

STIRLING 16/21a-33

Subsea Wellhead Protection Structure

Decommissioning Programme

Close Out Report

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Approvals

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Abbreviations

CWTN	Controlled Waste Transfer Note
DSV	Diving Support Vessel
EMT	Environmental Management Team
EWC	European Waste Code
FPV	Floating Production Vessel
HSE	Health & Safety Executive
HSES	Health, Safety, Environment & Security
km	Kilometre
LWIV	Light Well Intervention Vessel
m	Metre
MAT	Master Application Template
MCA	Maritime and Coastguard Agency
ML	Marine Licence
MS	Marine Scotland
NORM	Naturally Occurring Radioactive Material
ODU	Offshore Decommissioning Unit
OEI	Offshore Environmental Inspectorate
OGA	Oil & Gas Authority
OPRED	Offshore Petroleum Regulator for Environment & Decommissioning
OPEP	Oil Pollution Emergency Plan
P&A	Plug and Abandon (Wells)
PLA	Pipeline Master Application Template
PWA	Pipeline Works Authorisation
Premier Oil	Premier Oil E&P UK Limited
Repsol Sinopec	Repsol Sinopec North Sea Limited
Rockrose	Rockrose UKCS4 Limited
ROV	Remotely Operated Vehicle (subsea)
SEPA	Scottish Environmental Protection Agency
SFF	Scottish Fishermen's Federation
SIL	Subsea Intervention Lubricator
SM	Ships Manifest
SWPM	Satellite Well Production Manifold
WCN	Waste Consignment Note
WHPS	Wellhead Protection Structure

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I	Wellhead Protection Structure Completion Certificate
II	Concrete Mattresses Waste Transfer Notes

1.0 PROJECT BACKGROUND

1.1 Summary of Project Scope

The Stirling Field is a subsea development located across UKCS Blocks 16/21a and 16/21b approximately 222km northeast of Aberdeen. The wells lie 2km to the East of the Balmoral FPV, in 142m of water and are tied back to the Satellite Well Production Manifold (SWPM) on the Balmoral template. Fluids are processed on the Balmoral FPV.

The Well Head Protection Structure (WHPS) over the Stirling subsea well 16/21a-33 has been removed in order to facilitate future planned well intervention activity. Although the removal of the WHPS in April 2018 has been treated as a standalone project, it is part of a wider campaign of decommissioning activities currently being planned in the Greater Balmoral Area. The Stirling pipelines, umbilicals and stabilisation features are not being decommissioned at this time and will be the subject of a separate decommissioning programme.

1.2 Decommissioning Programme

The Decommissioning Programme for the abandonment of the Well Head Protection Structure over the Stirling 16/21a-33 subsea well was submitted to the Secretary of State for Business, Energy and Industrial Strategy on 30th April 2018 and was approved without modifications on 12th June 2018, with reference to Premier Oil controlled document number AB-BL-PMO-LL-PM-PG-0005.

The physical works have been completed in line with the requirements of the approved Decommissioning Programme.

2.0 DECOMMISSIONING ACTIVITIES

To make preparations for future well abandonment activities, suspension barriers were planned to be installed in a number of the Greater Balmoral Area satellite wells during a planned LWIV campaign in the 2nd and 3rd quarters of 2018.

Access through the WHPS over Stirling 16/21a-33 subsea well did not allow for the Subsea Intervention Lubricator (SIL) to pass through and connect onto the 16/21A-33 Christmas tree. Therefore, it has been necessary to remove the WHPS ahead of the LWIV's arrival on site, to allow the planned programme of well intervention work to be executed. The WHPS was retained in position over the subsea well by suction anchors integral to the WHPS, and the whole structure weighs approximately 83 Tonnes. Figure 2.1 is a post fabrication, pre-installation photograph of the WHPS.

An opportunity to execute the WHPS removal works during a planned DSV campaign scheduled for April and May 2018 was identified.

The WHPS was removed by DSV and was initially placed on eight new concrete mattresses specifically installed on the seabed for the purpose of providing a firm temporary landing site in a clear area within the Stirling well 16/21a-33 500m safety zone.

Whilst the WHPS was temporarily located on the temporary mattresses, rigging on the WHPS was reconfigured and the WHPS was safely recovered to the DSV and transported to shore for recycling.

The eight new temporary concrete mattresses (3 x 6 x 0.15 m and 4.7 tonnes each) were recovered from the seabed, transported to shore and have been used as aggregate/inert fill for roads/landfill sites.



Figure 2.1 Stirling 16/21a-33 Well Head Protection Structure

3.0 IMPACT ON ENVIRONMENT

The Marine Licence data and associated Master Application Template (MAT) environmental impact assessment were approved as addressing the requirement for an Environmental Statement in support of the Decommissioning Programme.

The worst-case environmental impacts potentially associated with recovery of the WHPS were evaluated both in Section 4.2 of the Stirling 16/21a-33 WHPS Decommissioning Programme and, specifically regarding the seabed impacts caused by temporary placement of concrete mattresses, in the Master Application Template (MAT) Environmental Impact Assessment supporting the related Marine Licence application (ML/322). The likely potential impacts related to these operations were demonstrated to be mostly negligible in nature, which was approved by the Offshore Petroleum Regulator for Environment & Decommissioning (OPRED) through provision of consent.

The operations were, in the main, undertaken in accordance with the proposed scope described in the Decommissioning Programme and related permit application. Appropriate operating procedures and other environmental mitigation measures were implemented to manage these operations.

During the course of the operations, and further to dynamic assessment undertaken when the vessel arrived on site, the storage location and configuration of supporting concrete mattresses had to be changed from those originally proposed to provide sufficient support for the safe temporary storage of the structure on the seabed. The new temporary laydown site for the mattresses remained well within the wellhead 500m safety zone of the A33 structure.

This location change did not increase the significance of the related environmental impacts as the overall footprint remained the same and the nature of the seabed at the new location was consistent with that originally considered.

In summary, as the operations were effectively completed with no incremental environmental impact to those originally evaluated, it is considered that the related extent of any impacts incurred in practice will also have been negligible.

As the original temporary mattress laydown location was specifically referenced in the Marine License application, Premier notified OPRED of a non-conformance when the location changed slightly. As with any other incident or non-conformance identified during Premier's operations, a thorough investigation was undertaken in to the circumstances of the event. A number of actions and improvement opportunities were raised as a result of this internal investigation and these were shared with OPRED. OPRED confirmed that no further action would be required by Premier as a result of this non-conformance.

3.1 Decommissioning OPEP

The works as detailed in the Decommissioning Programme were conducted under Balmoral Field Offshore OPEP (170028/0).

3.2 Decommissioning Permits

The works, as detailed in the approved Decommissioning Programme, were executed under the Permits referenced in Table 3.1, and Premier Oil notified OPRED of the date of commencement and the date of completion of all operations authorised under the Marine Licence, as per condition 2 of the Licence.

Table 3.1 - Decommissioning Permits

Reference No.	Permit Title	Date Approved
ML/322	Marine Licence Valid 16 th April 2018 – 30 September 2018	13 th April 2018
PLA/524	Pipeline Master Application Template	13 th April 2018

4.0 HEALTH, SAFETY AND ENVIRONMENT

4.1 Health and Safety

All of the health and safety aspects of the decommissioning activity relating to the removal, recovery, transportation and disposal of the WHPS were executed in compliance with the Decommissioning Programme and there were no health and safety incidents/accidents or inspections to report.

4.2 OPRED (OEI) Inspection

A minor non-conformance with the marine license as detailed in section 3 above.

5.0 DECOMMISSIONING PROGRAMME MILESTONES

5.1 Onshore Preparation

Discussions with OPRED commenced end March/beginning of April 2018 regarding the removal of the WHPS, and it was identified that a Decommissioning Programme would be required. OPRED agreed in this instance, to allow Premier Oil to remove the WHPS before formal approval of the Decommissioning Programme was given.

The offshore works were planned to be executed during a planned DSV campaign in the Greater Balmoral Area scheduled for April/May 2018.

The key submission and approval dates for the Decommissioning Programme were as follows:

- 19th March 2018 Marine Licence Application (ML/322) initial submission
- 13th April 2018 Marine Licence Application (ML/322) approved (valid 16th April 2018 to 30th September 2018)
- 16th April 2018 Email approval for early removal of the WHPS from OPRED
- 30th April 2018 Decommissioning Programme submitted to OPRED
- 12th June 2018 Decommissioning Programme approved by Secretary of State

5.2 Offshore Works

The milestones for the offshore works to prepare, remove and return the WHPS and the temporary concrete mattresses to shore were as follows:

- 13th April 2018 Approval of Pipeline Master Application and Marine Licence
- 16th April 2018 DSV on location at A33 Stirling well. Commenced Stirling A33 WHPS removal and recovery work scope
- 18th April 2018 Completed installation of WHPS “lift and relocate” rigging
- 19th April 2018 Completed relocation of Stirling WHPS away from A33 Well. Commenced disassembly and recovery of WHPS to DSV
- 21st April 2018 Completed recovery of Stirling WHPS to deck of DSV
- 23rd April 2018 Complete offload of Stirling WHPS in Peterhead
- 3rd May 2018 Complete recovery of temporary concrete landing mattresses and completed ROV as-left survey

All sections of WHPS and the eight temporarily installed concrete landing mattresses were recovered from the seabed.

6.0 MATERIALS DISPOSAL

All WHPS and concrete mattress materials recovered were returned to shore and recycled utilising Premier Oil contracted, appropriately licenced, waste management and recycling contractors.

Table 6.1 summarises the materials recovered and to be disposed of, and Table 6.2 summarises active waste disposal monitoring.

The discrepancy between the total weights indicated in tables 6.2 and 6.3 is explained by the use of estimated average fabricated weights used on data sheets versus as-weighed data assigned at waste treatment facilities.

Table 6.1 Summary of Materials to be Disposed

Item	Dimensions	Material	Weight (tonnes)
Well Head Protection Structure Marine growth to be removed offshore, as far as practicable	16.3x 16.3 x 15m	Carbon Steel Protective coating International Paint (Interzone 954)	83
Concrete Mattresses (x8)	3x6x0.15m 4.7 tonnes each	Concrete	37.6
Total Weight			120.6

Table 6.2 - Summary of Active Waste Monitoring

Material	Waste Stream	European Waste Code (EWC)	Waste management facilities (quayside)	Waste Carrier (quayside to waste treatment site)	Waste treatment facilities	Final Fate	Treatment	Quantity (tonnes)
Wellhead Protection Structure	Carbon Steel	20 01 40	Scotoil, Smiths Quay, Peterhead (WML/XC/1129850)	John Lawrie (SNO/038419)	John Lawrie, Greenhead Base, Altens, Aberdeen (WML/N/0020154)	Transfrontier shipment to European Smelter	Recycled (100%)	81.460
Concrete Mattresses	Concrete	17 01 01	N/A	Taylor's Industrial Services (SNO/038841/CB)	Taylor's Industrial Services, Easter Hatton Farm, Balmedie (PPC/N/20026)	Use as aggregate / inert fill for roads / landfill sites	Recycled (100%)	34.88
Total Weight								116.34

7.0 EVIDENCE OF COMPLETION ACTIVITY

7.1 Materials Removal and Transfer

Figure 7.1 provides an overview of the activities associated with materials removal and transfer from offshore through to onshore treatment.

Evidence of waste transfer and recycling is provided in Appendix I for the WHPS and Appendix II for the concrete mattresses.

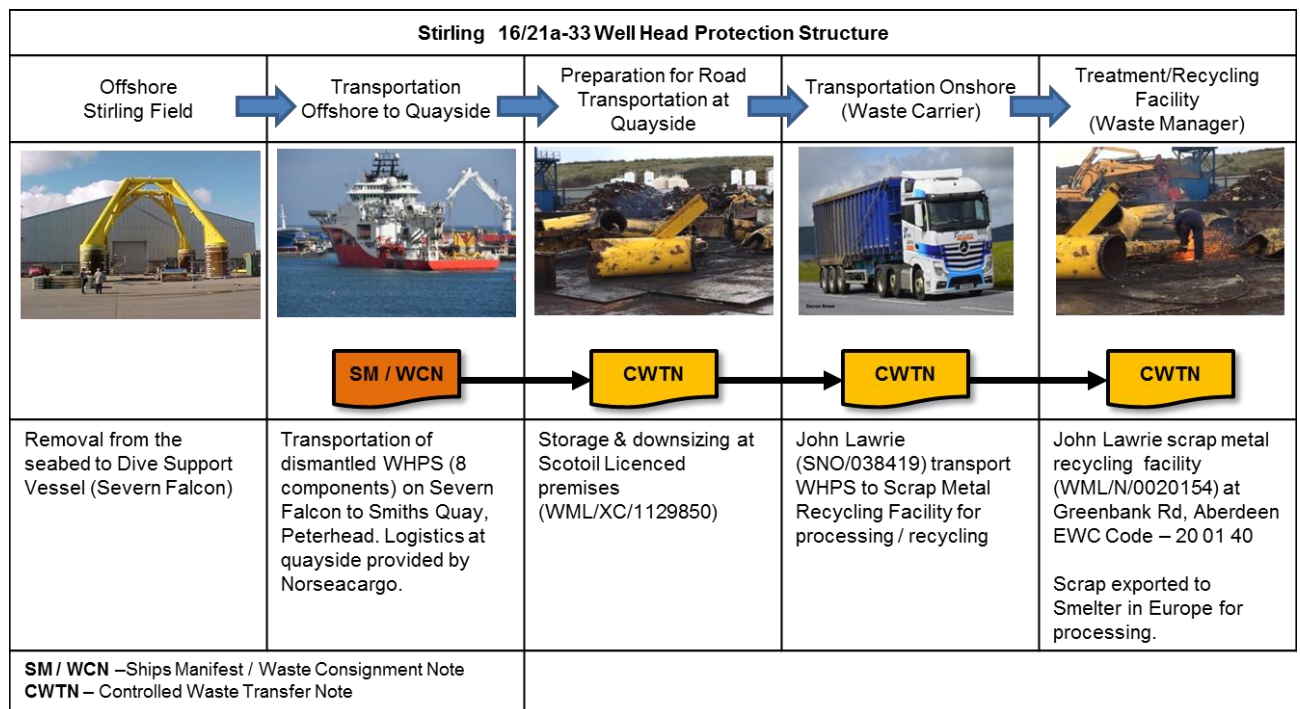


Figure 7.1 - Materials Transfer Overview

7.2 Post Removal Departure Survey

After removal of the WHPS and the eight temporarily installed concrete mattresses, a post removal ROV survey was carried out of the temporary site. The ROV survey indicated that the areas of seabed physically affected by the placement of mattresses and related disturbance of sediments incurred during their placement and recovery were in line with the anticipated scale of effects described in Section 4.2 of the approved Decommissioning Programme.

8.0 DECOMMISSIONING PROGRAMME COST INFORMATION

The overall out-turn cost had been provided to OPRED.

APPENDIX I – WELLHEAD PROTECTION STRUCTURE CERTIFICATE OF COMPLETION



CERTIFICATE OF COMPLETION

Ref: JLA/COC/18/001

Material Received from:

Premier Oil
Upper Denburn House
Prime Four Business Park
Kingswells, Aberdeen, AB15 8PU

We hereby certify that the scrap material collected/received from the above company and as detailed below was processed at the following John Lawrie (Aberdeen) Limited waste treatment facility:

East Tullos, Aberdeen (SEPA licence No: WML/N/20154)

The material was processed in compliance with the site's licensed conditions, relevant Environmental Legislation and shipped directly to European steel-mills for recycling in compliance with The Transfrontier Shipment of Waste Regulations 2007

Weighbridge Ticket Number	Weight (Te)	EWC Code	Description	Premier Reference
156326	12.920	20 01 40	CONSTRUCTIONAL STEEL	Stirling A33 WHPS
156334	14.160	20 01 40	CONSTRUCTIONAL STEEL	Stirling A33 WHPS
156337	20.040	20 01 40	CONSTRUCTIONAL STEEL	Stirling A33 WHPS
156344	14.080	20 01 40	CONSTRUCTIONAL STEEL	Stirling A33 WHPS
156348	9.540	20 01 40	CONSTRUCTIONAL STEEL	Stirling A33 WHPS
156353	10.720	20 01 40	CONSTRUCTIONAL STEEL	Stirling A33 WHPS

Total tonnage received and processed/recycled: **81.460Te**

SIGNED:

(On behalf of John Lawrie (Aberdeen) Ltd)

DATE: 03/07/2018

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Premier Oil
 AB-BL-PMO-LL-PM-RE-0001
 Stirling 16/21a-33 WHPS DP Close Out Report
 Rev B02, December 2018



APPENDIX II – CONCRETE MATTRESSES WASTE TRANSFER NOTES

TAYLORS INDUSTRIAL SERVICES LTD.
 Hareness Circle, Altens Industrial Estate,
 Aberdeen AB12 3LY
 Telephone (01224) 872972
 Fax (01224) 872697
 VAT Registration No. 553 2483 45

SECTION A – DESCRIPTION OF WASTE
 PLEASE DESCRIBE WASTE BEING TRANSFERRED

Tank Cleaning ☐ Interceptor ☐ Washbed ☐ Sump ☐ Drain ☐ Gully ☐
 Septic Tank ☐ Pit ☐ Grease Trap ☐ Jetting ☐ Waste Disposal ☐ Oil Spill ☐
 Sewage Plant ☐ Industrial Effluent ☐ Chemicals ☐ Boxes marked 0 require further information

General description and physical nature of waste: Concrete Matts
 EWC Code: 17 01 01
 Process from which waste originated: _____
 Volume of waste: _____
 Odour: _____ Visual Inspection: _____ pH: _____

Additional Information: _____

SECTION B – CURRENT HOLDER OF THE WASTE (TRANSFERROR)
 COMPANY: Solar Shipping LOCATION: _____
 ADDRESS: ex Seaw Falcon
Potterhead

Producer of Waste ☒ Waste Transfer Station ☐
 Important: By signing this document as the customer, I/We confirm that I have fulfilled my duty to apply the waste hierarchy as required by the Waste (Scotland) regulations 2011.
 Collected from (Full Name - Block Letters) _____ Signed _____ Date () _____

SECTION C – PERSON COLLECTING THE WASTE (TRANSFEEE)
 NAME V J McCann SIGNED V J McCann
 DATE 10/5/18 VEHICLE REG. SUS2 025
 VOLUME OF WASTE 12080kg
 COMPANY: _____ WASTE CARRIERS LICENCE: _____

SECTION D – ADDRESS OF PLACE OF TRANSFER
 COMPANY: Taylor Environmental Village LICENCE NO: PAEN11016127
 ADDRESS: Exeter Market Farm
Beaconsfield
AB23 8YX

Received by (Full Name - Block Letters) C. A. Stewart Signed _____ Date (10/5/18)

Serial No. _____ DUTY OF CARE : CONTROLLED WASTE TRANSFER NOTE

TAYLORS INDUSTRIAL SERVICES LTD.
 Hareness Circle, Altens Industrial Estate,
 Aberdeen AB12 3LY
 Telephone (01224) 872972
 Fax (01224) 872697
 VAT Registration No. 553 2483 45

SECTION A – DESCRIPTION OF WASTE
 PLEASE DESCRIBE WASTE BEING TRANSFERRED

Tank Cleaning ☐ Interceptor ☐ Washbed ☐ Sump ☐ Drain ☐ Gully ☐
 Septic Tank ☐ Pit ☐ Grease Trap ☐ Jetting ☐ Waste Disposal ☐ Oil Spill ☐
 Sewage Plant ☐ Industrial Effluent ☐ Chemicals ☐ Boxes marked 0 require further information

General description and physical nature of waste: Concrete Matts
 EWC Code: 17 01 01
 Process from which waste originated: _____
 Volume of waste: _____
 Odour: _____ Visual Inspection: _____ pH: _____

Additional Information: _____

SECTION B – CURRENT HOLDER OF THE WASTE (TRANSFERROR)
 COMPANY: Solar Shipping LOCATION: _____
 ADDRESS: ex Seaw Falcon
Potterhead

Producer of Waste ☐ Waste Transfer Station ☐
 Important: By signing this document as the customer, I/We confirm that I have fulfilled my duty to apply the waste hierarchy as required by the Waste (Scotland) regulations 2011.
 Collected from (Full Name - Block Letters) _____ Signed _____ Date () _____

SECTION C – PERSON COLLECTING THE WASTE (TRANSFEEE)
 NAME G. McRae SIGNED G. McRae
 DATE 10/5/18 VEHICLE REG. SUS3 HMT
 VOLUME OF WASTE 23360kg
 COMPANY: _____ WASTE CARRIERS LICENCE: _____

SECTION D – ADDRESS OF PLACE OF TRANSFER
 COMPANY: Taylor Environmental Village LICENCE NO: PAEN11016127
 ADDRESS: Exeter Market Farm
Beaconsfield
AB23 8YX

Received by (Full Name - Block Letters) C. A. Stewart Signed _____ Date (10/5/18)

Serial No. _____ DUTY OF CARE : CONTROLLED WASTE TRANSFER NOTE