 4/10/2024 - Entries unchanged since 07/08/2024  
 IHM 4/10/2024 - Entries added since 07/08/2024  
 IHM 4/10/2024 - Entries deleted since 07/08/2024  
 IHM 4/10/2024 - Entries modified since 07/08/2024

Entries from Source Data															Entries from IHM Mapping by Kent																				
IHM Part No.	Item No.	IHM Version 4/10/2024	Application of Item	Name of Item	Location	Material No.	Material (classification in Appendix 1 of the IMO guidelines)	Parts Where used	Quantity *	Unit *	PCHM/CHM *	Ship Plan Ref.	Sampling Report Ref.	Revoking Item No.	Date Added	Initials *	Other General Remarks	IHM Ref. Page No.	IHM Code	Basel Code Y <sup>(1)</sup>	Basel Code H <sup>(1)</sup>	Basel Code A <sup>(1)</sup>	OECD Code Q <sup>(2)</sup>	OECD Code No. <sup>(2)</sup>	OECD Code C <sup>(2)</sup>	OECD Code A <sup>(2)</sup>	UN Class <sup>(3)</sup>	UN No. <sup>(3)</sup>	UN Shipping Name <sup>(3)</sup>	National Code (NEPM) <sup>(4)</sup>	Custom Code <sup>(5)</sup>	Singapore Harmonised System Code <sup>(6)</sup>	Competent Authorities (CA) Product Code <sup>(6)</sup>	Physical Characteristics	Packaging Type
I-2	181	Yes	ND	Topside Components	Electrostatic Coalescer V2302 Pressure	181.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	15	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	182	Yes	ND	Topside Components	Hydro Cyclone V4312 Water Outlet Sample Point	182.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	15	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	183	Yes	ND	Topside Components	Hydro Cyclone V4311 Water Outlet Sample Point	183.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	184	Yes	ND	Topside Components	Closed Drain Drum Pump PM4801A Strainer	184.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	185	Yes	ND	Topside Components	Closed Drain Drum Pump PM4801B Strainer	185.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	186	Yes	ND	Topside Components	Debutaniser Column LI155 Level Diaphragm Flange Surface	186.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	187	Yes	ND	Topside Components	HP Flare Knockout Drum V4501 Strainer B	187.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	188	Yes	ND	Topside Components	HP Flare Knockout Drum V4501 Strainer A	188.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	189	Yes	ND	Topside Components	Storage Tanks Starboard 2	189.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	190	Yes	ND	Topside Components	Storage Tanks Port 3	190.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	191	Yes	ND	Topside Components	Storage Tanks Starboard 3	191.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	192	Yes	ND	Topside Components	Storage Tanks Port 4	192.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	193	Yes	ND	Topside Components	Storage Tanks Starboard 4	193.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	194	Yes	ND	Topside Components	Storage Tanks Port 5	194.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	195	Yes	ND	Topside Components	Storage Tanks Starboard 5	195.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	16	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)
I-2	196	Yes	ND	Topside Components	Storage Tanks Starboard 6	196.1	Radioactive substances	Residual Contamination	-	ND	PCHM	ND	ND	ND	01/06/2024	NJG	ND	17	B-8	-	-	-	Q11	36	-	A936	7	2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	-	2844.44	28444400	-	1, 2	9 - Other (Tow)

s 22(1)(a)(ii)

s 22(1)(a)(ii)



Appendix B - Inventory of Hazardous Materials (IHM) (Marked-up Version)

Project: 2407 - Northern Endeavour FPSO Decommissioning  
 Client: Department of Industry, Science and Resources

Date of Review  
 13/03/2025

IHM 4/10/2024 - Entries unchanged since 07/08/2024  
 IHM 4/10/2024 - Entries added since 07/08/2024  
 IHM 4/10/2024 - Entries deleted since 07/08/2024  
 IHM 4/10/2024 - Entries modified since 07/08/2024

Entries from Source Data																Entries from IHM Mapping by Kent																			
IHM Part No.	Item No.	IHM Version 4/10/2024	Application of Item	Name of Item	Location	Material No.	Material (classification in Appendix 1 of the IMO guidelines)	Parts Where used	Quantity *	Unit *	PCHM/CHM *	Ship Plan Ref.	Sampling Report Ref.	Revoking Item No.	Date Added	Initials *	Other General Remarks	IHM Ref. Page No.	IHM Code	Basel Code Y <sup>(1)</sup>	Basel Code H <sup>(1)</sup>	Basel Code A <sup>(1)</sup>	OECD Code Q <sup>(2)</sup>	OECD Code No. <sup>(2)</sup>	OECD Code C <sup>(2)</sup>	OECD Code A <sup>(2)</sup>	UN Class <sup>(3)</sup>	UN No. <sup>(3)</sup>	UN Shipping Name <sup>(3)</sup>	National Code (NEPM) <sup>(4)</sup>	Custom Code <sup>(5)</sup>	Singapore Harmonised System Code <sup>(6)</sup>	Competent Authorities (CA) Product Code <sup>(6)</sup>	Physical Characteristics	Packaging Type

s 22(1)(a)(ii)

II	33	Yes	ND	ND	PX13, Lower Process Deck and PX15, Lower Process Deck	ND	Laminaria 1st Stage Separator Tank and Corallina 1st Stage Separator Tank. Sludge	ND	s 47C, s 47D	L	ND	ND	ND	ND	ND	ND	Dry - Sand - Needs Demucking NORMS	25	C-31	Y9	H3, H11, H12	A4060	Q11	11	C51	A936, A941	9	3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	J120	2709.00	38259000	PCTWCB014	5	9 - Other (Tow)
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s 22(1)(a)(ii)

Appendix B - Inventory of Hazardous Materials (IHM) (Marked-up Version)

Project: 2407 - Northern Endeavour FPSO Decommissioning  
 Client: Department of Industry, Science and Resources

Date of Review  
 13/03/2025

IHM 4/10/2024 - Entries unchanged since 07/08/2024  
 IHM 4/10/2024 - Entries added since 07/08/2024  
 IHM 4/10/2024 - Entries deleted since 07/08/2024  
 IHM 4/10/2024 - Entries modified since 07/08/2024

Entries from Source Data																Entries from IHM Mapping by Kent																			
IHM Part No.	Item No.	IHM Version 4/10/2024	Application of Item	Name of Item	Location	Material No.	Material (classification in Appendix 1 of the IMO guidelines)	Parts Where used	Quantity *	Unit *	PCHM/CHM *	Ship Plan Ref.	Sampling Report Ref.	Revoking Item No.	Date Added	Initials *	Other General Remarks	IHM Ref. Page No.	IHM Code	Basel Code Y <sup>[1]</sup>	Basel Code H <sup>[1]</sup>	Basel Code A <sup>[1]</sup>	OECD Code Q <sup>[2]</sup>	OECD Code No. <sup>[2]</sup>	OECD Code C <sup>[2]</sup>	OECD Code A <sup>[2]</sup>	UN Class <sup>[3]</sup>	UN No. <sup>[3]</sup>	UN Shipping Name <sup>[3]</sup>	National Code (NEPM) <sup>[4]</sup>	Custom Code <sup>[5]</sup>	Singapore Harmonised System Code <sup>[6]</sup>	Competent Authorities (CA) Product Code <sup>[6]</sup>	Physical Characteristics	Packaging Type

s 22(1)(a)(ii)

11	57	Yes	ND	ND	PX19, Lower Process Deck	ND	V-4501 HP Flare Knock-out Drum, Sludge	ND	s.47C, s.47D	L	ND	ND	ND	ND	ND	ND	Dry - Sand - Needs Demucking NORMS.	27	C-31	Y11	H3, H8, H11, H12	A3190	Q11	11	C51	A936, A941	9	3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	J160	2709.00	38259000	PCTWCB014	5	9 - Other (Tow)
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s 22(1)(a)(ii)



























































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Australian Government  
Department of Industry,  
Science and Resources

Australian  
Radioactive  
Waste Agency

s 22(1)(a)(ii)

Recycle Project Contract Lead  
Northern Endeavour Branch  
Department of Industry, Science and Resources

Email: s 22(1)(a)(ii) @industry.gov.au

Dear s 22(1)(a)(ii)

Thank you for your recent enquiry to the Australian Radioactive Waste Agency (ARWA) regarding the disposal of Commonwealth-owned Naturally Occurring Radioactive Materials (NORMS) waste, expected in 2028.

The Australian Government, as you know, is committed to the safe and secure management of radioactive waste, with ARWA developing options for Government and maintaining the national inventory which helps inform solutions.

s 47C, s 47D

we are available to provide expert advice, including about storage and disposal options. I encourage you to continue liaising with s 22(1)(a)(ii) , ARWA's Manager for Waste Management.

We look forward to working with you and sharing more information in due course.

Yours sincerely,

s 22(1)(a)(ii)

s 22(1)(a)(ii)

General Manager, Safety and Technical, ARWA

**23 September 25**

[industry.gov.au/arwa](http://industry.gov.au/arwa)

Industry House - 10 Binara Street, Canberra City, ACT 2601  
GPO Box 2013 Canberra ACT 2601 ABN: 74 599 608 295

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**Australian Government**  
**Department of Industry,  
 Science and Resources**

## NE FPSO Recycle Services – NORMS Meeting Agenda

<b>Meeting: Recycle Project Meeting</b>			
<b>Frequency:</b> As agreed	<b>Location:</b> MS Teams		
<b>Chairperson:</b> NE FPSO Recycle Project Lead (s 22(1)(a)(ii) )	<b>Prepared by:</b> Commercial Advisor (or appointee)		
<b>Meeting Date:</b> 21JUL2025 <b>Meeting Time</b> 11:00 AM	<b>Duration:</b> 30 minutes		
<b>Meeting Protocols</b> <ul style="list-style-type: none"> <li>• Ensure you are on time for the meeting.</li> <li>• Personnel to have phones switched off or on silent.</li> <li>• Any pre-read material will be taken as read.</li> <li>• If you cannot attend, ensure a suitable delegate is in attendance</li> </ul>			
<b>Attendees:</b> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <b>Commonwealth</b> <ul style="list-style-type: none"> <li>• s 22(1)(a)(ii)</li> <li>•</li> <li>•</li> <li>•</li> </ul> </td> <td style="width: 50%; vertical-align: top;"> <b>ARPANZA</b> <ul style="list-style-type: none"> <li>• s 22(1)(a)(ii)</li> <li>•</li> </ul> </td> </tr> </table>		<b>Commonwealth</b> <ul style="list-style-type: none"> <li>• s 22(1)(a)(ii)</li> <li>•</li> <li>•</li> <li>•</li> </ul>	<b>ARPANZA</b> <ul style="list-style-type: none"> <li>• s 22(1)(a)(ii)</li> <li>•</li> </ul>
<b>Commonwealth</b> <ul style="list-style-type: none"> <li>• s 22(1)(a)(ii)</li> <li>•</li> <li>•</li> <li>•</li> </ul>	<b>ARPANZA</b> <ul style="list-style-type: none"> <li>• s 22(1)(a)(ii)</li> <li>•</li> </ul>		
<b>Agenda:</b> <ul style="list-style-type: none"> <li>• Welcome and introductions</li> <li>• <b>Scope:</b> transport of 20-50m3 of low-level radioactive waste (NORMs) s 47C, s 47D</li> <li>• s 47C, s 47D</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>• <b>Permit and Licencing Requirements</b></li> <li>• Point to legislation</li> <li>• Point to inability to store</li> <li>• Provide written confirmation</li> </ul>			

---

# Northern Endeavour End-of-Life Options Analysis

## Summary Report

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Department of Industry, Science and Resources


s 22(1)(a)(ii)

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s 47G

s 22(1)(a)(ii)

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### 4.3 NORM Assessment

RadProAust was engaged to conduct a Naturally Occurring Radioactive Material (NORM) gamma radiation assessment UPS200601 on the Northern Endeavour FPSO topsides facilities in September 2020 [6].

The scope of work was to conduct a gamma survey on the external surfaces of the process vessels, pipes and equipment at specific test points to identify any items with elevated radiation measurements that could indicate the presence of NORM. No internal surface contamination testing measurements were conducted. A summary of the scope and results is shown in [Table 4-2](#).

Table 4-2 Location of Test Sampling Points and Areas Detected with Elevated Radiation

Location	Elevated External Radiation Levels Present
"Corallina 1st stage Separator - V - 2101"	Yes
"Laminaria, Corallina and test Separator Hydro - Cyclones"	
" Coalescer - V - 2302 "	Yes
"Oil Heater E - 2202A"	Yes
"Topside / Production Swivel Interface"	
"Produced Water Degassing Drum - V - 4301"	Yes
"Test Separator - V - 2901"	Yes
"Laminaria 1st Stage Separator - V - 2001"	Yes
"HP Flare Knockout Drum - V - 4501"	
"Debutaniser Reflux System V - 3702"	
"Debutaniser Column - V - 3701 "	
"Closed Drain Drum - V - 4801"	Yes

s 47C, s 47D

s 47C, s 47D

s 22(1)(a)(ii)

s 22(1)(a)(ii)

## 4.5 Handling contaminated waste

### 4.5.1 Basel Convention

The provisions of the Convention centre around the following principal aims [9]:

- The reduction of hazardous waste generation and the promotion of environmentally sound management of hazardous wastes, wherever the place of disposal
- The restriction of transboundary movements of hazardous wastes except where it is perceived to be in accordance with the principles of environmentally sound management
- A regulatory system applying to cases where transboundary movements are permissible

Fifty-three countries are signatories of the convention, including Australia, Türkiye, Denmark, Norway, Malaysia and Indonesia.

In 2019, the Basel Convention Ban Amendment came into force [10]. Under the Ban Amendment, a party which has ratified the amendment must prohibit all transboundary movements of hazardous waste which are destined for final disposal or recycling operations to States not listed in Annex VII of the Basel Convention. Annex VII countries are those countries of the OECD or European Community, and Liechtenstein. Australia is an OECD country, so it is an Annex VII country. Malaysia [11] and Indonesia [12] have ratified the amendment and are not listed in Annex VII therefore they must not accept hazardous waste from Australia. [13]


s 47G, s 47C

s 47G, s 47C

**ENGINEERING, PREPARATION, DECOMMISSIONING AND RECYCLE  
OF NORTHERN ENDEAVOUR FPSO**

**For**

**the Commonwealth of Australia**

01	Issued for review	15.08.2025	s 22(1)(a)(ii)			
00	Issued for review	04.07.2025	s 22(1)(a)(ii)	-	-	
Rev.	Reason for Issue	Issue Date	Prepared	Checked	Origin's Approval	Company's Review
<b>COMPANY</b>		<b>BIMCO Recyclecon, Contract date: 09.06.2025</b>				
		<b>DOCUMENT TITLE:</b>				
<b>ORIGINATOR</b>		<b>ORIGINATOR CONTRACT NO.: 0020</b>				
		<b>DOCUMENT ID:</b>				
		<b>NOE-MAR-0020-PLN-0003</b>				
						<b>Page: 1 of 122</b>

**VERSION CONTROL**

Summary of revisions between this version and previous versions

Rev.	Date	Section	Description
01	14.08.2025	3.1 + 7.2	Expected waste quantities and treatment methods added to plan.
00	04.07.2025	All	Issue for review
A	03.07.2025	All	Internal discipline check

s 22(1)(a)(ii)

s 22(1)(a)(ii)

## 2.4 Mapping of NORM and Mercury in process equipment

Once the FPSO is at the Contractor yard a survey of the FPSO will be conducted to determine the arrival condition. The arrival condition will set the basis for the action plan for NORM/Mercury decontamination.

Based on the onsite survey, the findings and conclusion from received reports from Company, and the findings from Contractor's survey, a mapping plan with markings of P&ID's of locations for measurements will be prepared and shared with Company.

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Refer also to Appendix 2 for Contractor Mapping protocols.

s 22(1)(a)(ii)

### 3.2 Expected waste quantities

Based on a thorough review of received waste report ref. /1/, /2/, /3/, and /4/, and experience from previous projects, the following waste are expected to be found on the FPSO.

*Table 1 Expected waste quantities*

s 22(1)(a)(ii)

EWC Code	Description	QTY [kg]
s 22(1)(a)(ii)		
17 09 03*	NORM Waste	s 47G
<b>TOTAL WASTE</b>		<b>47,483,282</b>

s 22(1)(a)(ii)

s 22(1)(a)(ii)

s 22(1)(a)(ii)

### 4.3 NORM and Mercury in process equipment

In July 2020, Contractor received NORM approval from the Danish Health Authority, Radiation Protection department. The approval was renewed in January 2024. The approval is given for handling of NORM and temporary storage of NORM waste, pursuant to §5, section 1, and Annex 1, paragraph 1.2, in executive order no. 670, ref./5/.

The approval was given based on the conditions described in Act No. 23, ref. and is valid until otherwise stated by the Danish Health Authority.

The following requirements are specified in the approval:

1. Contractor must at all times have a special competent person at the yard, approved by SIS as Radiation Protection Supervisor (RPS).
  - Contractor currently has two RPS's approved by SIS employed.
2. All NORM waste produced from decommissioning and/or decontamination must be returned to the company that assigned the structure to Contractor. This must be ensured contractually between Contractor and Company.
  - Contractor and Company have agreed to include this agreement in the Interim Operations Contract.

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## 6 Transportation

Transport of hazardous waste will be done according to ADR regulations.

Only authorized transporters and facilities are used.

*Table 2 Transport requirements*

<i>Minimum Requirements</i>	
1	Employees shall not consign shipment packages containing hazardous materials until they receive applicable training and ensure that the package complies with regulations.
2	Hazardous materials shall be packed to prevent spillage, leaks, or escape of product into the environment.
3	Items for shipment shall be properly identified, marked, and labeled in such a manner that any person handling these materials will be readily aware of the nature of the contents and hazards that may be present.
4	Shipping papers are required for every hazmat shipment, for all modes of transportation, unless specifically exempted by the Hazardous Material Regulations.

s 22(1)(a)(ii)

s 22(1)(a)(ii)

## 7.2 Expected treatment methods

Based on a thorough review of received waste reports and experience from previous projects, the waste fractions removed from the FPSO is expected to be treated in the following way:

*Table 3 Treatment Methods*

s 22(1)(a)(ii)

s 22(1)(a)(ii)

17 09 03*	NORM Waste	See section 7.3
-----------	------------	-----------------

### 7.3 NORM

Any NORM contaminated materials and NORM scale will be packed in drums and containers and prepared for shipment back to owner who is responsible for the treatment. Please refer to appendix 7 and 8 for further information on NORM removal and disposal.

## 8 Waste flow diagrams

s 22(1)(a)(ii)

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s 22(1)(a)(ii)

s 22(1)(a)(ii)

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s 22(1)(a)(ii)

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## Appendix 7: NORM Procedure

**M.A.R.S. Europe**



s 47G

**M.A.R.S. Europe**

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Date: 05FEB24

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<b>TITLE: Naturally Occurring Radioactive Material (NORM)</b>
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**4.0 PROCEDURE**

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**6.0 APPENDIX**

**M.A.R.S. Europe**

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Date: 05FEB24		Page 18 of 27
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**Appendix 1: NORM handling and storage area at M.A.R.S. Europe site**  
s 47G

*The purple square is dedicated for NORM storage, Green areas annotate NORM handling area*

**M.A.R.S. Europe**

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**Appendix 2: Site survey check points**

General map:

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## 5 Appendix A: Overview of Planed NORM and Mercury Mapping

This section presents a list of relevant locations and systems scheduled for opening and subsequent investigation in relation to NORM and mercury mapping. The list is based on reports and diagrams provided by the Contractor.

The points of interest for mapping are indicated in a table format, describing location and reference P&ID of a system, with the last two columns specifying the focus of the mapping—NORM or Mercury. An ‘X’ in these positions signifies that the system is of high interest of being mapped, while an ‘O’ indicates that the area could be of interest and may warrant further investigation.

Module	P&ID nr.	Title	Equipment Name	Mapping	
				NORM	Mercury
PX01	M5000-DP-548.01	Seawater Coarse Filters	Seawater Coarse Filter Package	0	
			Seawater Filters	0	

s 22(1)(a)(ii)

s 22(1)(a)(ii)

PX12	M5000-DP-544.01	Laminaria, Corallina and Test Separator Hydrocyclones	Hydrocyclone, 1st Stage A Separator	X	0
			Hydrocyclone, 1st Stage A Separator	X	
			Hydrocyclone, 1st Stage A Separator	X	
			Hydrocyclone, 1st Stage B Separator	X	
			Hydrocyclone, Test Separator	X	

s 22(1)(a)(ii)

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PX14	M5000-DP-505.03	Corallina 1st Stage Separator	Cor. Separator	X	X
PX14 UP / PX16 UP	M5000-DP-505.04	Oil Heater	Oil Heater 2x100%	X	O
PX14 UP	M5000-DP-505.06	2nd Stage Separator	2n Stage Separator	X	X
PX14	M5000-DP-505.07	Coalescer	Coalescer	X	X
			Coalescer Produced Water Pumps (2x100%)	X	
PX14	M5000-DP-505.09	Oil Coolers	Oil Coolers (2x100%)	X	
PX15	M5000-DP-518.01	Liquidfied Petroleum Gas (LPG) Injection Pumps	LPG Injection Pumps	O	X

s 22(1)(a)(ii)

PX15	M5000-DP-521.01	Debutaniser Feed Drum	Debutaniser Feed Drum	O	X
			Feed Pumps (2x100%)		O

s 22(1)(a)(ii)

s 22(1)(a)(ii)

<b>PX16 UP</b>	M5000-DP-505.01	Test Separator	Test Separator	X	0
<b>PX16</b>			Test Separator Pump	X	
<b>PX16</b>	M5000-DP-505.02	Laminaria 1st Stage Separator	LAM separator	X	X
<b>PX16</b>	M5000-DP-505.08	Oil Transfer Pumps	Oil Transfer Pumps (2x100%)	X	

s 22(1)(a)(ii)

<b>Turret</b>	M4000-DP-503.01	Laminaria Riser, Manifold & Swivel	Laminaria Swivel	X	
<b>Turret</b>	M4000-DP-504.01	Corallina Riser, Manifold & Swivel	Corallina Swivel	X	
<b>Turret</b>	M4000-DP-505.01	Test Manifold and Swivel	Test Swivel	X	

s 22(1)(a)(ii)

<b>Turret</b>	M4000-DP-511.01	Turret Closed Drain System	Drain Tank Pump Turret Drain Tank	<b>O</b> <b>X</b>	<b>O</b>
<b>HD 10</b>	M3000-DP-326.09	Crude Oil Tanks Washing Header		<b>O</b>	<b>O</b>
<b>HD20 S</b> <b>HD20 P</b> <b>HD20 S</b>	M3000-DP-348.01	Slop Tanks and Pumps	Slop Pump (STBD/PORT) Skimming Slop Pump Dirty Slop Tank (PORT) Clean Slop Tank (STBD)	<b>X</b> <b>O</b> <b>X</b> <b>X</b>	<b>O</b>
<b>HD20 S</b>	M3000-DP-311.01	Water Ballast Tank No. 6 and Ballast Pumps (STBD)	Ballast Pumps (STBD)	<b>O</b>	
	M5000-DP-500.03	Oil Meter Interface Topside/Hull	Oil Metering Sampling Spool	<b>O</b> <b>O</b>	
<b>HD30 S</b>	M3000-DP-311.02	Water Ballast Tank No. 5 and Ballast Pumps (PORT)	Ballast Pumps (PORT)	<b>O</b>	
<b>HD40 S</b>	M5000-DP-558.01	Closed Drain Drum	Closed Drain Drum Closed Drain Pumps	<b>X</b>	<b>X</b>

s 22(1)(a)(ii)

	M5000-DP-003.01	Treated Crude Fuel Tank	Treated Crude Tank	<b>O</b>	<b>O</b>
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s 22(1)(a)(ii)



s 22(1)(a)(ii)		Crude Fuel Duplex Filter	O	O
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	M3000-DP-326.01	Crude Oil Tank No. 1 and Export Pipes	Crude Oil Export Pumps No.1 (STBD/PORT)	O	
			Cargo Tank No. 1P	X	X
			Cargo Tank No. 1S	X	X
	M3000-DP-326.02	Crude Oil Tank No. 2 and Export Pipes	Crude Oil Export Pumps No. 2 (STBD, PORT)	O	
			Cargo Tank No. 2P	X	X

			Cargo Tank No. 2S	X	X
	M3000-DP-326.03	Crude Oil Tank No. 3 and Export Pipes	Crude Oil Export Pumps No. 3 (STBD, PORT)	O	
			Cargo Tank No. 3P	X	X
			Cargo Tank No. 3S	X	X
	M3000-DP-326.04	Crude Oil Tank No. 4 and Export Pipes	Crude Oil Export Pumps No. 3 (STBD, PORT)	O	
			Portable Cargo Pump		
			Cargo Tank No. 4P	X	X
			Cargo Tank No. 4S	X	X
	M3000-DP-326.05	Crude Oil Tank No. 5 and Export Pipes	Crude Oil Export Pumps No. 5 (STBD, PORT)	O	
			Cargo Tank No. 5P	X	X
			Cargo Tank No. 5S	X	X
	M3000-DP-326.06	Crude Oil Tank No. 6 and Export Pipes	Crude Oil Export Pumps No. 6 (STBD, PORT)	O	
			Cargo Tank No. 6P	X	X
			Cargo Tank No. 6S	X	X
	M3000-DP-326.07	Cargo Loading Header		X	O
	M3000-DP-326.08	Tank Cleaning Pump and Heater	Tank Cleaning Heater	O	O
			Tank Cleaning Pump	O	

	M3000-DP-327.02	Crude Oil Booster Pumps	Crude Oil Booster Pumps	O	
	M3000-DP-327.03	Oil Offloading System		X	O
	M3000-DP-344.01	Crude Fuel Tank and Pumps	Deep Tank Pumps Deep Tank	O X	 X
	M3000-DP-347.02	Bilge Holding Tank and Oily Water Separator	Oily Water Separator	X	O
	M3000-DP-347.03	Separated Bilge Oil Tank	Separated Bilge Oil Tank	O	