OSPAR Public Statement 2021

Environmental Performance

Issue Date: 30th May 2022

Contents

1. INTRODUCTION

Under Recommendation 2003/5 of the Oslo Paris Convention for the Protection of the Marine Environment of the North-East Atlantic [OSPAR], the Offshore Petroleum Regulator for Environment and Decommissioning [OPRED] requires that all companies operating in the United Kingdom Continental Shelf [UKCS] have systems and procedures in place to identify, monitor and control the environmental aspects associated with offshore activities.

This document details the 2021 OSPAR Public Statement for Bluewater Energy Services B.V. (hereinafter referred to as Bluewater) and reports the environmental performance of a) the Pierce Field operations and activities during 2021, and b) the Lancaster Field operations and activities during 2021, in line with the requirements of OSPAR Recommendation 2003/5. The scope focuses on the two offshore assets, the Hæwene Brim Floating Production Storage and Offloading [FPSO] and the Aoka Mizu FPSO for the period 1st January to the 31st December 2021.

2. OVERVIEW OF OPERATIONS

Pierce Field Offshore Activities

The Pierce development is located in Blocks 23/22a and 23/27a of the Central North Sea [CNS]. The development is served by a FPSO facility, the Hæwene Brim (Figure 2-1). The Hæwene Brim FPSO is located at 57° 09' 38.834" N, 02° 17' 35.130" E which is 247.5 km from the United Kingdom [UK] coastline, 2.6 km from the UK/Norwegian median line and in a water depth of approximately 85 m. On behalf of Shell UK Ltd, Enterprise Oil plc is the field operator in conjunction with joint venture partner Ithaca Energy UK Limited. Pierce Production Company Limited [PPCL] serve as the operator of the Hæwene Brim FPSO.

Figure 2-1 The Hæwene Brim FPSO

The Hæwene Brim FPSO's main functions are:

- Receipt of fluids from subsea wells;
- Control of the subsea wells;
- Processing of the incoming fluids for separation into crude, water and gas;
- Storage of the stabilised crude oil and maintaining it at the required temperature;
- Treatment of effluent for discharge of water to the sea;
- Chemical injection;
- Produced gas re-injection;
- Offloading of crude into tandem moored shuttle tankers;
- Power generation for process, gas compression, offloading, utilities and ship systems; and
- Provide accommodation for operating and maintenance personnel.

Operational activities during 2021 included normal production operations, maintenance and well optimisation work.

In December 2021, the Pierce FPSO left the UKCS to undergo extensive upgrades in dry-dock in Norway. The FPSO is due to return to location in June 2022. This report only covers the period the FPSO was operational in the UKCS.

Lancaster Field Offshore Activities

The Lancaster field is located in Blocks 205/21a of the CNS to the west of the Shetland Islands. The development is served by the Aoka Mizu FPSO (Figure 2-2).

The Aoka Mizu FPSO is located at 60° 10’ 49.82” N, 03° 52’ 5.16” W which is 98 km from the UK coastline, 54 km from the UK/Faeroes median line and in a water depth of approximately 158 m. Hurricane Energy PLC (hereinafter referred to as Hurricane) is the licence operator for the Lancaster field. Bluewater Lancaster Production [UK] Ltd is the formally approved Installation Operator of the Aoka Mizu FPSO.

Figure 2-2 The Aoka Mizu FPSO

The Aoka Mizu FPSO's main functions are:

- Receipt of fluids from subsea wells;
- Control of the subsea wells;
- Processing of the incoming fluids for separation into crude, water and gas;
- Storage of the stabilised crude oil and maintaining it at the required temperature;
- Treatment of effluent for discharge of water to the sea;
- Chemical injection;
- Offloading of crude into tandem moored shuttle tankers;
- Power generation for process, gas compression, offloading, utilities and ship systems; and
- Provide accommodation for operating and maintenance personnel.

Operational activities during 2021 included normal production operations, maintenance and well optimisation work.

3. SAFETY AND ENVIRONMENTAL (SEMS) MANAGEMENT SYSTEM

Bluewater Health, Safety, Environmental and Quality [HSEQ] Policy

Bluewater Services [UK] Limited adopts the Bluewater HSEQ policy, which sets out the principles to which all the affiliates and the Hæwene Brim and Aoka Mizu FPSO activities comply with. These include:

- ✓ Promoting Health, Safety and Environmental [HSE] Protection;
- ✓ Seeking and achieving continual improvement; and
- ✓ Compliance with all regulatory requirements.

The requirements of the policy are implemented through management systems, interface arrangements and operational management controls. The Bluewater policy is provided in Figure 3-1.

Document title	HSEQ Policy
Document number	BW1-Q-100-PH-0001-001
Accountable person	President and CEO
Date published	08/12/2017

bluewater

HSEQ Policy

Bluewater is committed to delivering quality and continuous improvement throughout all its activities, while satisfying all applicable requirements.

To this end company goals are formulated by top management, taking into account our compliance obligations and other requirements from interested parties.

At Bluewater a pro-active and responsible approach to safety and environmental care is an essential part of doing our work. We require the participation of all our staff and contractors to implement this approach.

We aim to:
- actively minimise and control any health and safety risks,
- prevent or minimise the adverse impacts of our activities on the environment and
- continuously improve our work processes as part of our Corporate Management System.

As such, we will drive the development and implementation of industry best practices.

With all our personnel collectively and individually taking responsibility and accepting accountability for Bluewater's HSEQ performance, we create and maintain a healthy, safe and environmentally friendly place to work.

Hugo J. Heerema
President & CEO
December 2017

A print of this CMS document is uncontrolled; the latest version is available on the Bluewater CMS intranet site. Page 1 of 1
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Figure 3-1 Bluewater HSEQ Policy

Environmental Management

Bluewater is certified to ISO 14001:2015 standard (a copy of the certificate is presented in **Error! Reference source not found.** below). Bluewater's Environmental Management System [EMS] sets out guiding principles and mechanisms for managing HSE risk, impact and compliance in accordance with the Bluewater HSEQ Policy.

Lloyd's Register

Current issue date: 17 November 2020
Expiry date: 6 November 2023
Certificate identity number: 10308516

Original approval(s):
ISO 14001 - 7 November 2008

Certificate of Approval

This is to certify that the Management System of:

Bluewater Energy Services B.V.

Taurusavenue 46, 2132 LS Hoofddorp, The Netherlands

has been approved by Lloyd's Register to the following standards:

ISO 14001:2015

Approval number(s): ISO 14001 – 0024489

This certificate is valid only in association with the certificate schedule bearing the same number on which the locations applicable to this approval are listed.

The scope of this approval is applicable to:

Design, engineering, procurement, management of subcontracted fabrication, installation, commissioning and aftersales of Single Point Mooring Systems (SPM) and Floating Production Storage Offloading (FPSO) systems. Operation and management of FPSOs.

Paul Graaf

Area Operations Manager North Europe

Issued by: Lloyd's Register Nederland B.V.

for and on behalf of: Lloyd's Register Quality Assurance Limited

UKAS

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Issued by: Lloyd's Register Nederland B.V., K.P. van der Mandelelaan 41a, 3062 MB Rotterdam, The Netherlands for and on behalf of: Lloyd's Register Quality Assurance Limited, 1 Trinity Park, Bickenhill Lane, Birmingham B37 7ES, United Kingdom

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Figure 3-2 Copy of ISO14001:2015 Certificate

The Corporate Management System [CMS] describes how HSE performance is managed, taking into account all relevant elements, such as: legal requirements, stakeholders, risks / opportunities and company goals. The CMS is applicable to all employees and activities on all locations (onshore and installation and operational sites - offshore) and is based on the requirements of ISO 9001:2015 and ISO 14001:2015. Within the overall CMS, the Safety and Environmental Management System [SEMS] is the framework of policies, processes standards and procedures that ensures that the health, safety and environmental objectives can be achieved. The SEMS acts as the link between the policies and standards and local processes and procedures. The high level structure of the CMS is shown in Figure 3-3.

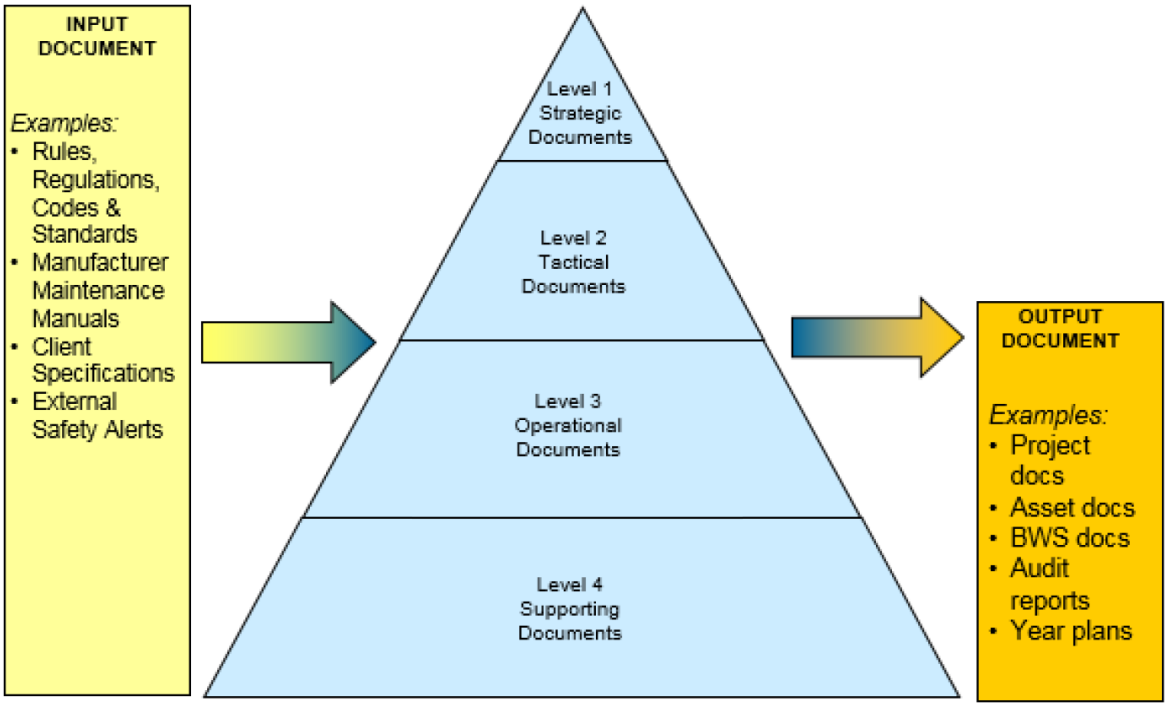

Figure 3-3 High Level Structure of the CMS

Key Environmental Management Activities in 2021

Bluewater's key environment related objectives and activities for 2021 were to ensure compliance with all environmental permits and relevant regulations and to progress a number of programmes to support continued improvement in performance, including:

- Offshore Environmental Compliance and Permit audits and inspections;
- Onshore Emergency Response exercises and Offshore Drills;
- Monitoring of asset performance and Environmental Key Performance Indicators [KPI] covering resource use and emissions to the environment;
- Maintenance of the assets' Environmental Aspects Registers.

4. ENVIRONMENTAL PERFORMANCE

Hæwene Brim FPSO Environmental Performance

Atmospheric Emissions

Atmospheric emissions arise from power generation, flaring and fugitive emissions. The Hæwene Brim FPSO holds an Offshore Combustion Installation Permit under the Offshore Combustion Installations (Pollution Prevention and Control) Regulations 2013 (as amended) for the combustion equipment onboard. Shell UK Ltd is the holder of the greenhouse gas emissions trading scheme (EUETS) permit, therefore certain emissions may be duplicated within Shell UK Ltd's 2021 annual environmental statement.

Table 4-1 provides the Production related fuel combustion and flaring emissions as reported into the Environmental Emissions Monitoring System [EEMS] through the UK Energy Portal. This covers the period from the 1st January 2021 to 31st December 2021.

Table 4-1 Hæwene Brim Atmospheric Emissions (1st January 2021 to 31st December 2021)

Atmospheric Emissions	Unit	Fuel Gas	Diesel	Flaring	Totals
Fuel Use	Tonnes	21,086.56	9,351.53	3,377.01	**N/A**
CO_2	Tonnes	57,782.33	29,851.65	9,068.76	**96,702.74**
NO_X	Tonnes	124.97	440.77	4.05	**569.79**
SO_2	Tonnes	0.27	18.7	0.04	**19.01**
CO	Tonnes	116.96	116.44	22.63	**256.03**
CH_4	Tonnes	17.93	1.33	33.77	**53.03**
VOC	Tonnes	0.72	14.71	33.77	**49.20**

Water and Oil in Water Discharges

Liquid associated with the oil produced by the Pierce Field (oil and produced water) is processed through oil and water separation systems offshore with the cleaned produced water being discharged to sea. The Hæwene Brim FPSO holds a permit for produced water discharge under the Petroleum Operations (Oil Pollution Prevention and Control [OPPC]) Regulations. All produced water from the installation was discharged overboard. This amounted to 67,117.9 cubic metres for the period 1st January 2021 to 31st December 2021. The Hæwene Brim FPSO has two discharge routes for produced water and the installations drainage systems, as follows:

- The primary route is via the produced water treatment system. All produced water from the separators is routed to designated hydrocyclones via inline coalescers. The in-line coalescers help improve the performance of the downstream hydrocyclones by increasing the oil droplet size in the feed stream.
- The secondary route is from the FPSO slops tanks. Liquids are processed through a centrifuge system before being discharged to sea.

Table 4-2 provides the salient details for the produced water discharges as reported into the EEMS through the UK Energy Portal. This again covers the period from the 1st January 2021 to 31st December 2021.

Table 4-2 Hæwene Brim Produced Water Discharge Data (1st January 2021 to 31st December 2021)

Month	Sample Point (Source)	Produced Water Volume (m^3)	Monthly Average Oil in Water (mg/l)	Calculated Weight of Oil (tonnes)
January	Produced Water Treatment System	5,176.00	15.3356	0.07938
	Slops Centrifuge	5,394.90	23.288	0.12564
February	Produced Water Treatment System	6,946.00	12.5964	0.08749
	Slops Centrifuge	5,313.00	20.1617	0.10712
March	Produced Water Treatment System	9,452.00	16.9746	0.16044
	Slops Centrifuge	415	25.0535	0.0104
April	Produced Water Treatment System	9,390.00	17.5916	0.16519
	Slops Centrifuge	0	0	0
May	Produced Water Treatment System	7,434.00	21.8036	0.16209
	Slops Centrifuge	0	0	0
June	Produced Water Treatment System	4,633.00	19.9375	0.09237
	Slops Centrifuge	2,328.00	16.5406	0.03851
July	Produced Water Treatment System	0	0	0
	Slops Centrifuge	0	0	0
August	Produced Water Treatment System	2,760.00	21.1902	0.05849
	Slops Centrifuge	1,487.00	22.5581	0.03354
September	Produced Water Treatment System	3,351.00	12.1383	0.04068
	Slops Centrifuge	1,913.00	17.9961	0.03443
October	Produced Water Treatment System	0	0	0
	Slops Centrifuge	1,125.00	22.9882	0.02586
November	Produced Water Treatment System	0	0	0
	Slops Centrifuge	0	0	0
December	Produced Water Treatment System	0	0	0
	Slops Centrifuge	0	0	0
Totals	Both Sources	67,117.90	-	1.22

**non-compliances*

From Table 4-2 it can be seen that the total mass of oil discharged with the produced water during 2021 was 1.22 tonnes. Figure 4-1 and Figure 4-2 presents the oil in water average concentration from the primary and secondary route, respectively.

No breaches of the 30 mg/l limit were observed for the period for either the primary or the secondary disposal route (Figure 4-1 & Figure 4-2) and monthly averages mostly remained below the Bluewater targets, with the exception of May and August for the main discharge route.

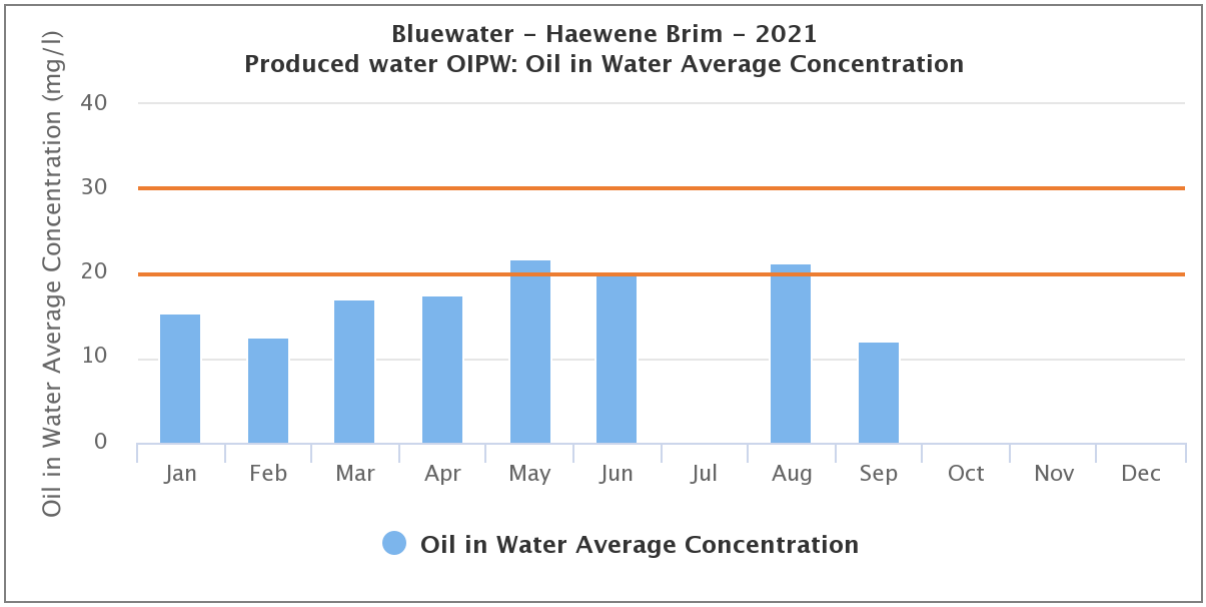

Figure 4-1 Produced Water Treatment System OIW monthly average concentration

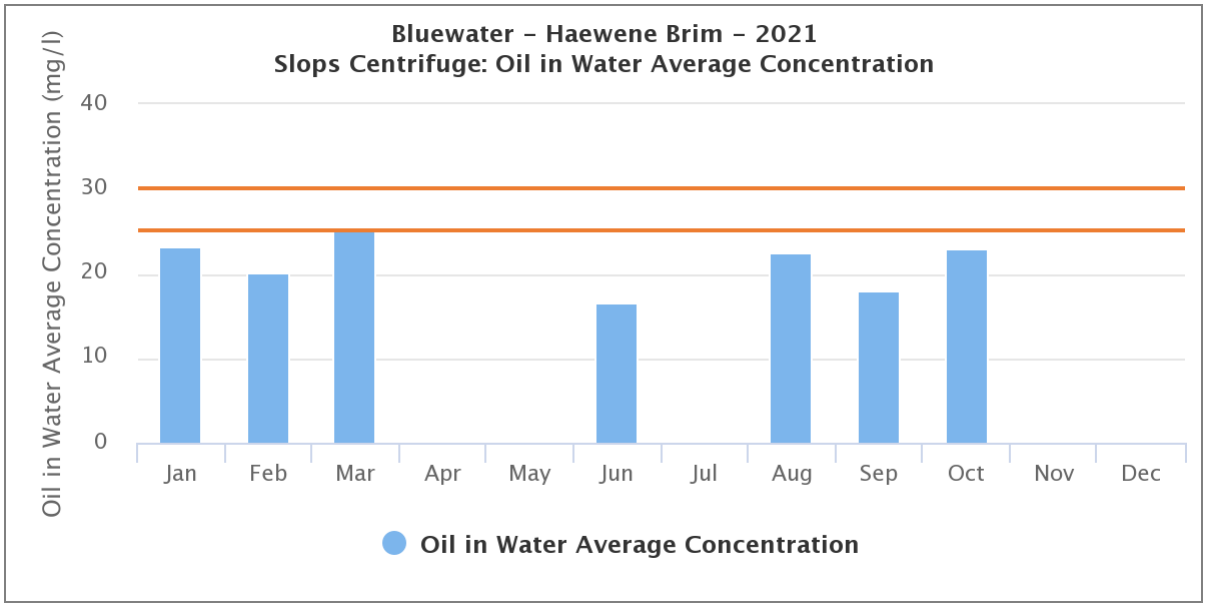

Figure 4-2 Slops Centrifuge OIW monthly average concentration

Chemical Use and Discharge

Under the Offshore Chemical Regulations [OCR] 2002 (as amended), the Hæwene Brim FPSO holds a permit for the use and discharge of chemicals. During 2021, a total of 331.417 tonnes of production chemicals were used and approximately 71% of that amount was discharged to sea (236.172 tonnes).

The Regulator has highlighted certain chemicals to be phased out by mean of substitution warning (SUB chemical warning). However, only one SUB chemical was used during 2021 (Castrol Transaqua HT2 – Hydraulic Fluid). A detailed breakdown of each chemical's tracked usage and discharge against the permitted quantities is presented in Figure 4-3 and Figure 4-4 respectively.

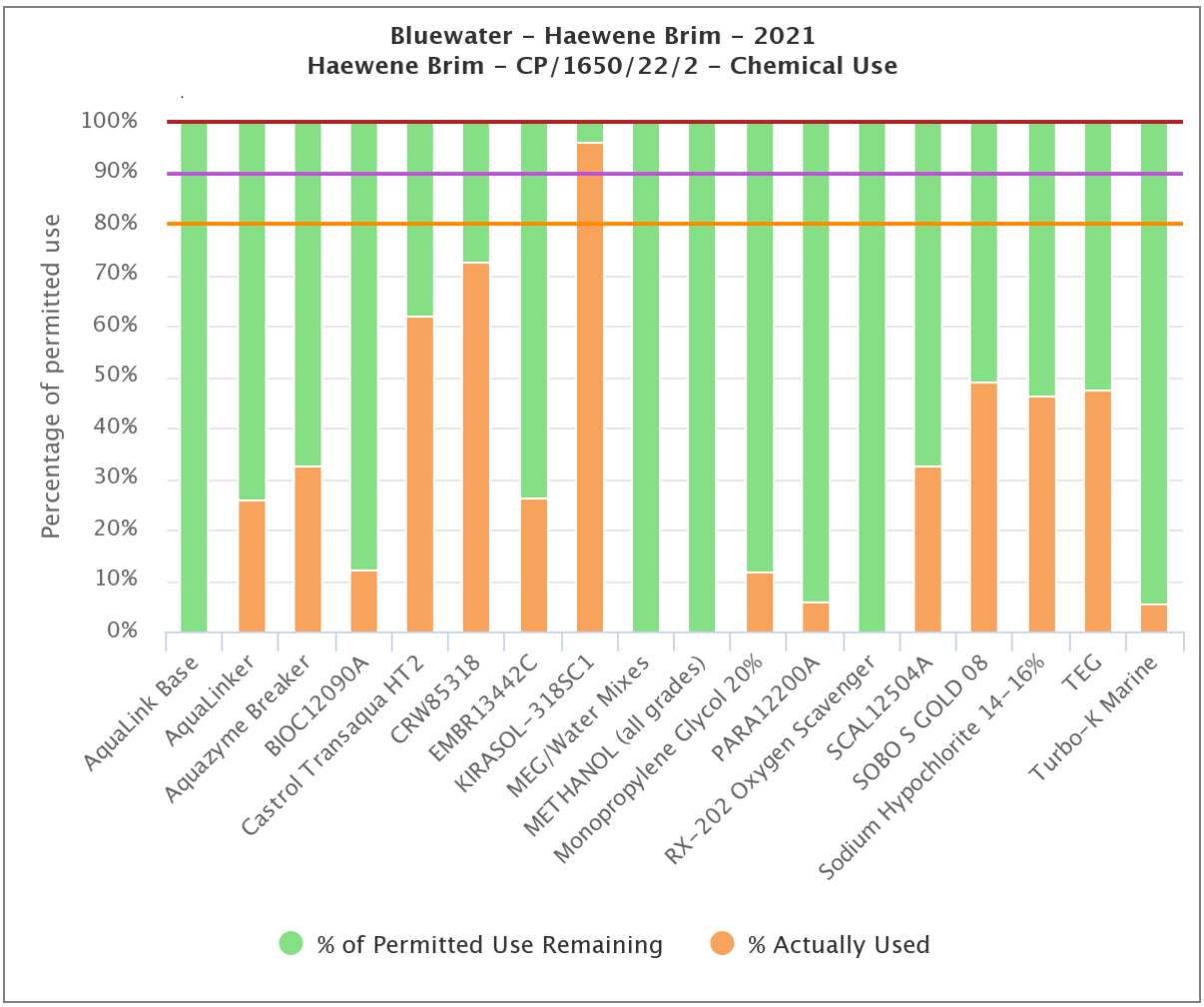

Figure 4-3 Hæwene Brim 2021 Chemical Use vs Permitted Quantities

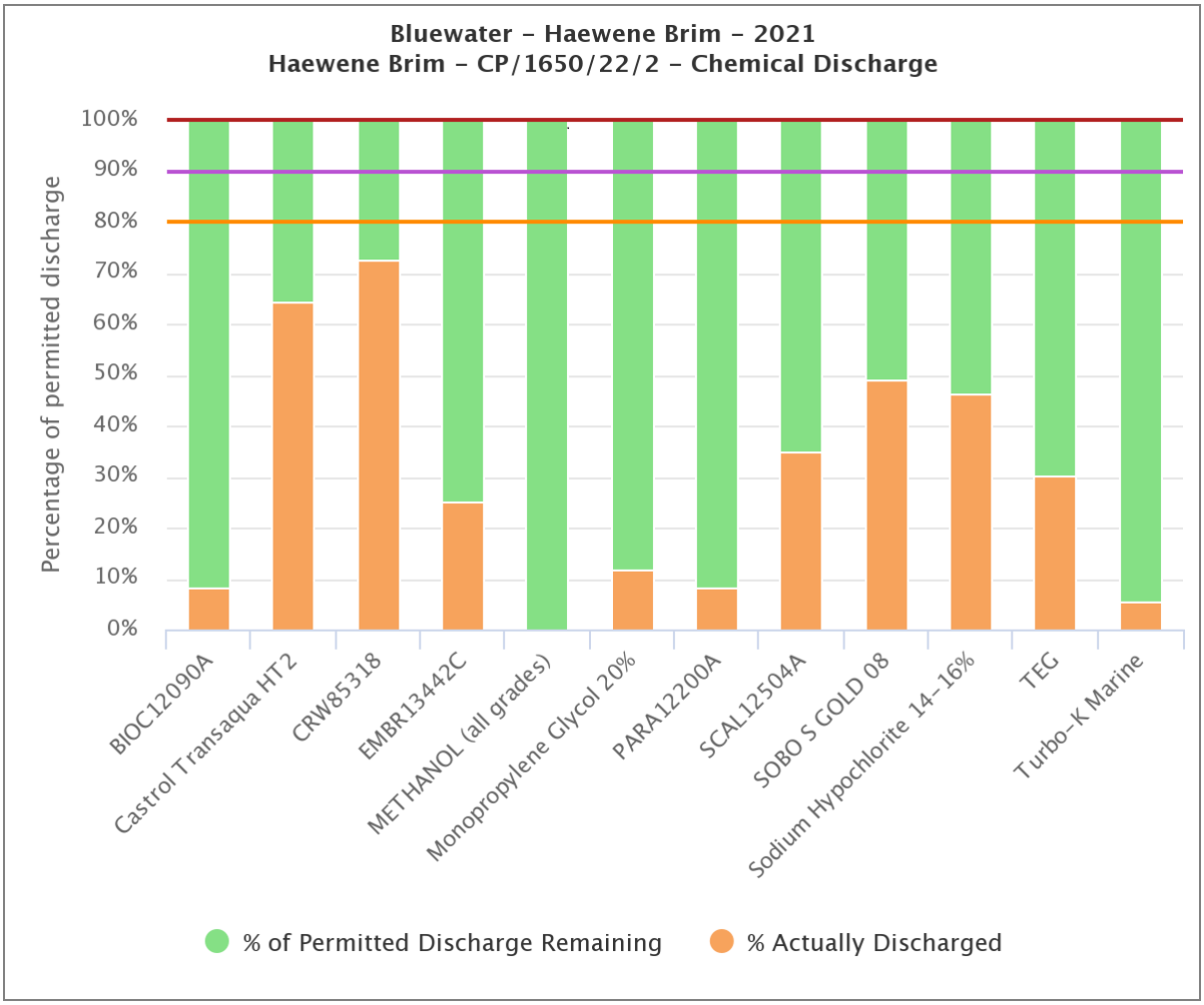

Figure 4-4 Hæwene Brim 2021 Chemical Discharge vs Permitted Quantities

The chemicals used comprised water based hydraulic fluids, biocides, wax inhibitors, corrosion inhibitors, gas hydrate inhibitors, scale inhibitors and cleaning fluids utilised during routine production operations. The majority of these chemicals were Hazard Quotient [HQ] Gold or Category 'E' or 'D' chemicals (the ratio of Predicted Effect Concentration against No Effect Concentration), thus have the least potential impact on the marine environment.

Chemicals are subject to continual review and Bluewater will continue to seek suitable alternatives, where appropriate to minimise impact on the marine environment.

Waste Management

Management and segregation of waste takes place on the installation prior to transfer to onshore facilities for recycling or disposal. Total waste arising during 2021 from the Hæwene Brim FPSO and the disposal routes is provided in Table 4-3

Table 4-3 Hæwene Brim Waste Arising and Disposal Routes during 2021

Category	Reuse	Re-cycling	Waste to Energy	Incinerate	Landfill	Other	Total
	(t)	(t)	(t)	(t)	(t)	(t)	(t)
Group I – Special							
Chemicals/ Paints	-	-	0.400	0.480	-	2.623	3.503
Drums/ Containers	-	5.571	-	-	-	-	5.571
Oils	-	1.110	0.170	-	-	-	1.280
Miscellaneous Special Waste	-	3.660	3.060	0.027	3.000	-	9.747
Sludge's / Liquids / Washings	-	-	19.910	-	-	4,411.520	4,431.430
Sub-Total	-	10.341	23.540	0.507	3.000	4,414.143	4,451.531
Group II - General							
Chemicals/ Paints	-	-	-	-	-	1.131	1.131
Drums/ Containers	0.160	-	-	-	-	-	0.160
Scrap metal	-	15.640	-	-	-	-	15.640
Segregated Recyclables	-	47.560	-	-	1.360	-	48.920
General Waste	-	35.043	-	-	40.912	-	75.955
Sludge's / Liquids / Washings	-	-	-	-	-	-	-
Sub-Total	0.160	98.243	-	-	42.272	1.131	141.806
Group III - Other							
Asbestos	-	-	-	-	-	-	-
Radioactive Materials (exc NORM)	-	-	-	-	-	-	-
Clinical	-	-	-	0.146	-	-	0.146
Explosives	-	-	-	-	-	-	-
Sub-Total	-	-	-	0.146	-	-	0.146
Grand Total	**0.160**	**108.584**	**23.540**	**0.653**	**45.272**	**4,415.274**	**4,593.483**

Figure 4-5 overleaf shows that the Hæwene Brim FPSO recycled ~2.4% of the total waste produced. Waste disposed to landfill amounted to ~1% of the total waste produced. There was also ~4,415 tonnes of "other" waste, mostly sludges and liquid washings, equating to 96% of total waste and relating to the system fluid drainage prior to the asset leaving its station for 2021. This includes a tanker offload of 3,900 tonnes of slops liquids containing produced water, drains liquids and residual

chemicals drained from storage tanks. With the exception of 146 kg of clinical waste, no Group III or Group IV waste were produced in 2021.

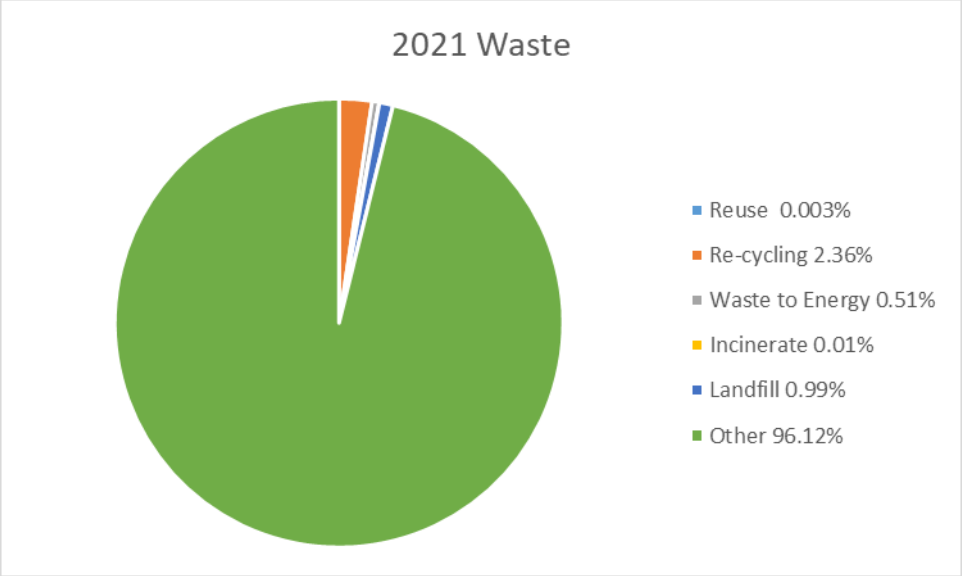

Figure 4-5 Hæwene Brim 2021 breakdown of generated waste

2022 Key Activities

The main offshore aims and objectives for the Hæwene Brim FPSO during 2022 are:

- ✓ Ongoing maintenance and implementation of the EMS, including
  - Maintenance of 14001:2015 Standard;
  - Environmental data monitoring & reporting schedules;
  - Environmental KPIs;
  - Environmental Aspects Registers and Controls;
  - HSE Management System Interface documentation.
- ✓ Audit and review of Permits and Consents management and compliance associated with Environmental Management Systems and Processes;
- ✓ Continued management of asset integrity and process safety to minimise the risk of spills.

Aoka Mizu FPSO Environmental Performance

Atmospheric Emissions

Atmospheric emissions arise from power generation, flaring and fugitive emissions. The Aoka Mizu FPSO holds a PPC Permit under the Offshore Combustion Installations [PPC] Regulations 2013 (as amended) for the combustion equipment onboard. Hurricane holds the EU ETS GHG permit although Hurricane does not prepare an ES under OSPAR 2003/5.

Table 4-4 provides the Production related fuel combustion and flaring emissions as reported into EEMS through the OGA UK Energy Portal. This covers the period from the 1st January 2021 to 31st December 2021.

Table 4-4 Aoka Mizu Atmospheric Emissions (1st January 2021 to 31st December 2021)

Atmospheric Emission	Unit	Fuel Gas	Diesel	Flaring	Totals
Fuel Use	Tonnes	9,296.60	2,515.47	32,267.96	**N/A**
CO_2	Tonnes	25,261.19	8,049.54	97,927.21	**131,137.94**
NO_X	Tonnes	100.2	102.08	38.72	**241**
SO_2	Tonnes	0.12	5.03	0.41	**5.56**
CO	Tonnes	55.78	26.74	216.2	**298.72**
CH_4	Tonnes	8.55	0.31	322.68	**331.54**
VOC	Tonnes	0.33	3.37	322.68	**326.38**

Water and Oil in Water Discharges

Liquid associated with the oil produced by the Lancaster Field (oil and produced water) is processed through oil and water separation systems offshore with the cleaned produced water being discharged to sea. The Aoka Mizu FPSO holds a permit for produced water discharge under the OPPC Regulations.

All produced water from the installation was discharged overboard. This amounted to 282,272 cubic metres for 2021. The Aoka Mizu FPSO has two discharge routes for produced water and the installations drainage systems, as follows:

- The FPSO's hydrocyclone units; and
- The FPSO's slops tanks.

Table 4-5 provides the salient details for the produced water discharges as reported into the EEMS through the UK Energy Portal (only months with reported discharges are shown). This covers the period from the 1st January 2021 to 31st December 2021.

Table 4-5 Aoka Mizu Produced Water Discharge Data (1st January 2021 to 31st December 2021)

Month	Sample Point (Source	Produced Water Volume (m3)	Monthly Average Oil in Water (mg/l)	Calculated Weight of Oil (tonnes)
January	Hydrocyclones	19,665.00	6.2715	0.12333
	Slops Tanks	432	6.5588	0.00283
February	Hydrocyclones	18,932.30	6.8802	0.13026
	Slops Tanks	0	0	0
March	Hydrocyclones	16,714.30	10.3085	0.1723
	Slops Tanks	948	8.0527	0.00763
April	Hydrocyclones	24,583.00	9.9765	0.24525
	Slops Tanks	7,142.50	10.3079	0.07362
May	Hydrocyclones	23,412.80	11.1448	0.26093
	Slops Tanks	513	9.4538	0.00485
June	Hydrocyclones	21,879.80	7.1299	0.156
	Slops Tanks	1,154.00	5.3322	0.00615
July	Hydrocyclones	8,963.40	9.8195	0.08802
	Slops Tanks	934	4.7431	0.00443
August	Hydrocyclones	22,843.30	7.101	0.16221
	Slops Tanks	1,149.00	11.6192	0.01335
September	Hydrocyclones	24,068.20	4.6665	0.11232
	Slops Tanks	2,158.00	10.8292	0.02337
October	Hydrocyclones	27,425.20	7.1659	0.19653
	Slops Tanks	1,853.00	12.4918	0.02315
November	Hydrocyclones	28,007.00	6.4911	0.1818
	Slops Tanks	573	15.2277	0.00873
December	Hydrocyclones	27,982.10	7.3618	0.206
	Slops Tanks	939	13.9186	0.01307
Totals	All sources	282,271.9	-	2.216

The total mass of oil discharged with the produced water during 2021 was 2.216 tonnes.

Figure 4-6 and Figure 4-7 present the oil in water average concentration from the primary and secondary route, respectively. No breaches of the 30 mg/l limit were observed for the period for either the primary or the secondary disposal route (Figure 4-6 & Figure 4-7) and monthly averages remained below the set targets.

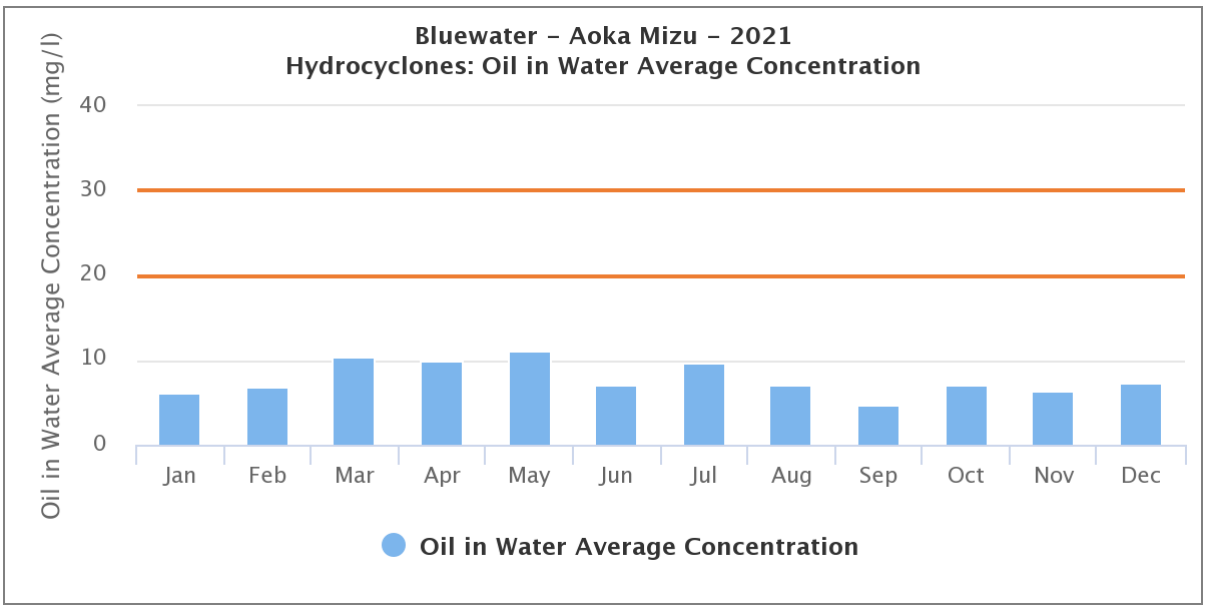

Figure 4-6 Hydrocyclones: Oil in Water Average Concentration

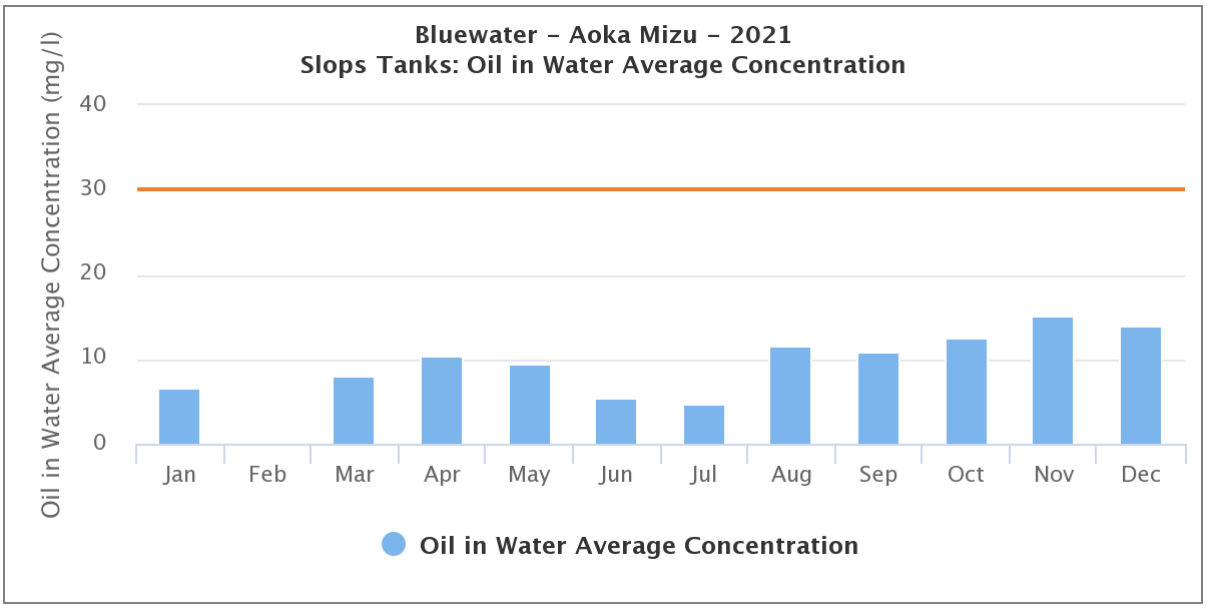

Figure 4-7 Slops Tanks: Oil in Water Average Concentration

Chemical Use and Discharge

Under the OCR 2002 (as amended), the Aoka Mizu FPSO holds a permit for the use and discharge of chemicals. During the 2021 a total of 124.7 tonnes of production chemical were used. In total approximately 43% (53.4 tonnes) of the 124.7 tonnes of chemicals used were discharged to sea.

The Regulator has highlighted certain chemicals to be phased out by mean of substitution warning (SUB chemical warning). One SUB (RX-7025) was used during 2021 with a total use of 56.7 tonnes. A detailed breakdown of each chemical's tracked usage and discharge against the permitted quantities is presented in Figure 4-8 and Figure 4-9. Chemicals permitted, but not used are not included in the Figure 4-8 and Figure 4-9.

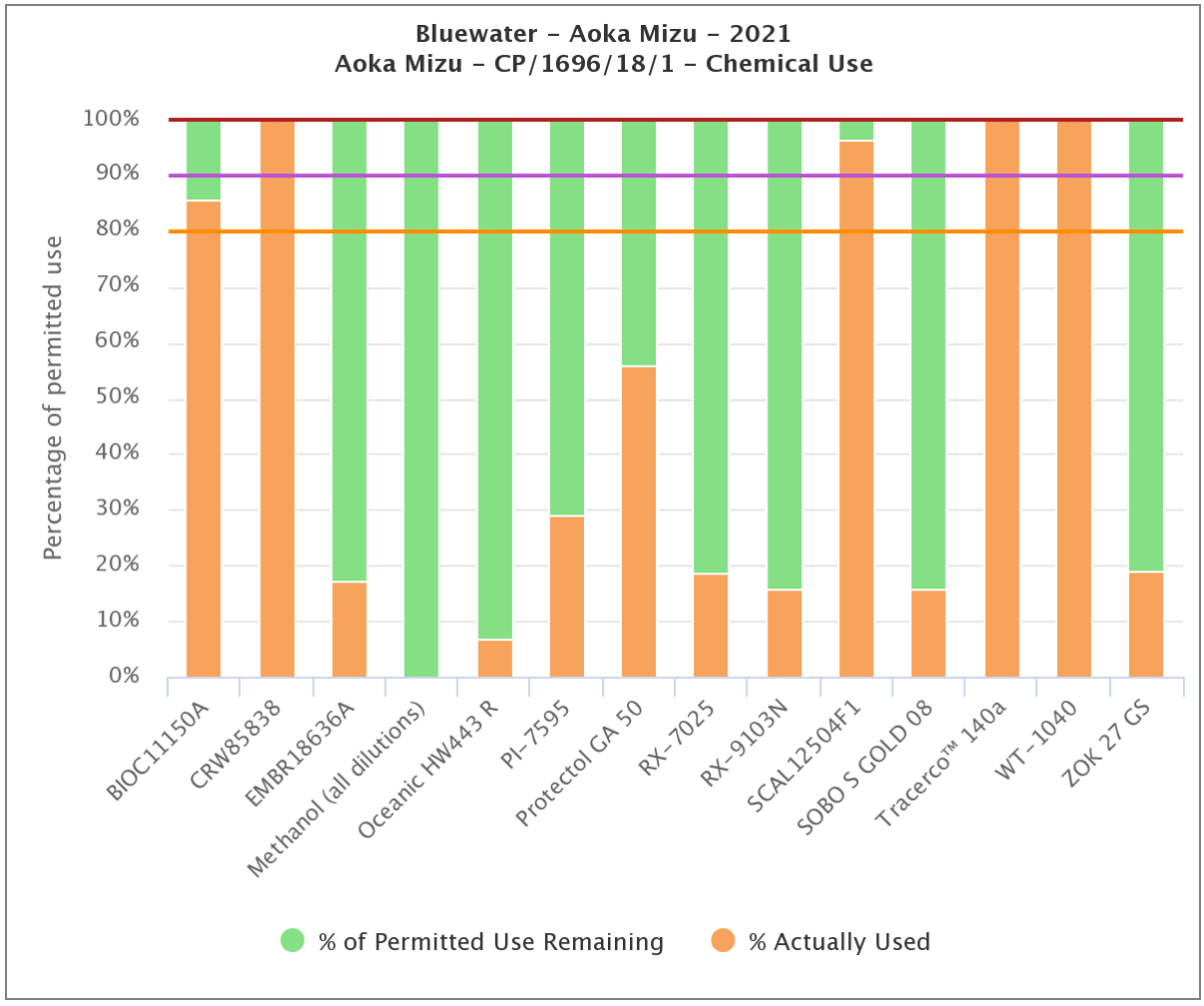

Figure 4-8 Aoka Mizu 2021 Chemical Use vs Permitted Quantities

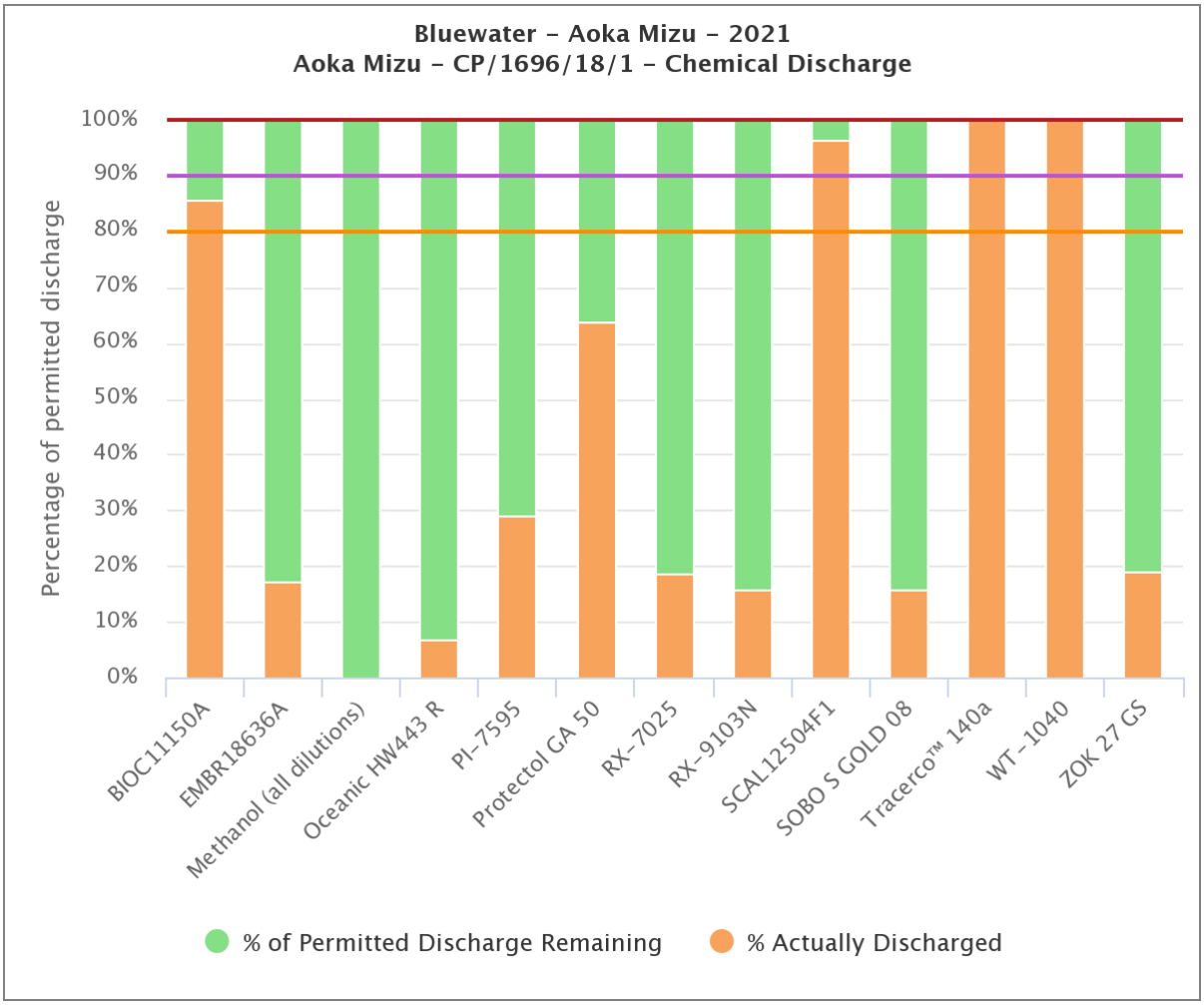

Figure 4-9 Aoka Mizu 2021 Chemical Discharge vs Permitted Quantities

The chemicals used, comprised biocides, demulsifiers, water based hydraulic fluids, asphaltene inhibitors, wax inhibitors, corrosion inhibitors, scale inhibitors and cleaning fluids utilised during routine production operations. The majority of these chemicals were Hazard Quotient [HQ] Gold or Category 'E' or 'D' chemicals (the ratio of Predicted Effect Concentration against No Effect Concentration), thus have the least potential impact on the marine environment.

Chemicals are subject to continual review and Bluewater will continue to seek suitable alternatives, where appropriate to minimise impact on the marine environment.

Waste Management

Management and segregation of wastes takes place on the installation prior to transfer to onshore facilities for recycling or disposal. Total waste arising during 2021 from the Aoka Mizu FPSO and the disposal routes are provided in Table 4-6.

Table 4-6 Aoka Mizu Waste Arising and Disposal Routes during 2021

Category	Reuse	Re-cycling	Waste to Energy	Incinerate	Landfill	Other	Total
	(t)	(t)	(t)	(t)	(t)	(t)	(t)
Group I – Special							
Chemicals/ Paints	0	0.06	0	0	0	3.075	3.135
Drums/ Containers	0	1.483	0	0	0	0	1.483
Oils	0	1.64	0	0	0	0	1.64
Miscellaneous Special Waste	0	8.742	2.72	0	0.82	6.99	19.272
Sludge's / Liquids / Washings	0	0	0	0	0	4.58	4.58
Sub-Total	0	11.925	2.72	0	0.82	14.645	30.11
Group II – General							
Chemicals/ Paints	0	0	0	0	0	0	0
Drums/ Containers	0	0	0	0	0	0	0
Scrap metal	0	0	1.22	0	0	0	1.22
Segregated Recyclables	0	46.46	16.99	0	1.46	0	64.91
General Waste	0	15.28	0	0	22.15	0	37.43
Sludge's / Liquids / Washings	0	0	0	0	0	0	0
Sub-Total	0	61.74	18.21	0	23.61	0	103.56
Group III – Other							
Asbestos	0	0	0	0	0	0	0
Radioactive Materials (exc NORM)	0	0	0	0	0	0	0
Clinical	0	0	0	0.18	0	0	0.18
Explosives	0	0	0.036	0	0	0	0.036
Sub-Total	0	0	0.036	0.18	0	0	0.216
Grand Total		**73.665**	**20.966**	**0.18**	**24.43**	**14.645**	**133.886**

Figure 4-10 overleaf shows that the Offshore Installation recycled 55 % of the total waste produced. Waste disposed to landfill amounted to 18 % of the waste produced, while Waste to Energy accounted to 16%. There was also approximately 15 tonnes of "Other" waste, mostly comprising of sludges, liquids, and paints equating to 11% of total waste (Table 4-6). With the exception of 180 Kg of clinical

waste and 36 Kg of explosives waste (expired pyrotechnic safety flares) no other Group III [Other Wastes] or Group IV [Back-loaded Cuttings] wastes were produced in 2021.

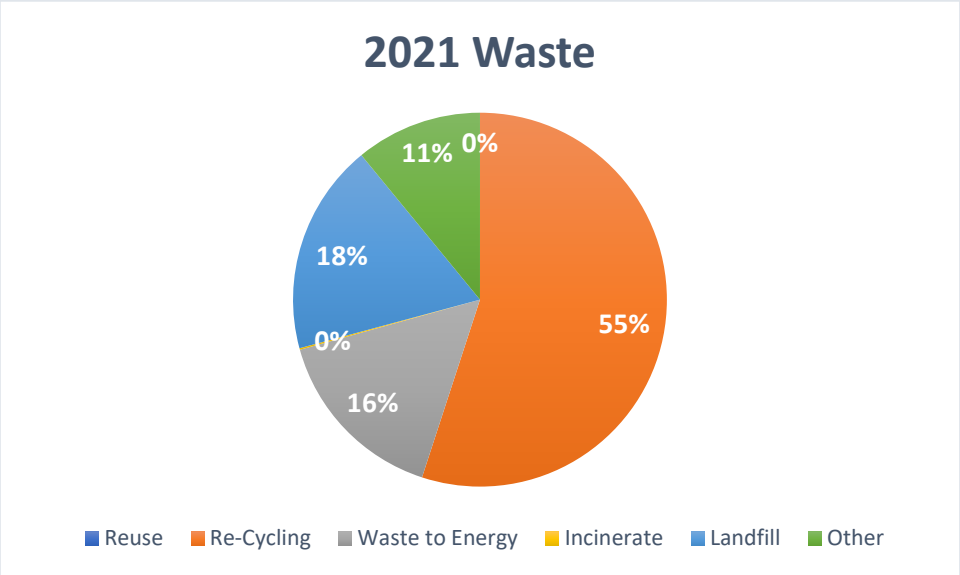

*Figure 4-10 Aoka Mizu 2021 breakdown of generated waste****

2022 Key Activities

The main offshore aims and objectives for the Aoka Mizu FPSO during 2022 are:

- ✓ Ongoing maintenance and implementation of the EMS, including
  - Maintenance of 14001:2015 Standard;
  - Environmental data monitoring & reporting schedules;
  - Environmental KPIs;
  - Environmental Aspects Registers and Controls; and
  - HSE Management System Interface documentation.
- ✓ Audit and review of Permits and Consents management and compliance associated with Environmental Management Systems and Processes;
- ✓ Maintaining normal and steady production.
- ✓ Continued management of asset integrity and process safety to minimise the risk of spills.

5. INCIDENTS

Under UK legislation any unplanned / unpermitted releases of oil and chemicals discharged to the marine environment are required to be reported to OPRED via the Petroleum Operations Notice No.1 [PON 1] reporting system. These, as well as other reportable incidents / operations notices that occurred during 2021 for the assets are detailed in Table 5-1 (7 in total).

Table 5-1 2021 reportable incidents

Date	Asset	Non-Compliance Type	Description
03 November 2021	Aoka Mizu	Oil PON 1	Failure of seal on aft crane luffing ram. Small release (0.0001 tonne) mostly captured by absorbent pads. No evidence of release to sea but due to location of rams it is possible intermittent drips may reach the sea. Ongoing with repair plan in place for 2022.
14 April 2021	Hæwene Brim	Chemical PON1*	Increase in usage of Castrol Transaqua HT2 water based hydraulic fluid used for operating the Shell owned Pierce subsea equipment. Total release quantity in 2021 – 742kg
25 October 2021	Hæwene Brim	Chemical Permit non-compliance	ACPC19610A was pumped to subsea umbilical as a spacer prior to water filling for preservation during period vessel is in yard. No discharge. Chemical was not on the permit for use (8.7kg used)
26 October 2021	Hæwene Brim	Chemical Permit non-compliance*	During actuation of subsea valve an excess of 380kg of Transaqua HT2 was lost to sea. Following closure the hydraulic pressure recovered.
18 November 2021	Hæwene Brim	Chemical Permit non-compliance	Use and discharge of chemicals for temporary water treatment package were not on the permit. Contractor using chemicals without knowledge of Bluewater
18 June 2021	Hæwene Brim	PON 2	Damaged seawater lift hose was cut and dropped to seabed. Subsequently recovered.
31 August 2021	Aoka Mizu	PON 2	During retrieval of Cougar XTC ROV (Remotely Operated Vehicle), the tether of the ROV snapped. This caused the ROV to be completely floating free without any control. ROV not found.

* 14th April subsea loss of hydraulic fluid is a PON1 whereas 26th October loss is a chemical permit non-compliance. This is due to a change in the OPRED guidance and definitions for non-compliances.

6. APPENDICES

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Abbreviations

BEIS	Department for Business, Energy and Industrial Strategy
CH_4	Methane
CMS	Corporate Management System
CNS	Central North Sea
CO	Carbon Monoxide
CO_2	Carbon Dioxide
EEMS	Environmental Emissions Monitoring System
EMS	Environmental Management System
FPSO	Floating Production Storage and Offloading
HQ	Hazard Quotient
HSE	Health Safety & Environmental
HSEQ	Health, Safety, Environmental and Quality
KPI	Key Performance Indicators
mg/l	Milligrams per Litre
NO_x	Nitrous Oxides
OCR	Offshore Chemical Regulations
OIW	Oil in Water
OPPC	Oil Pollution Prevention and Control
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
OSPAR	Oslo Paris Convention for the Protection of the Marine Environment of the North-East Atlantic
PPC	Production Prevention and Control
PPCL	Pierce Production Company Limited
ROV	Remotely Operated Vehicle
SEMS	Safety and Environmental Management System
SO_x	Sulphur Oxides
SUB	Chemicals Rated for Substitution
UK	United Kingdom
UKCS	United Kingdom Continental Shelf
VOCs	Volatile Organic Compounds