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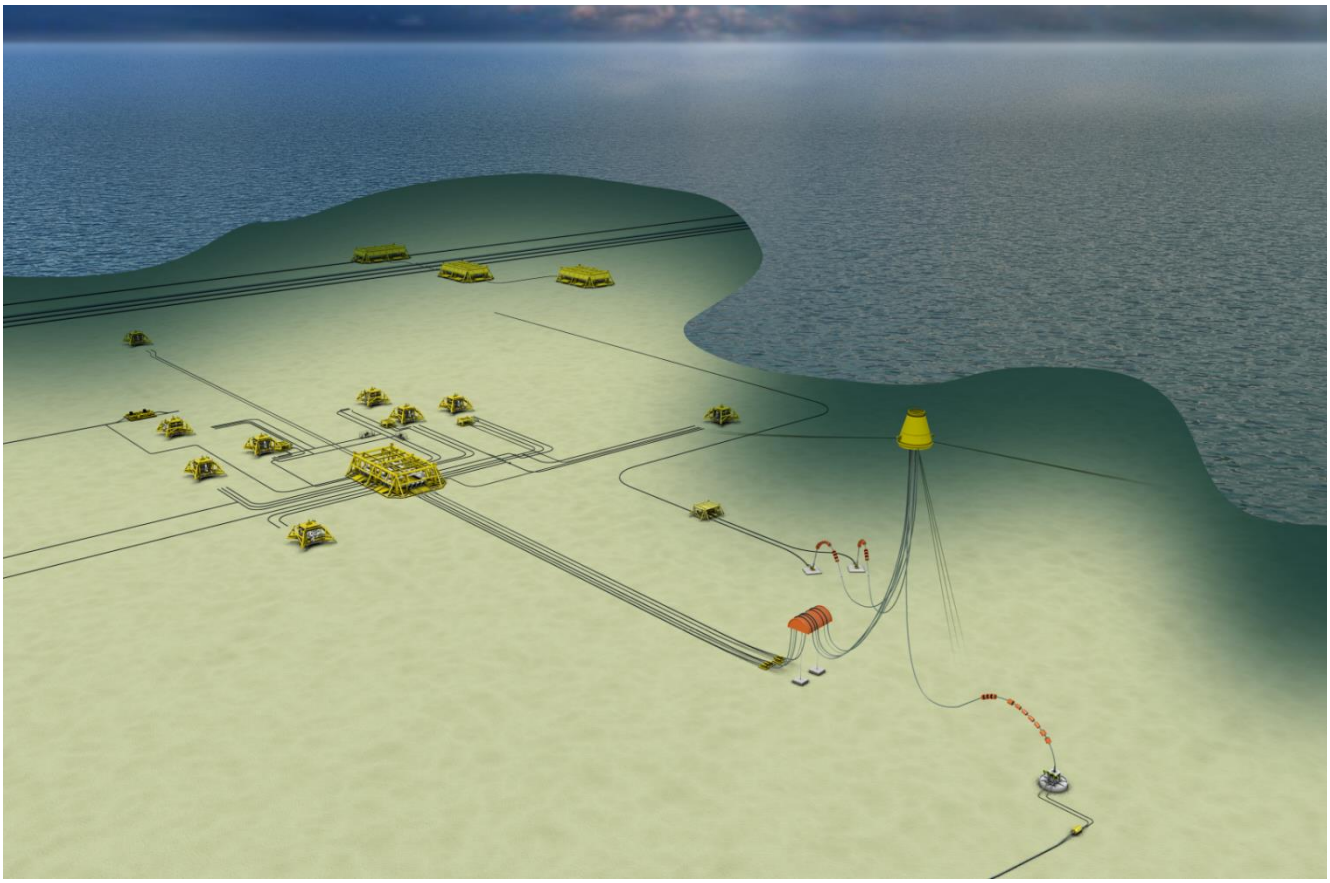

ETTRICK AND BLACKBIRD DECOMMISSIONING PROGRAMMES

FINAL VERSION

DOCUMENT CONTROL

Approvals

	Name	Signature	Date
Prepared by	I. Jordan	I. Jordan	21/03/2017
Reviewed by	H. Westwater	H. Westwater	21/3/2017.
Approved by	M. Backus	Mike Backus	21/03/2017

Revision Control

Rev.	Description	Changes / Comments	Issue Date
R1	Issued for internal comment	-	19/08/2016
U1	Issued for BEIS review	Concrete mattress decommissioning added to Table 1.9. General updates.	28/09/2016
U2	Issued for public consultation	As agreed with BEIS	15/12/2016
U3	Draft for approval	Consultation comments incorporated. Updated Section 5.0. Schedule (Section 6.3) amended.	27/02/2017
U4	Final version	Partner Letters of Support added to Section 8.0	21/03/2017

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Table of Contents

A.Terms and Abbreviations

Abbreviation	Explanation
BEIS	Department for Business, Energy and Industrial Strategy
CNS	Central North Sea
CoP	Cessation of Production
c/w	complete with
DTB	Disconnectable Turret Buoy
dwt	dead weight tonnage
EC	European Council
EDCM	Ettrick Drill Centre Manifold
EIA	Environmental Impact Assessment
FPSO	Floating Production, Storage and Offloading
FTP	Fly To Place
HLV	Heavy Lift Vessel
IB	Injection Tree (Blackbird)
ICES	International Council for the Exploration of the Seas
ID	Inner Diameter
JNCC	Joint Nature Conservation Committee
km	kilometre
LSA	Low Specific Activity
m	metre
MARPOL	The International Convention for the Prevention of Pollution from Ships
mm	millimetre
MPSV	Multi-Purpose Support Vessel
MWA	Mid Water Arch
n/a	Not applicable
NB	Nominal Bore
ncMPA	nature conservation Marine Protected Area
NE	North East
Nexen	Nexen Petroleum UK Limited
NORM	Naturally Occurring Radioactive Material
NOx	Nitrogen Oxides
NUI	Normally Unmanned Installation
NW	North West

Abbreviation	Explanation
Ø	diameter
OD	Outer Diameter
OGUK	Oil & Gas UK
OIW	Oil In Water
OSPAR	Oslo-Paris Convention
PAH	Polycyclic Aromatic Hydocarbons
PB	Production Tree (Blackbird)
PE	Polyethylene
PETS	Portal Environmental Tracking System
PLEM	Pipeline End Manifold
pMPA	possible Marine Protected Area
PNA	Production North A (subsurface target designation)
PND	Production North D (subsurface target designation)
PON	Petroleum Operations Notice
ROV	Remotely Operated Vehicle
SCI	Site of Community Importance
SFF	Scottish Fishermen's Federation
SI	Statutory Instrument
SLV	Single Lift Vessel
SOx	Sulphur Oxides
SPA	Special Protection Area
SPU	Syntactic Polyurethane
SSIV	Subsea Isolation Valve
SUTU	Subsea Umbilical Termination Unit
Te	Metric tonne (1000kg)
UK	United Kingdom
UKCS	United Kingdom Continental Shelf
W	West
WGS	World Geodetic System
WSW	West South West
WT	Wall Thickness

B.Figures & Tables

Table of Figures

Table of Tables

1.0 EXECUTIVE SUMMARY

1.1 Combined Decommissioning Programmes

This document contains four Decommissioning Programmes for:

1. Ettrick Installations
2. Ettrick Pipelines
3. Blackbird Installations
4. Blackbird Pipelines

All Decommissioning Programmes address the facilities outlined in the relevant notices served under Section 29 of the Petroleum Act 1998.

1.2 Requirement for Decommissioning Programmes

Installations:

In accordance with the Petroleum Act 1998, the Section 29 notice holders of the Ettrick and Blackbird installations (see Table 1.2 and Table 1.6) are applying to the Department for Business, Energy and Industrial Strategy to obtain approval for decommissioning the installations detailed in Sections 2.1, 2.2 and 2.6 of this document. (See also Section 8.0 – Partner Letters of Support).

Pipelines:

In accordance with the Petroleum Act 1998, the Section 29 notice holders of the Ettrick and Blackbird pipelines (see Table 1.4 and Table 1.8) are applying to the Department for Business, Energy and Industrial Strategy to obtain approval for decommissioning the pipelines detailed in Sections 2.3 and 2.7 of this document. (See also Section 8.0 – Partner Letters of Support).

In conjunction with public, stakeholder and regulatory consultation, the decommissioning programmes are submitted in compliance with national and international regulations and BEIS guidelines. The schedule outlined in this document is for a four year decommissioning project plan due to begin in 2017.

1.3 Introduction

The Ettrick and Blackbird fields are located in blocks 20/2a and 20/3a of the UKCS in the Outer Moray Firth, in approximately 115m water depth. Both fields were predominantly oil reservoirs, produced via subsea wells tied back to the FPSO *Aoka Mizu*. The *Aoka Mizu* was operated by Bluewater on behalf of Nexen.

The Ettrick field is situated 80km from the nearest UK coastline. The field was originally discovered in 1981, and brought on stream in 2009. The Ettrick field was developed via seven production wells and two water injection wells, all tied back to the FPSO via the Ettrick Drill Centre Manifold (EDCM). The Blackbird field was discovered in 2008, and brought on stream in 2011. The Blackbird field was produced via two production wells and one water injection well, all tied back to the FPSO via the EDCM. The Blackbird field also includes an appraisal well, currently suspended and awaiting final abandonment.

Nexen have investigated various alternative production strategies to extend the life of the Ettrick and Blackbird fields, but no viable alternative to decommissioning has been identified. Options considered by Nexen to extend field life have included:

- Tie-back to Buzzard (25km).

- Review of FPSO market.
- Alternative Production Facilities, e.g. unmanned / normally unmanned production buoy.

All alternative production strategies were found to be uneconomic. Cessation of Production from the Ettrick and Blackbird fields was approved on the 1st of June 2016.

The FPSO has been disconnected and removed from the field following agreement with BEIS. Flowline and umbilical flushing activities were completed from the *Aoka Mizu* on the 26th of June 2016. All Xmas Trees were disconnected from the subsea infrastructure, with blind flanges fitted and pressure tested. Xmas Tree disconnection works were completed on the 11th of July 2016. The FPSO sailed from the field on the 1st of August 2016, and is currently berthed in Gdansk awaiting future redeployment.

With the agreement of BEIS, a section of Gas Export flowline (PL2448) was severed and recovered following disconnection from the Gas Export PLEM. Short sections of rigid spool were removed from each Xmas Tree in order to allow the installation of blind flanges. In addition to these short flowline sections, redundant grout bags were recovered at the PLEM location, in order to complete the decommissioning activities at this work site. The Gas Export PLEM is to remain in use for the export/import of gas from/to the Golden Eagle Platform.

The overall scope to disconnect and remove the FPSO, and the associated works at the subsea Xmas Trees and Gas Export PLEM, was completed on schedule and 15% below budget.

All risers remain in-situ, hung-off the Disconnectable Turret Buoy (DTB), which is resting at a neutrally buoyant depth of approximately 45m. All other subsea infrastructure remains in-situ, and shall be subject to regular monitoring up to completion of the necessary provisions outlined in this document. A Guard Vessel will remain in field until such time that all subsea infrastructure which is not over-trawlable is removed.

Following public, stakeholder and regulatory consultation, the Decommissioning Programmes are submitted without derogation and in full compliance with BEIS guidelines. The Decommissioning Programmes explain the principles of the removal activities and is supported by an Environmental Impact Assessment.

1.4 Overview of Installations and Pipelines Being Decommissioned

1.4.1 Ettrick Field – Installations

Table 1.1: Ettrick Installations Being Decommissioned			
Field:	Ettrick	**Production Type:**	Oil
Water Depth:	115m	**UKCS Block:**	20/2a, 20/3a
Surface Installation			
Number	**Type**	**Topsides Weight**	**Jacket Weight**
1	FPSO	105,000dwt	N/A
Subsea Installations		**Number of Wells**	
Number	**Type**	**Platform**	**Subsea**
53	Manifold, valve assemblies, Xmas trees, riser bases, etc.	0	9
Drill Cuttings Piles		**Distance to Median**	**Distance to Nearest UK Coastline**
No. of Piles	**Total Est. Vol. (m^3)**	**km**	**km**
0	N/A	135	80

Table 1.2: Ettrick Installations Section 29 Notice Holders Details		
Section 29 Notice Holder	**Registration Number**	**Equity Interest**
Atlantic Petroleum North Sea Limited	06459546	8.27%
Atlantic Petroleum UK Limited	04395761	0%
Bluewater Ettrick Production (UK) Limited	05734666	0%
Dana Petroleum (BVUK) Limited	03337437	12.0%
Nexen Ettrick UK Limited	03976014	15.46%
Nexen Petroleum UK Limited	01051137	64.27%

1.4.2 Ettrick Field – Pipelines

Table 1.3: Ettrick Pipelines Being Decommissioned		
Number of Flowlines	6	See Table 2.3
Number of Umbilicals	3	See Table 2.4

Table 1.4: Ettrick Pipelines Section 29 Notice Holders Details		
Section 29 Notice Holder	**Registration Number**	**Equity Interest**
Atlantic Petroleum North Sea Limited	06459546	8.27%
Atlantic Petroleum UK Limited	04395761	0%
Dana Petroleum (BVUK) Limited	03337437	12.0%
Nexen Ettrick UK Limited	03976014	15.46%
Nexen Petroleum UK Limited	01051137	64.27%

1.4.3 Blackbird Field – Installations

Table 1.5: Blackbird Installations Being Decommissioned			
Field:	Blackbird	**Production Type:**	Oil
Water Depth:	115m	**UKCS Block:**	20/2a, 20/3a, 20/3f
Surface Installation			
Number	**Type**	**Topsides Weight**	**Jacket Weight**
N/A	N/A	N/A	N/A
Subsea Installations		**Number of Wells**	
Number	**Type**	**Platform**	**Subsea**
16	Manifold, Xmas trees, riser bases, etc.	0	4
Drill Cuttings Piles		**Distance to Median**	**Distance to Nearest UK Coastline**
No. of Piles	**Total Est. Vol. (m^3)**	**km**	**km**
0	N/A	140	75

Table 1.6: Blackbird Installations Section 29 Notice Holders Details		
Section 29 Notice Holder	**Registration Number**	**Equity Interest**
Atlantic Petroleum North Sea Limited	06459546	9.40%
Atlantic Petroleum UK Limited	04395761	0%
Nexen Ettrick UK Limited	03976014	17.57%
Nexen Petroleum UK Limited	01051137	73.03%

1.4.4 Blackbird Field – Pipelines

Table 1.7: Blackbird Pipelines Being Decommissioned		
Number of Flowlines	3	See Table 2.9
Number of Umbilicals	2	See Table 2.10

Table 1.8: Blackbird Pipelines Section 29 Notice Holders Details		
Section 29 Notice Holder	**Registration Number**	**Equity Interest**
Atlantic Petroleum North Sea Limited	06459546	9.40%
Atlantic Petroleum UK Limited	04395761	0%
Nexen Ettrick UK Limited	03976014	17.57%
Nexen Petroleum UK Limited	01051137	73.03%

1.5 Summary of Proposed Decommissioning Programmes

Table 1.9: Summary of Decommissioning Programmes		
Selected Option	**Reason for Selection**	**Proposed Decommissioning Solution**
1. Topsides		
N/A	N/A	N/A
2. Floating Facility		
Removal and re-use.	Vessel suitable for re-use.	Disconnected following agreement with BEIS, and towed to Gdansk. Awaiting future redeployment.
3. Subsea Installations		
Piled manifold structures will be removed by vessel / barge with crane.	To leave a clean seabed.	The Ettrick and Blackbird Manifolds will be recovered along with the top sections of their respective piles. Piles will be severed and removed to -3 metres.
The Disconnectable Turret Buoy (DTB) will be recovered to a quayside by crane / tow.	To prepare for re-deployment or recycling.	All risers and mooring wires will be severed as close as practicable to the DTB. The DTB will be recovered to a quayside by tow / crane. The buoy will be delivered back to Bluewater to await future redeployment.
The mooring system will be recovered to a vessel. Mooring piles will be left in a condition suitable for over-trawling.	To leave the seabed clear of obstruction to other legitimate users of the sea.	The mooring system will be recovered to a vessel and returned to a quayside for transfer of ownership to Bluewater. The mooring piles will be removed to a depth below seabed to be agreed with BEIS.
All gravity-base and mid-water structures will be removed by vessel / barge with crane.	To leave a clean seabed.	All gravity-base and mid-water structures will be removed for recycling and / or re-use.
All suction can structures will be removed by vessel / barge with crane.	To leave a clean seabed.	All suction can structures will be removed for recycling and / or re-use. Where practicable, removal will be executed via a reverse-installation methodology.
All Xmas Trees c/w protective structures will be fully recovered by drill rig or vessel / barge with crane.	To leave a clean seabed.	The Xmas Trees will be recovered following the abandonment of the wells for recycling and / or re-use.
The Gas Export PLEM will remain *in-situ*.	Re-use of structure for import/export of Golden Eagle gas.	PLEM was disconnected from the Ettrick system during FPSO Disconnect phase. Ownership of structure will transfer to Golden Eagle partners in March 2017.

4. Flowlines & Umbilicals		
Ettrick and Blackbird flowlines cleaned / flushed and left buried in-situ.	Minimal seabed disturbance, lower energy usage, reduced risk to personnel.	All buried flowlines will be left in-situ, with the ends cut and the seabed sections recovered to surface. The severed ends will be buried as per recommendations of the Comparative Assessment. Trials will be carried out, in liaison with the SFF, to confirm the as-left condition of the flowlines do not present a risk to other legitimate users of the sea. The two 8" Ettrick Production flowlines (PL2443, PL2444), 7" Blackbird Production flowline (PL2799) and 6" Gas Export flowline (PL2448) have been pigged with a chemical cleaning package to a cleanliness level of no more than 20.8ppm OIW. The Water Injection (PL2446, PL2446JI2, PL2919) and Gas Lift (PL2445, PL2800) flowlines have been flushed and left filled with inhibited seawater. Remedial works (rock dumping) will be carried out on sections where survey data indicates a risk of exposure. Degradation will occur over a long period within seabed sediment, not expected to represent a hazard to other users of the sea.
Ettrick and Blackbird umbilical chemical injection cores flushed to inhibited water and left buried in-situ.	Minimal seabed disturbance, lower energy usage, reduced risk to personnel	All buried umbilicals will be left in-situ, with the ends cut and the seabed sections recovered to surface. The severed ends will be buried as per recommendations of the Comparative Assessment. Trials will be carried out, in liaison with the SFF, to confirm the as-left condition of the umbilicals do not present a risk to other legitimate users of the sea. The chemical injection cores of all Ettrick and Blackbird umbilicals (PLU2447, PLU2802) have been flushed and left filled with inhibited water. Remedial works (rock dumping) will be carried out on sections where survey data indicates a risk of exposure. Degradation will occur over a long period within seabed sediment, not expected to represent a hazard to other users of the sea.

Concrete mattresses will be recovered unless buried to >0.6m over >50% of the footprint.	To leave a seabed safe for other legitimate users of the sea.	Unless recovery of concrete mattresses is shown to be unsafe or inefficient due to the burial status (i.e. rock or seabed sediment), the concrete mattresses will be recovered. Nexen estimate 4 of 401 mattresses will be left in-situ. These mattresses are under rock placement in the Blackbird field.
5. Well Abandonment Operations		
Abandoned in accordance with Oil & Gas UK Guidelines for the Suspension and abandonment of Wells.	Meets BEIS regulatory requirements.	A PON5/ Portal Environmental Tracking System (PETS)/Marine Licence application under the relevant regulations will be submitted in support of works carried out.
6. Drill Cuttings		
Leave in place to degrade naturally.	Cuttings piles are small, thin and widely dispersed and falls below both of OSPAR 2006/5 thresholds.	Leave undisturbed on seabed.
7. Interdependencies		
The FPSO has been removed from the field, and the DTB lowered to a neutrally buoyant depth. The Decommissioning Programmes will be managed such that the impact of the drill rig in the field is minimised with regard to the recovery of subsea infrastructure.		

1.6 Field Location / Layout and Adjacent Facilities

Figure 1.1: Field location in UKCS

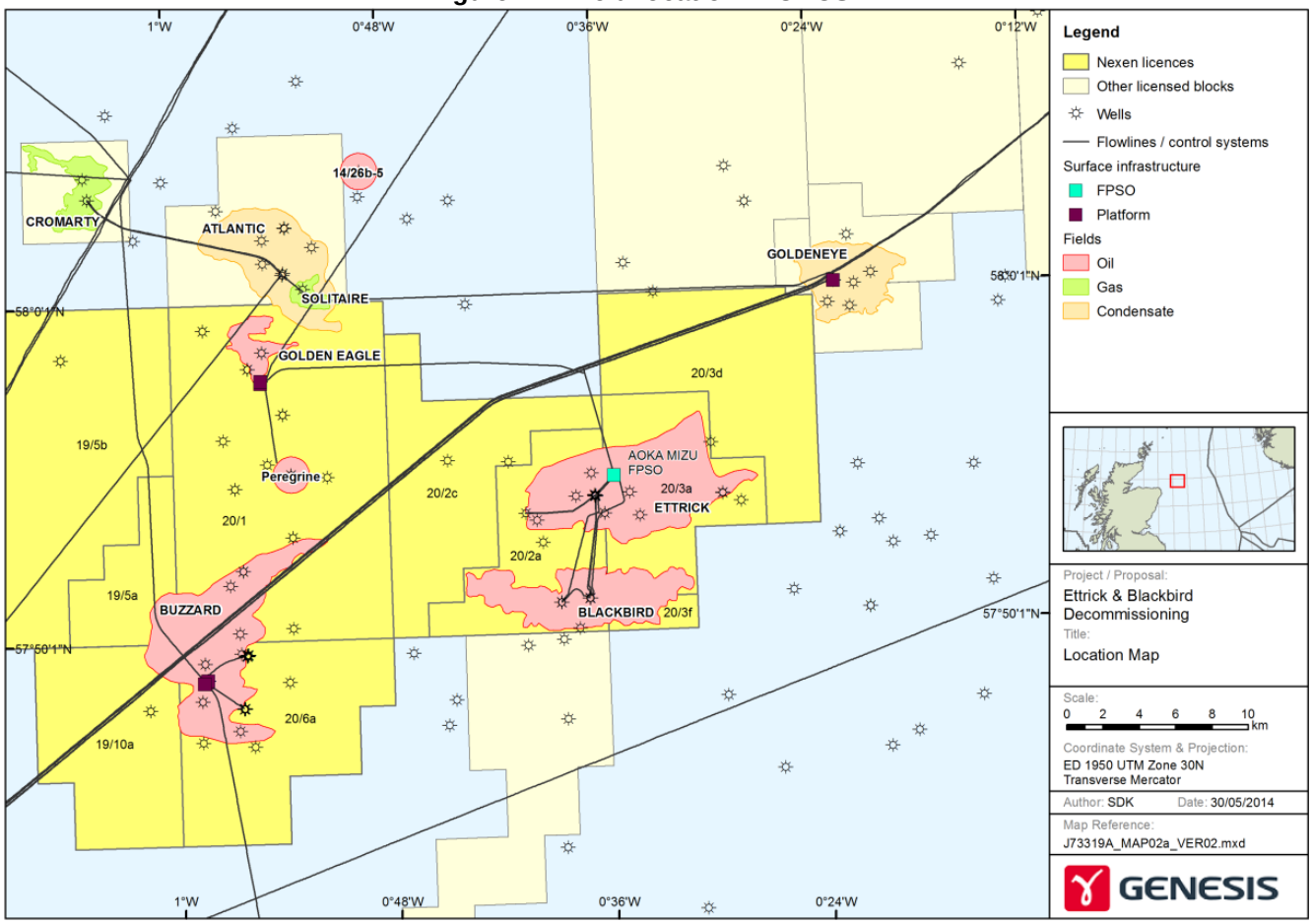


Figure 1.2: Ettrick Field Layout

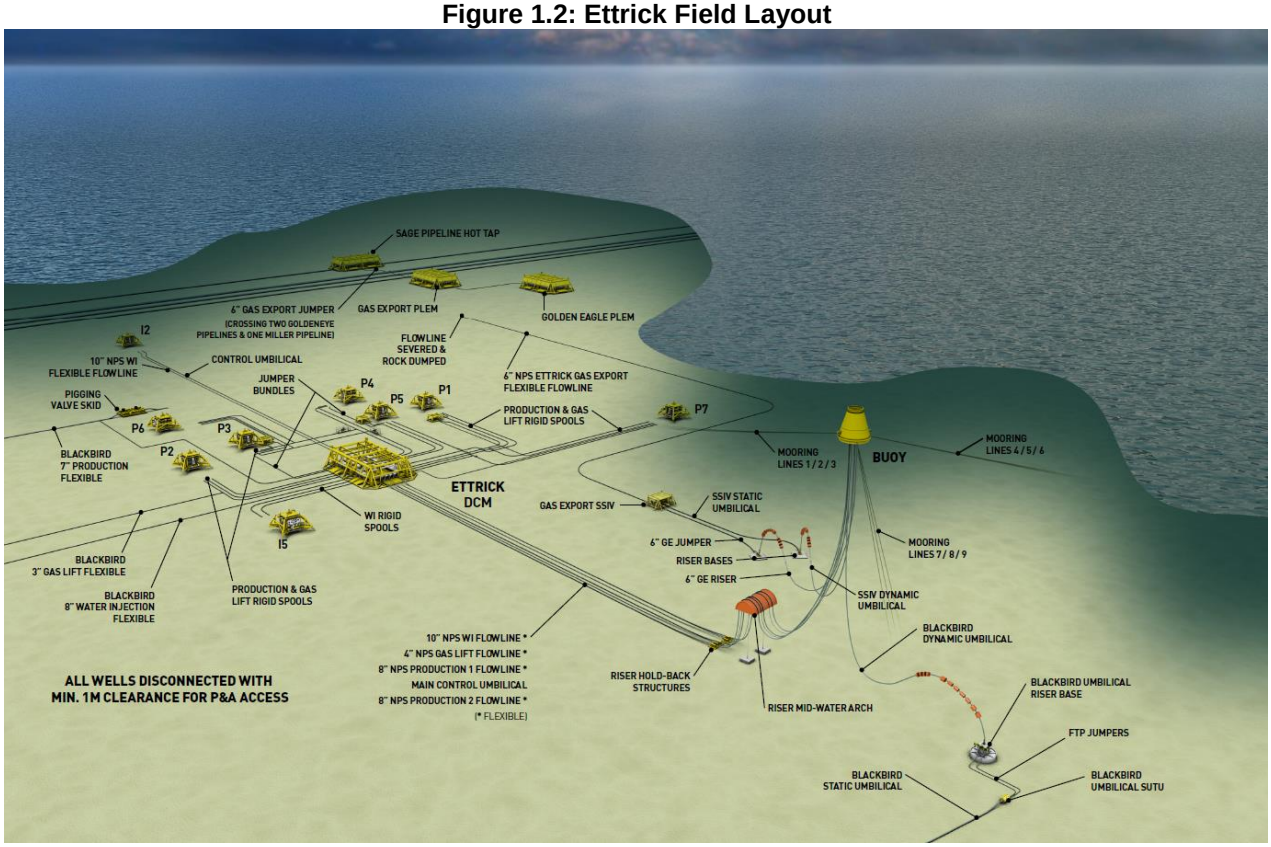


Figure 1.3: Blackbird Field Layout

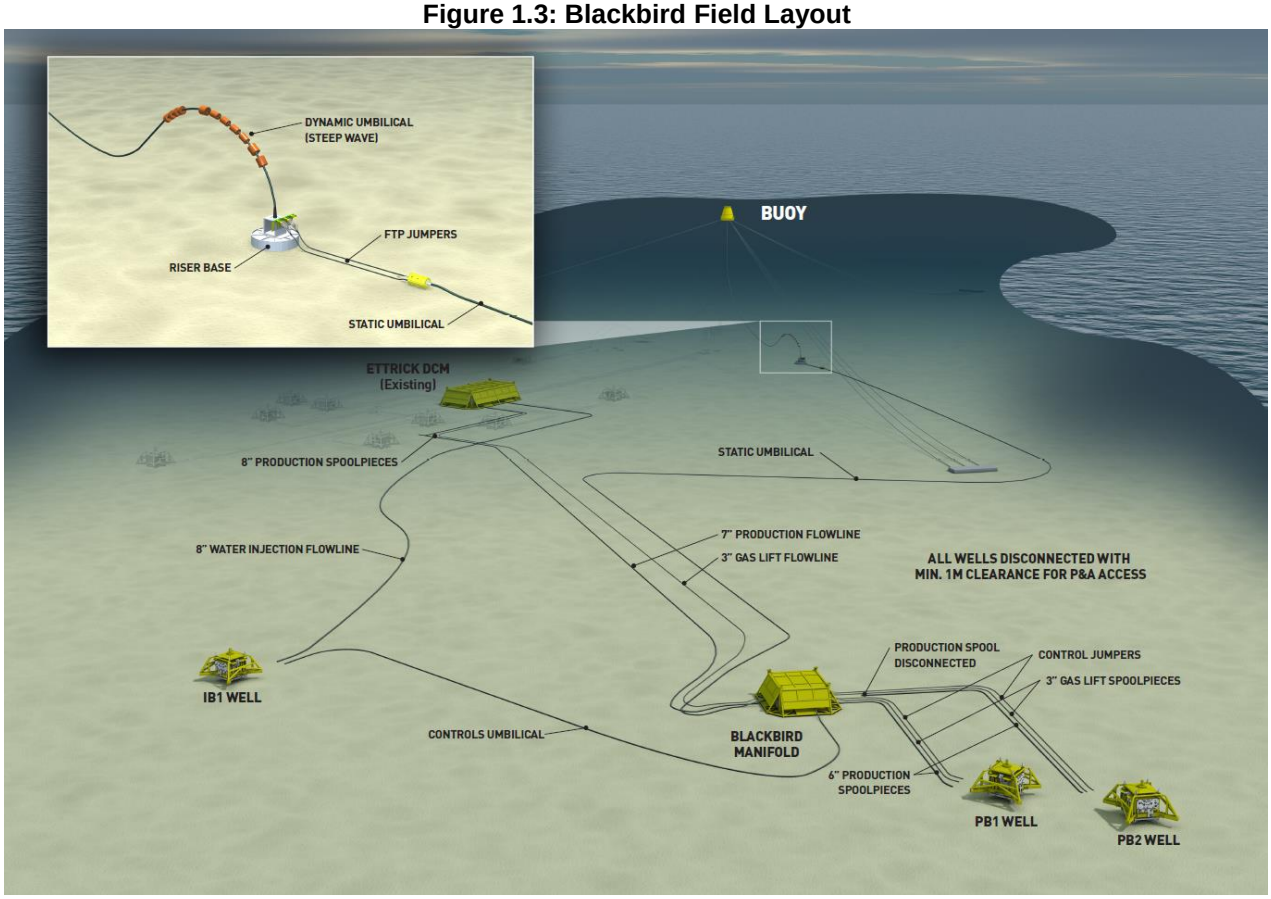


Figure 1.4: Adjacent Installations

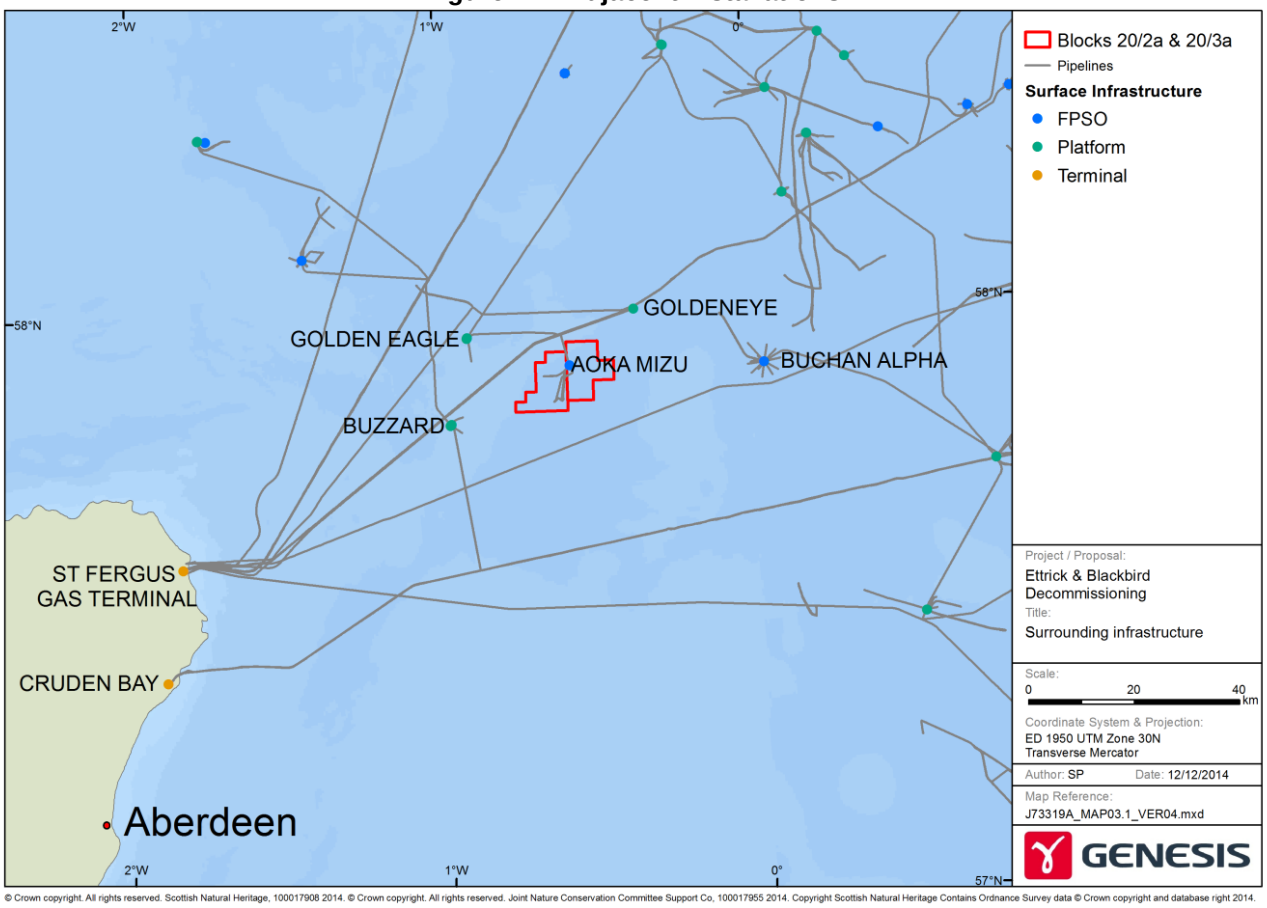


Table 1.10: List of Adjacent Installations					
Operator	**Name**	**Type**	**Distance / Direction†**	**Information**	**Status**
Nexen	Buzzard	Fixed Platform	25.2km / WSW	Oil & gas processing & export	Operational
Nexen	Golden Eagle	Fixed Platform	20.1km / WNW	Oil & gas processing & export	Operational
Talisman	Buchan Alpha	Floating Platform	36.8km / W	Oil production & export	Operational
Shell	Goldeneye	Fixed NUI	16.3km / NE	Gas export	Ceased production in 2011.
Impact of Decommissioning Proposals					
The adjacent facilities described above are not expected to have any impact on decommissioning proposals for the Ettrick and Blackbird fields.					

† All distances & directions taken from the DTB centre

1.7 Industrial Implications

The Ettrick and Blackbird decommissioning scopes will be integrated into a single project. All activities will be planned to realise synergies and efficiencies in the offshore execution. The engineering phase(s) of the project will be planned to avoid rework and unnecessary cost.

It is proposed to execute the Ettrick and Blackbird combined decommissioning project over a number of construction seasons, subject to market conditions and vessel availability. It is not envisaged material integrity of the subsea equipment will impact a phased decommissioning methodology. However, monitoring of all equipment will continue up to completion of the necessary provisions outlined in this document.

2.0 DESCRIPTION OF ITEMS TO BE DECOMMISSIONED

2.1 Ettrick Installation: Surface Facility

Table 2.1: Surface Facilities Information					
Name	**Facility Type**	**Location**[Note]		**Topsides/Facilities**	
				Mass	**No. of Modules**
Aoka Mizu	FPSO	WGS84 Decimal	57.909° N 00.592° W	105,000dwt	N/A
		WGS84 Decimal Minute	57° 54.567'N 00° 35.516'W		

Note: Location during field life. FPSO is now in Gdansk awaiting future re-deployment.

2.2 Ettrick Installations: Subsea including Stabilisation Features

Table 2.2: Ettrick Subsea Installations and Stabilisation Features					
Subsea installations incl. Stabilisation Features	**Qty.**	**Size/Weight**	**Location**		**Comments/Status**
DTB	1	Ø11m x 12.5m 420 tonnes	WGS84 Decimal	57.909° N 00.592° W	DTB is at a neutrally buoyant depth of approximately 45m.
			WGS84 Decimal Minute	57° 54.567' N 00° 35.516' W	
Manifold	1	20.5m x 14.9m x 5m 184 tonnes	WGS84 Decimal	57.900° N 00.610° W	Structure is secured with four 24" piles.
			WGS84 Decimal Minute	57° 53.999' N 00° 36.598' W	
Production Xmas Trees	7	7.9m x 7.9m x 5.3m 58 tonnes	WGS84 Decimal	57.900° N 00.611° W	All wells have been suspended by closing/testing Xmas Tree valves and fitting blind flanges. At least two barriers to environment have been proven at each Xmas Tree. All Xmas Trees have an integrated protection structure.
			WGS84 Decimal Minute	57° 54.003' N 00° 36.635' W	
		7.9m x 7.9m x 5.3m 58 tonnes	WGS84 Decimal	57.900° N 00.610° W	
			WGS84 Decimal Minute	57° 53.979' N 00° 36.592' W	
		7.9m x 7.9m x 5.3m 58 tonnes	WGS84 Decimal	57.900° N 00.610° W	

Table 2.2: Ettrick Subsea Installations and Stabilisation Features					
Subsea installations incl. Stabilisation Features	**Qty.**	**Size/Weight**	**Location**		**Comments/Status**
			WGS84 Decimal Minute	57° 53.985' N 00° 36.602' W	
		7.9m x 7.9m x 5.3m 58 tonnes	WGS84 Decimal	57.900° N 00.611° W	
			WGS84 Decimal Minute	57° 53.995' N 00° 36.637' W	
		7.9m x 7.9m x 5.3m 58 tonnes	WGS84 Decimal	57.900° N 00.610° W	
			WGS84 Decimal Minute	57° 53.997' N 00° 36.626' W	
		7.9m x 7.9m x 5.3m 58 tonnes	WGS84 Decimal	57.900° N 00.610° W	
			WGS84 Decimal Minute	57° 53.978' N 00° 36.61' W	
		7.9m x 7.9m x 5.3m 58 tonnes	WGS84 Decimal	57.900° N 00.611° W	
			WGS84 Decimal Minute	57° 54.028' N 00° 36.638' W	
Water Injection Xmas Trees	2	7.9m x 7.9m x 5.3m 58 tonnes	WGS84 Decimal	57.892° N 00.675° W	
			WGS84 Decimal Minute	57° 53.538' N 00° 40.500' W	
		7.9m x 7.9m x 5.3m 58 tonnes	WGS84 Decimal	57.900° N 00.609° W	
			WGS84 Decimal Minute	57° 53.993' N 00° 36.567' W	
SSIV	1	8.9m x 7m x 3.68m 74.8 tonnes	WGS84 Decimal	57.912° N 00.593° W	
			WGS84 Decimal Minute	57° 54.74' N 00° 35.604' W	
Mid Water Arch (MWA)	1	15m x 9.3m x 6.9m	WGS84 Decimal	n/a	Connected to MWA Clumpweights via two

Table 2.2: Ettrick Subsea Installations and Stabilisation Features					
Subsea installations incl. Stabilisation Features	**Qty.**	**Size/Weight**	**Location**		**Comments/Status**
		108.2 tonnes	WGS84 Decimal Minute	n/a	Ø76mm x 54m tether chains
MWA Base Frame	1	21.8m x 4.8m x 3.5m 76.6 tonnes	WGS84 Decimal	57.909° N 00.593° W	Secured to seabed by two Ø4m suction piles.
			WGS84 Decimal Minute	57° 54.542' N 00° 35.564' W	
MWA Clumpweights	2	Ø2.9m x 2.5m 81.3 tonnes	WGS84 Decimal	n/a	Secured in MWA Base Frame by ROV-operable latch.
			WGS84 Decimal Minute	n/a	
		Ø2.9m x 2.5m 81.5 tonnes	WGS84 Decimal	n/a	
			WGS84 Decimal Minute	n/a	
Riser Base / Hold Back Structures	4	12m x 6.8m x 1.3m 25.4 tonnes	WGS84 Decimal	57.909° N 00.594° W	Secured to seabed by Ø4m suction pile.
			WGS84 Decimal Minute	57° 54.515' N 00° 35.623' W	
		9.3m x 6.8m x 1.3m 19.8 tonnes	WGS84 Decimal	57.909° N 00.594° W	Secured to seabed by Ø4m suction pile.
			WGS84 Decimal Minute	57° 54.512' N 00° 35.615' W	
		5.2m x 4.1m x 2.5m 19.4 tonnes	WGS84 Decimal	57.910° N 00.592° W	Secured to seabed by Ø4m suction pile.
			WGS84 Decimal Minute	57° 54.615' N 00° 35.544' W	
		5.2m x 4.1m x 2.5m 19.5 tonnes	WGS84 Decimal	57.910° N 00.592° W	Secured to seabed by Ø4m suction pile.
			WGS84 Decimal Minute	57° 54.616' N 00° 35.524' W	
84" Mooring Piles	9	Ø2.134m x 48m 110.7 tonnes (each)	WGS84 Decimal	57.913° N 00.616° W	

Table 2.2: Ettrick Subsea Installations and Stabilisation Features					
Subsea installations incl. Stabilisation Features	**Qty.**	**Size/Weight**	**Location**		**Comments/Status**
			WGS84 Decimal Minute	57° 54.756' N 00° 36.937' W	
			WGS84 Decimal	57.913° N 00.615° W	
			WGS84 Decimal Minute	57° 54.795' N 00° 36.917' W	
			WGS84 Decimal	57.914° N 00.615° W	
			WGS84 Decimal Minute	57° 54.834' N 00° 36.892' W	
		Ø2.134m x 50m 114.4 tonnes (each)	WGS84 Decimal	57.919° N 00.575° W	
			WGS84 Decimal Minute	57° 55.126' N 00° 34.504' W	
			WGS84 Decimal	57.918° N 00.574° W	
			WGS84 Decimal Minute	57° 55.102' N 00° 34.450' W	
			WGS84 Decimal	57.918° N 00.573° W	
			WGS84 Decimal Minute	57° 55.067' N 00° 34.400' W	
		Ø2.134m x 44m 102.8 tonnes (each)	WGS84 Decimal	57.897° N 00.585° W	
			WGS84 Decimal Minute	57° 53.820' N 00° 35.118' W	
			WGS84 Decimal	57.897° N 00.587° W	
			WGS84 Decimal Minute	57° 53.81' N 00° 35.192' W	
			WGS84 Decimal	57.897° N 00.588° W	

Table 2.2: Ettrick Subsea Installations and Stabilisation Features					
Subsea installations incl. Stabilisation Features	**Qty.**	**Size/Weight**	**Location**		**Comments/Status**
			WGS84 Decimal Minute	57° 53.802' N 00° 35.267' W	
Mooring legs	9	1.458km 269 tonnes (each)	n/a	n/a	Connected to DTB and 84" pile
Valve Skids	2	3.4m x 0.9m x 1.3m 1.8 tonnes	WGS84 Decimal	57.900° N 00.610° W	
			WGS84 Decimal Minute	57° 53.998' N 00° 36.615' W	
		2.9m x 0.9m x 1.0m 1.0 tonnes	WGS84 Decimal	57.900° N 00.610° W	
			WGS84 Decimal Minute	57° 53.998' N 00° 36.615' W	
Subsea Distribution Unit	4	1.8m x 1.5m x 1.0m 1.2 tonnes	WGS84 Decimal	57.900° N 00.610° W	
			WGS84 Decimal Minute	57° 53.985' N 00° 36.602' W	
		1.8m x 1.5m x 1.0m 1.1 tonnes	WGS84 Decimal	57.900° N 00.610° W	
			WGS84 Decimal Minute	57° 53.997' N 00° 36.626' W	
		1.5m x 1.5m x 1.0m 1.4 tonnes	WGS84 Decimal	57.900° N 00.611° W	
			WGS84 Decimal Minute	57° 54.028' N 00° 36.638' W	
		1.52m x 1.2m x 1m 1.2 tonnes	WGS84 Decimal	57.892° N 00.675° W	
			WGS84 Decimal Minute	57° 53.538' N 00° 40.500' W	
Subsea Control Modules	9	0.8m x 0.8m x 1.35m 1.47 tonnes (each)	n/a	n/a	Mounted on each Xmas Tree
Protection Frames	n/a	-	-	-	
Concrete Mattresses	n/a	-	-	-	

Table 2.2: Ettrick Subsea Installations and Stabilisation Features					
Subsea installations incl. Stabilisation Features	**Qty.**	**Size/Weight**	**Location**		**Comments/Status**
Grout Bags	n/a	-	-	-	
Formwork	n/a	-	-	-	
Frond Mats	n/a	-	-	-	
Rock Dump	n/a	-	-	-	
Other	n/a	-	-	-	

2.3 Ettrick Pipelines including Stabilisation Features

2.3.1 Ettrick Flowlines

Table 2.3: Ettrick Flowline Information

Description	Pipeline Number	Diameter (mm)[Note 1]	Length (km)	Description of Component Parts	Product Conveyed	From-To End Points	Burial Status	Pipeline Status	Current Content
8” Production Flowline 1	PL2443	421.9[Note 5]	1.64	Non-bonded flexible	Oil	EDCM-FPSO	Trenched / rock dumped	Out of use	Treated Seawater
6” NB P1 Well Rigid Production Jumper[Note 4]	PL2443JP1	168.3	0.05	SPU coated steel	Oil	P1 Tree-EDCM	Concrete mattress protection	Out of use	Treated Seawater
6" NB P5 Well Rigid Production Jumper[Note 4]	PL2443JP5	168.3	0.04	SPU coated steel	Oil	P5 Tree-EDCM	Concrete mattress protection	Out of use	Treated Seawater
8" Production Flowline 2	PL2444	421.9	1.67	Non-bonded flexible	Oil	EDCM-FPSO	Trenched / rock dumped	Out of use	Treated Seawater
6" NB P2 Well Rigid Production Jumper[Note 4]	PL2444JP2	168.3	0.04	SPU coated steel	Oil	P2 Tree-EDCM	Concrete mattress protection	Out of use	Treated Seawater
6" NB P3 Well Rigid Production Jumper[Note 4]	PL2444JP3	168.3	0.03	SPU coated steel	Oil	P3 Tree-EDCM	Concrete mattress protection	Out of use	Treated Seawater
6" NB P4 Well Rigid Production Jumper[Note 4]	PL2444JP4	168.3	0.04	SPU coated steel	Oil	P4 Tree-EDCM	Concrete mattress protection	Out of use	Treated Seawater
4" Gas Lift Flexible Flowline	PL2445	175.6	1.63	Non-bonded flexible	Gas	FPSO-EDCM	Trenched / rock dumped	Out of use	Treated Seawater
3" NB P1 Well Rigid Gas Lift Jumper[Note 4]	PL2445JP1	88.9	0.05	PE coated steel	Gas	EDCM-P1 Tree	Concrete mattress protection	Out of use	Treated Seawater
3" NB P2 Well Rigid Gas Lift Jumper[Note 4]	PL2445JP2	88.9	0.05	PE coated steel	Gas	EDCM-P2 Tree	Concrete mattress protection	Out of use	Treated Seawater

Table 2.3: Ettrick Flowline Information									
Description	**Pipeline Number**	**Diameter (mm)** Note 1	**Length (km)**	**Description of Component Parts**	**Product Conveyed**	**From-To End Points**	**Burial Status**	**Pipeline Status**	**Current Content**
3" NB P3 Well Rigid Gas Lift Jumper Note 4	PL2445JP3	88.9	0.03	PE coated steel	Gas	EDCM-P3 Tree	Concrete mattress protection	Out of use	Treated Seawater
3" NB P4 Well Rigid Gas Lift Jumper Note 4	PL2445JP4	88.9	0.05	PE coated steel	Gas	EDCM-P4 Tree	Concrete mattress protection	Out of use	Treated Seawater
3" NB P5 Well Rigid Gas Lift Jumper Note 4	PL2445JP5	88.9	0.03	PE coated steel	Gas	EDCM-P5 Tree	Concrete mattress protection	Out of use	Treated Seawater
9.5" Water Inj. Flexible Flowline	PL2446	306.2 Note 5	1.65	Non-bonded flexible	Water	FPSO-EDCM	Trenched / rock dumped	Out of use	Treated Seawater
6" NB I5 Well Rigid Water Inj. Jumper Note 4	PL2446JI5	168.3	0.04	PE coated steel	Water	EDCM-I5 Tree	Concrete mattress protection	Out of use	Treated Seawater
9.5" Water Injection Flexible Note 4	PL2446JI2	306.2	4.16	Non-bonded flexible	Water	EDCM-I2 Tree	Trenched / rock dumped	Out of use	Treated Seawater
6" Gas Export Flexible Flowline Note 2/3	PL2448	215.4 Note 5	6.16	Non-bonded flexible	Gas	FPSO-PLEM	Trenched / rock dumped	Out of use	Treated Seawater
6" NB PND Well Rigid Production Spool Note 4	PL2731	168.3	0.04	SPU coated steel	Oil	P6 Tree-EDCM	Concrete mattress protection	Out of use	Treated Seawater
3" NB PND Well Rigid Gas Lift Spool Note 4	PL2732	88.9	0.04	PE coated steel	Gas	P6 Tree-EDCM	Concrete mattress protection	Out of use	Treated Seawater
6" NB Well P7 Rigid Production Spool Note 4	PL3162	168.3	0.06	SPU coated steel	Oil	P7 Tree-EDCM	Concrete mattress protection	Out of use	Treated Seawater
3" NB Well P7 Rigid Gas Lift Spool Note 4	PL3162JP7	88.9	0.05	PE coated steel	Gas	P7 Tree-EDCM	Concrete mattress protection	Out of use	Treated Seawater

Note 1: Stated diameter for flexible flowlines is design OD, inclusive of all flexible layers
Note 2: Excludes section of flowline to be transferred to Golden Eagle

Note 3: Approximately 10m of this flowline was recovered during Preparatory Works in July 2016
Note 4: Short section of spool/flowline recovered during Preparatory Works in July 2016
Note 5: Diameter of main static (buried) flowline section

2.3.2 Ettrick Umbilicals

Table 2.4: Ettrick Umbilical Information

Description	Pipeline Number	Diameter (mm)[Note 1]	Length (km)	Description of Component Parts	Product Conveyed	From-To End Points	Burial Status	Pipeline Status	Current Content
Combined Main Umbilical	PLU2447	142.5	1.67	Umbilical	Chemicals/ Hydraulics	FPSO-EDCM	Trenched / rock dumped	Out of use	Treated water / hydraulic fluid
P1 Well Umbilical Jumper	PLU2447JP1	200	0.05	Hose/cable bundle	Chemicals/ Hydraulics	EDCM-P1 Tree	Concrete mattress protection	Out of use	Treated water / hydraulic fluid
P2 Well Umbilical Jumper	PLU2447JP2	200	0.05	Hose/cable bundle	Chemicals/ Hydraulics	EDCM-P2 Tree	Concrete mattress protection	Out of use	Treated water / hydraulic fluid
P3 Well Umbilical Jumper	PLU2447JP3	200	0.03	Hose/cable bundle	Chemicals/ Hydraulics	EDCM-P3 Tree	Concrete mattress protection	Out of use	Treated water / hydraulic fluid
P4 Well Umbilical Jumper	PLU2447JP4	200	0.04	Hose/cable bundle	Chemicals/ Hydraulics	EDCM-P4 Tree	Concrete mattress protection	Out of use	Treated water / hydraulic fluid
P5 Well Umbilical Jumper	PLU2447JP5	200	0.03	Hose/cable bundle	Chemicals/ Hydraulics	EDCM-P5 Tree	Concrete mattress protection	Out of use	Treated water / hydraulic fluid
I5 Well Umbilical Jumper	PLU2447JI5	200	0.03	Hose/cable bundle	Hydraulics	EDCM-I5 Tree	Concrete mattress protection	Out of use	Hydraulic fluid
Step-Out Control Umbilical	PLU2447JI2	96	4.14	Umbilical	Hydraulics	EDCM-I2 Tree	Trenched / rock dumped	Out of use	Hydraulic fluid
SSIV Umbilical	PLU2449	72.5[Note 2]	0.46	Umbilical	Hydraulics	FPSO-SSIV	Trenched	Out of use	Hydraulic fluid
PND Control Jumper	PLU2733	200	0.03	Hose/cable bundle	Chemicals/ Hydraulics	EDCM-P6 Tree	Concrete mattress protection	Out of use	Treated water / hydraulic fluid

Table 2.4: Ettrick Umbilical Information									
Description	Pipeline Number	Diameter (mm)[Note 1]	Length (km)	Description of Component Parts	Product Conveyed	From-To End Points	Burial Status	Pipeline Status	Current Content
Well P7 Umbilical Jumpers	PL3162JP7 (SUTU)	48	0.09	Hose/cable bundle	Chemicals/ Hydraulics	EDCM-P7 Tree	Concrete mattress protection	Out of use	Treated water / hydraulic fluid
Well P7 Umbilical Jumpers	PLU3163	106	0.08	Hose/cable bundle	Chemicals/ Hydraulics	EDCM-P7 Tree	Concrete mattress protection	Out of use	Treated water / hydraulic fluid
Well P1 Umbilical Jumpers	PLU3163JP1	106	0.005	Hose/cable bundle	Chemicals/ Hydraulics	EDCM-P1 Tree	Concrete mattress protection	Out of use	Treated water / hydraulic fluid

Note 1: Diameter indicates outer diameter of umbilical / jumper bundle
Note 2: Diameter of main static (buried) umbilical section

2.3.3 Ettrick Subsea Flowline/Umbilical Stabilisation Features

Table 2.5: Ettrick Subsea Flowline/Umbilical Stabilisation Features				
Stabilisation Feature	Total Number	Weight (each)	Location(s)	Exposed/Buried/Condition
Concrete mattresses	209	4.6 Te	Trench transitions and tie-in spools	Exposed
Grout bags	2,400	25kg	Spool protection & support	Exposed
Formwork	n/a	-	-	-
Frond mattresses	n/a	-	-	-
Rock Dump	n/a	32,627 Te	Various locations across all flowlines/umbilicals	Exposed
Other	n/a	-	-	-

2.4 Ettrick Installations: Wells

Table 2.6: Ettrick Well Information			
Subsea Well	**Designation**	**Status**	**Category of Well as per OGUK Guidelines**
P1 (20/02a-E1)	Oil Production	Suspended	SS 3-3-1
P2 (20/02a-E2Z)	Oil Production	Suspended	SS 3-3-1
P3 (20/02a-E3Z)	Oil Production	Suspended	SS 3-3-1
P4 / PNA (20/02a-E6)	Oil Production	Suspended	SS 3-3-1
P5 (20/02a-E5)	Oil Production	Suspended	SS 3-3-1
P6 / PND (20/02a-E7Z)	Oil Production	Suspended	SS 3-3-1
P7 (20/02a-E9)	Oil Production	Suspended	SS 3-3-1
I2 (20/02a-E8)	Water Injection	Suspended	SS 3-3-1
I5 (20/02a-E4)	Water Injection	Suspended	SS 3-3-1

For details of well categorisation, see OGUK Guidelines for the Suspension or Abandonment of Wells (Issue 5, July 2015).

2.5 Blackbird Installation: Surface Facility

Table 2.7: Surface Facilities Information					
Name	Facility Type	Location		Topsides/Facilities	
				Mass	No. of Modules
n/a	n/a	WGS84 Decimal	n/a	n/a	n/a
		WGS84 Decimal Minute	n/a		

2.6 Blackbird Installations: Subsea including Stabilisation Features

Table 2.8: Blackbird Subsea Installations and Stabilisation Features					
Subsea installations incl. Stabilisation Features	Qty.	Size/Weight	Location		Comments/Status
Manifold	1	11.5m x 7.8m x 3m 112.3 tonnes	WGS84 Decimal	57.849° N 00.619° W	Structure is secured with four 30" piles.
			WGS84 Decimal Minute	57° 50.962' N 00° 37.128' W	
Production Xmas Trees	2	7.9m x 7.9m x 5.3m 58 tonnes	WGS84 Decimal	57.849° N 00.618° W	All wells have been suspended by closing/testing Xmas Tree valves and fitting blind flanges. At least two barriers to environment have been proven at each Xmas Tree. All Xmas Trees have an integrated protection structure.
			WGS84 Decimal Minute	57° 50.955' N 00° 37.093' W	
		7.9m x 7.9m x 5.3m 58 tonnes	WGS84 Decimal	57.849° N 00.617° W	
			WGS84 Decimal Minute	57° 50.964' N 00° 37.05' W	
Water Injection Xmas Tree	1	7.9m x 7.9m x 5.3m 58 tonnes	WGS84 Decimal	57.848° N 00.644° W	
			WGS84 Decimal Minute	57° 50.865' N 00° 38.663' W	
Riser Base	1	4.5m x 4.4m x 3.1m 16.9 tonnes	WGS84 Decimal	57.909° N 00.59° W	Secured to seabed by Ø4m suction pile.
			WGS84 Decimal Minute	57° 54.569' N 00° 35.425' W	
Appraisal Wellhead	1	~Ø700mm x 5m 5 tonnes	WGS84 Decimal	57.8354° N 0.6263° W	Reservoir abandonment and

Table 2.8: Blackbird Subsea Installations and Stabilisation Features					
Subsea installations incl. Stabilisation Features	**Qty.**	**Size/Weight**	**Location**		**Comments/Status**
			WGS84 Decimal Minute	57° 50.123' N 00° 37.578' W	environmental plug complete.
Pigging Skid	1	6.3m x 4.3m x 0.9m 8.9 tonnes	WGS84 Decimal	57.899° N 00.610° W	
			WGS84 Decimal Minute	57° 53.97' N 00° 36.617' W	
Subsea Control Modules	3	0.8m x 0.8m x 1.35m 1.47 tonnes (each)	n/a	n/a	Mounted on each Xmas Tree
Protection Frame(s)	n/a	-	-	-	
Concrete Mattresses	6	6m x 3m x 0.15m 4.6 tonnes (each)	WGS84 Decimal	57.899° N 00.610° W	Concrete mattresses cover the pigging skid.
			WGS84 Decimal Minute	57° 53.97' N 00° 36.617' W	
Grout Bags	n/a	-	-	-	
Formwork	n/a	-	-	-	
Frond Mats	n/a	-	-	-	
Rock Dump	n/a	-	-	-	
Other	n/a	-	-	-	

2.7 Blackbird Pipelines including Stabilisation Features

2.7.1 Blackbird Flowlines

Table 2.9: Blackbird Flowline Information									
Description	**Pipeline Number**	**Diameter (mm)[Note 1]**	**Length (km)**	**Description of Component Parts**	**Product Conveyed**	**From-To End Points**	**Burial Status**	**Pipeline Status**	**Current Content**
7” Production Flexible	PL2799	400	5.87	Non-bonded flexible	Oil	Blackbird Manifold – EDCM	Trenched / rock dumped	Out of use	Treated Seawater
6" NB PB1 Production Spools[Note 2]	PL2799JPB1	168.3	0.05	SPU coated steel	Oil	PB1 Tree – Blackbird Manifold	Concrete mattress protection	Out of use	Treated Seawater
3” Gas Lift Flexible	PL2800	137.8	5.79	Non-bonded flexible	Gas	EDCM – Blackbird Manifold	Trenched / rock dumped	Out of use	Treated Seawater
3" NB PB1 Gas Lift Spools [Note 2]	PL2800JPB1	88.9	0.05	PE coated steel	Gas	Blackbird Manifold - PB1 Tree	Concrete mattress protection	Out of use	Treated Seawater
8” Water Injection Flowline [Note 2]	PL2919	265.1	6.70	Non-bonded flexible	Water	EDCM – IB1 Jumper	Trenched / rock dumped	Out of use	Treated Seawater
6" NB PB2 Production Spools [Note 2]	PL3707	168.3	0.11	PE coated steel	Oil	PB2 Tree – Blackbird Manifold	Concrete mattress protection	Out of use	Treated Seawater
3" NB PB2 Gas Lift Spools [Note 2]	PL3708	88.9	0.11	PE coated steel	Gas	Blackbird Manifold – PB2 Tree	Concrete mattress protection	Out of use	Treated Seawater

Note 1: Stated diameter for flexible flowlines is design OD, inclusive of all flexible layers
Note 2: Short section of spool/flowline recovered during Preparatory Works in July 2016

2.7.2 Blackbird Umbilicals

Table 2.10: Blackbird Umbilical Information									
Description	**Pipeline Number**	**Diameter (mm)[Note 1]**	**Length (km)**	**Description of Component Parts**	**Product Conveyed**	**From-To End Points**	**Burial Status**	**Pipeline Status**	**Current Content**
Riser Umbilical	PLU2801	193.5	0.21	Umbilical	Chemicals/ Hydraulics	FPSO – Riser Base	N/A	Out of use	Treated water / hydraulic fluid
FTP Jumpers	PLU2802	99.5	0.32	Hose/cable bundle	Chemicals/ Hydraulics	Riser Base – SUTU	Stability saddles (grout bags) every 5m	Out of use	Treated water / hydraulic fluid
Control Umbilical	PLU2802	138.5	7.74	Umbilical	Chemicals/ Hydraulics	SUTU – Blackbird Manifold	Trenched / rock dumped	Out of use	Treated water / hydraulic fluid
PB1 Umbilical Jumpers	PLU2802JPB1	200	0.06	Hose/cable bundle	Chemicals/ Hydraulics	Blackbird Manifold – PB1 Tree	Concrete mattress protection	Out of use	Treated water / hydraulic fluid
Water Injection Umbilical	PLU2920	138	2.03	Umbilical	Hydraulics	Blackbird Manifold – IB1 Tree	Trenched / rock dumped	Out of use	Hydraulic fluid
PB2 Umbilical Jumpers	PLU3706	200	0.12	Hose/cable bundle	Chemicals/ Hydraulics	Blackbird Manifold – PB2 Tree	Concrete mattress protection	Out of use	Treated water / hydraulic fluid

Note 1: Diameter indicates outer diameter of umbilical / jumper bundle

2.7.3 Blackbird Subsea Flowline/Umbilical Stabilisation Features

Table 2.11: Blackbird Subsea Flowline/Umbilical Stabilisation Features				
Stabilisation Feature	**Total Number**	**Weight (each)**	**Locations**	**Exposed/Buried/Condition**
Concrete mattresses	186	4.6 Te	Trench transitions and tie-in spools	Exposed
Grout bags	2,600	25kg	Spool protection & support	Exposed
Formwork	n/a	-	-	-
Frond mattresses	n/a	-	-	-
Rock Dump	n/a	42,750 Te	Various locations across all flowlines/umbilicals	Exposed
Other	n/a	-	-	-

2.8 Blackbird Installations: Wells

Table 2.12: Blackbird Well Information			
Subsea Well	**Designation**	**Status**	**Category of Well as per OGUK Guidelines**
PB1 (20/02a-9)	Oil Production	Suspended	SS 3-3-1
PB2 (20/02a-B3)	Oil Production	Suspended	SS 3-3-1
IB1 (20/02a-B2A)	Water Injection	Suspended	SS 3-3-1
A-8 (20/02a-8)	Appraisal	Suspended	SS 0-3-1

For details of well categorisation, see OGUK Guidelines for the Suspension or Abandonment of Wells (Issue 5, July 2015).

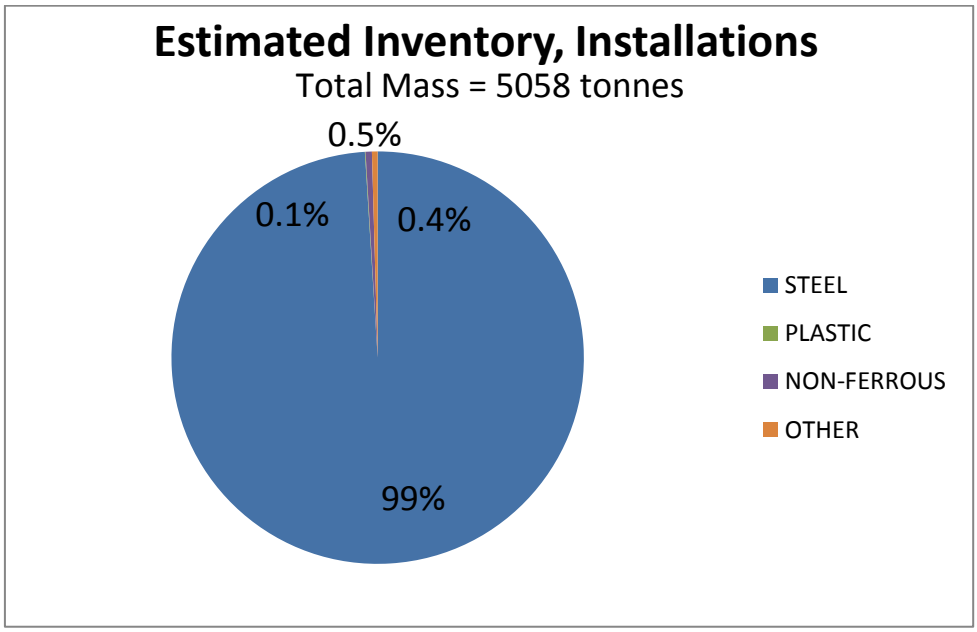
2.9 Drill Cuttings

(See Section 3.8 for further information)

Table 2.13: Ettrick and Blackbird Drill Cuttings Pile Information		
Location of Pile Centre (Latitude/Longitude)	**Seabed Area (m^2)**	**Estimated Volume of Cuttings (m^2)**
N/A	No Oil Based Mud discharge reported at an Ettrick or Blackbird site.	

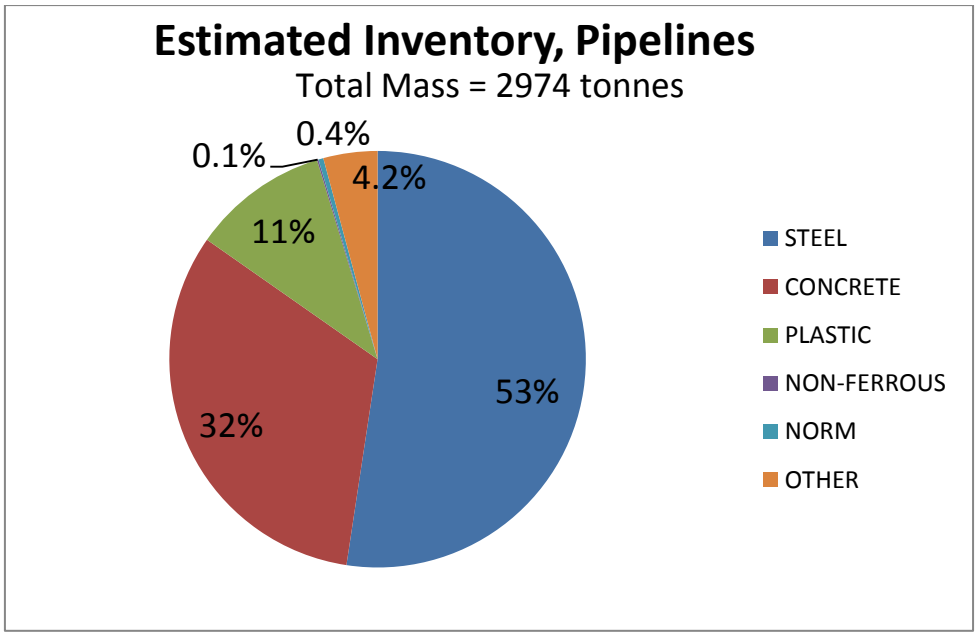
2.10 Ettrick Inventory Estimates

Figure 2.1: Pie Chart of Estimated Inventories (Ettrick Installations)



For further detail of the Ettrick Installations inventory, reference should be made to the EIA.

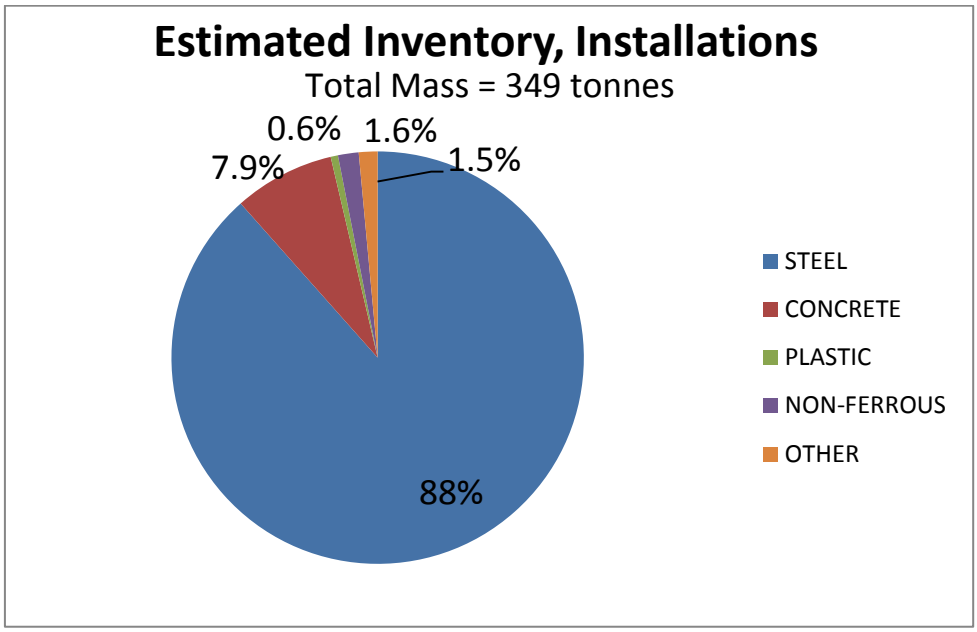
Figure 2.2: Pie Chart of Estimated Inventories (Ettrick Pipelines)



For further detail of the Ettrick Pipelines inventory, reference should be made to the EIA. Approximately 29 tonnes of the Ettrick pipelines inventory outlined in Figure 2.2 was recovered during the Preparatory Works in June/July 2016, including 22.8 tonnes of grout bags at the PLEM location.

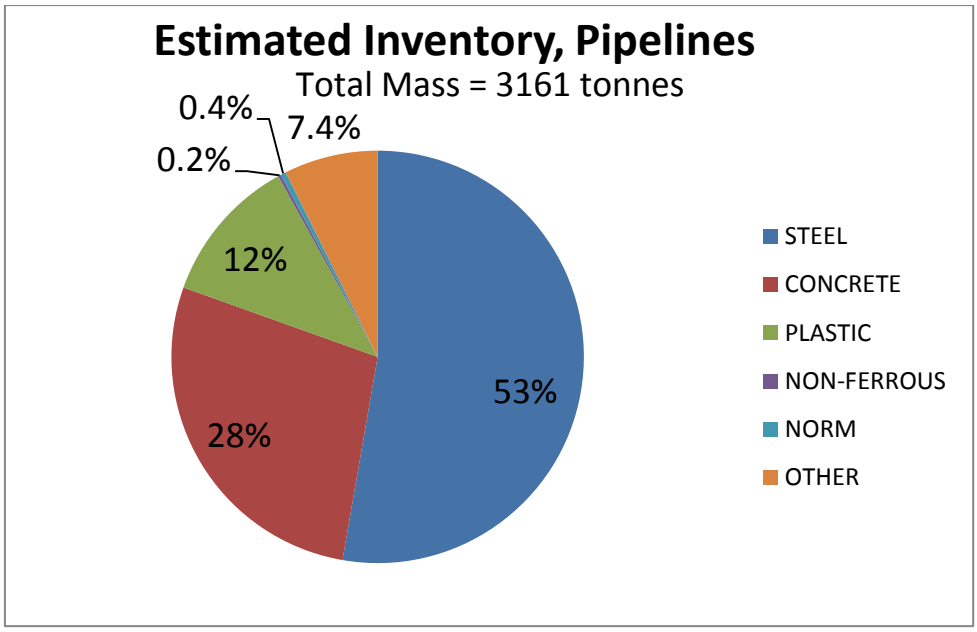
2.11 Blackbird Inventory Estimates

Figure 2.3: Pie Chart of Estimated Inventories (Blackbird Installations)



For further detail of the Blackbird Installations inventory, reference should be made to the EIA.

Figure 2.4: Pie Chart of Estimated Inventories (Blackbird Pipelines)



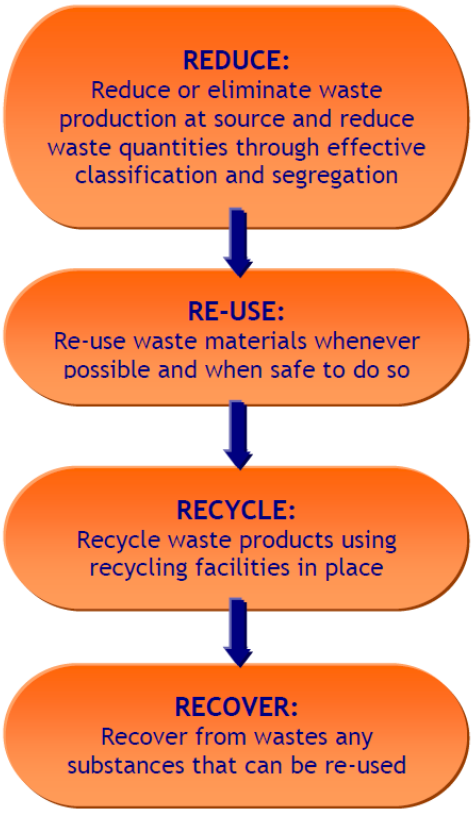
For further detail of the Blackbird Pipelines inventory, reference should be made to the EIA. Approximately 1 tonne of the Blackbird pipelines inventory outlined in Figure 2.4 was recovered during the Preparatory Works in June/July 2016.

3.0 REMOVAL AND DISPOSAL METHODS

3.1 Application of Waste Hierarchy Principles

Decommissioning of the Ettrick and Blackbird fields will generate a significant quantity of waste. Nexen are committed to establishing and maintaining environmentally acceptable methods for managing wastes, which includes the application of the "4 R's":

Figure 3.1: The 4 R's Model



All items removed from the seabed shall be disposed of by appropriately qualified & registered waste handling companies. It is anticipated that over 90% of this material will be reused or recycled. The materials which are not suitable for reuse or recycling will be considered for other forms of value recovery (e.g. energy) or, where this is not possible, disposed of to landfill. Whilst reuse / recycling shall be targeted for all recovered materials, it shall be recognised that the benefits of reuse / recycling must be balanced against cost and – more importantly – the safety of the personnel involved.

3.2 Surface Facilities (Ettrick only)

The FPSO *Aoka Mizu* was disconnected from the DTB on 1st August 2016 and towed to Gdansk (Poland). Prior to disconnection, the topside process systems were flushed and purged, with a quantity of hydrocarbons remaining in the Slops Tanks for discharge in port.

FPSO Description: The *Aoka Mizu* is a Bluewater designed, built, owned and operated FPSO. The FPSO was built in 2008, integrating a turret moonpool, a foundation grillage to support process topsides and hull upgrades for higher ultimate strength and fatigue capacity.

The FPSO is equipped with a Disconnectable Turret Buoy (DTB), located aft of the accommodation enabling passive weather-vaning. The mooring legs are connected to the DTB and are arranged in a 3x3 configuration, optimised with respect to prevailing wind conditions. The Aoka Mizu commenced production from the Ettrick field in 2009.

The main dimensions of the FPSO are:

Dimension	Metres
Length	248.1
Breadth	42.00
Depth	21.20

The FPSO *Aoka Mizu* has a storage capacity of 604,478 bbls (96,112 m^3) exportable crude, and 48,796 bbls (7,758 m^3) slops.

Figure 3.2: FPSO *Aoka Mizu*

Preparation/Cleaning:

Table 3.1: Cleaning of Surface Facility for Removal		
Waste Type	**Composition of Waste**	**Disposal Route**
Onboard hydrocarbons	Process fluids, fuels and lubricants	Where unable to overboard under existing production permit, stored in Slops Tanks for onshore discharge.

Table 3.1: Cleaning of Surface Facility for Removal		
Waste Type	**Composition of Waste**	**Disposal Route**
Other hazardous materials	NORM, LSA Scale, Any radioactive material, instruments containing heavy metals, batteries	Transported ashore for re-use/disposal by appropriate means.
Original paint coating	n/a	FPSO paint coating remains intact for future re-deployment.
Asbestos and Ceramic Fibre	-	Appropriate control and management enforced.

Removal Methods:

Table 3.2: Surface Facility Removal Methods	
1) HLV (semi-submersible crane) ☐ 2) Monohull crane vessel ☐ 3) SLV ☐ 4) Piece Small ☐ 5) Other ☒	
Method	**Description**
Proposed removal method and disposal route	**The FPSO *Aoka Mizu* was released from the DTB on 1st August 2016 following the flushing, cleaning and disconnection of all risers. The FPSO was then towed to Gdansk to await a redeployment opportunity.**

3.3 Jackets

There are no jackets associated with the Ettrick or Blackbird fields.

Table 3.3: Jacket Decommissioning Methods	
1) HLV (semi-submersible crane) ☐ 2) Monohull crane vessel ☐ 3) SLV ☐ 4) Piece Small ☐ 5) Other ☒	
Method	**Description**
n/a	**n/a**

3.4 Subsea Installations and Stabilisation Features

Table 3.4: Ettrick and Blackbird Subsea Installation and Stabilisation Features Decommissioning			
Subsea Installation / Stabilisation Feature	**Number**	**Option**	**Disposal Route**
Wellheads	13	Sever ~3m below seabed and recover to vessel / barge deck.	Return to shore for reuse or recycling.
Manifolds	2	Recover to vessel / barge deck.	Return to shore for reuse or recycling.

Table 3.4: Ettrick and Blackbird Subsea Installation and Stabilisation Features Decommissioning			
Subsea Installation / Stabilisation Feature	**Number**	**Option**	**Disposal Route**
Manifold Piles	8	Sever ~3m below seabed and recover to vessel / barge deck.	Return section to shore for recycling.
Xmas Trees	12	Recover to vessel / barge / drill rig deck.	Return to shore for reuse or recycling.
Templates	n/a	-	-
Protection Frames	n/a	-	-
Disconnectable Turret Buoy	1	Recover to vessel / barge deck, or tow to port.	Return to shore for reuse or recycling.
Mid Water Arch	1	Recover to vessel / barge deck.	Return to shore for reuse or recycling.
Suction Pile Structures	6	Recover to vessel / barge deck.	Return to shore for reuse or recycling.
Clumpweights	2	Recover to vessel / barge deck.	Return to shore for reuse or recycling.
Gravity Base Structures	2	Recover to vessel / barge deck.	Return to shore for reuse or recycling.
Mooring legs	9	Recover to vessel / barge deck.	Return to shore for reuse or recycling.
Mooring piles (84”)	9	Sever below seabed and recover to vessel / barge deck.	Return section to shore for recycling.
Concrete Mattresses	6	Recover to vessel / barge deck.	Return to shore for reuse or recycling.
Grout Bags	n/a	-	-
Formwork	n/a	-	-
Frond Mats	n/a	-	-
Rock Dump	n/a	-	-
Other	n/a	-	-

3.5 Flowlines & Umbilicals

Decommissioning Options:

All mid-water and surface laid pipelines (flexible flowlines, umbilicals and rigid spools) which have not been trenched or buried will be completely recovered for recycling. The flowlines and umbilicals detailed in Table 3.5 have been considered for *in-situ* decommissioning via the Comparative Assessment process.

Table 3.5: Flowline & Umbilical Decommissioning Options			
Pipeline No.	**Condition**	**Whole or Part of Pipeline Group**	**Decommissioning Options Considered***
PL2443	Trenched, buried & rock dumped	Part. Dynamic riser section to be fully recovered.	1, 2, 3a, 3b, 4
PL2444	Trenched, buried & rock dumped	Part. Dynamic riser section to be fully recovered.	1, 2, 3a, 3b, 4
PL2445	Trenched, buried & rock dumped	Part. Dynamic riser section to be fully recovered.	1, 2, 3a, 3b, 4
PL2446	Trenched, buried & rock dumped	Part. Dynamic riser section to be fully recovered.	1, 2, 3a, 3b, 4
PL2446JI2	Trenched, buried & rock dumped	Whole of flowline.	1, 2, 3a, 3b, 4
PLU2447	Trenched, buried & rock dumped	Part. Dynamic riser section to be fully recovered.	1, 2, 3a, 3b, 4
PLU2447JI2	Trenched & buried	Whole of umbilical.	1, 2, 3a, 3b, 4
PL2448	Trenched, buried & rock dumped	Part. Dynamic riser section to be fully recovered. Jumper between PLEM and Hot Tap to remain *in-situ* for re-use.	1, 2, 3a, 3b, 4
PLU2449	Trenched & buried	Whole of umbilical.	1, 2, 3a, 3b, 4
PL2799	Trenched, buried & rock dumped	Whole of flowline.	1, 2, 3a, 3b, 4
PL2800	Trenched, buried & rock dumped	Whole of flowline.	1, 2, 3a, 3b, 4
PLU2802	Trenched, buried & rock dumped	Part. Surface laid FTP jumpers to be fully recovered.	1, 2, 3a, 3b, 4
PL2919	Trenched, buried & rock dumped	Part. 100m flowline jumper to be fully recovered.	1, 2, 3a, 3b, 4
PLU2920	Trenched, buried & rock dumped	Whole of umbilical.	1, 2, 3a, 3b, 4

*Key to options:

1) Leave product in place and place rock at transition locations and surface sections.

2) Cut & remove all surface sections and place rock at transition ends.

3a) Cut & remove all surface sections and bury transition ends.

3b) Cut & remove all surface sections and cut sections in open trench – relying on natural backfill.

4) Completely remove all buried flowlines and umbilicals.

Comparative Assessment Method:

All feasible options for the decommissioning of the Ettrick and Blackbird subsea flowlines and umbilicals were assessed at a Comparative Assessment Workshop held on the 17th of June 2014. A further workshop was held on the 18th of November 2016 to review the findings of the 2014 workshop. Representatives of the following key stakeholders were in attendance at each workshop:

- Scottish Fishermen's Federation
- JNCC
- Marine Scotland
- BEIS, observers only

The Comparative Assessment was based on a consequence versus likelihood matrix, in which each of the criteria to be assessed was scored.

Outcomes of Comparative Assessment:

The following flowline & umbilical decommissioning options are recommended based on the outcomes of the Comparative Assessment Workshop:

Table 3.6: Outcomes of Comparative Assessment

Pipeline No.	Recommended Option	Justification
PL2443	Option 2/3a	Product is trenched and buried, with an additional 9,921 tonnes of rock cover. Product is stable with no snagging hazards. At EDCM end of flowline, rock has been placed up to the end of the transition point, eliminating Option 3a. In this case, rock will be placed as per Option 2.
PL2444	Option 2	Product is trenched and buried, with an additional 8,261 tonnes of rock cover. Product is stable with no snagging hazards. At both ends of the flowline, rock has been placed up to the end of the transition point, eliminating Option 3a. Rock will be placed as per Option 2.
PL2445	Option 2	Product is trenched and buried, with an additional 3,689 tonnes of rock cover. Product is stable with no snagging hazards. At both ends of the flowline, rock has been placed up to the end of the transition point, eliminating Option 3a. Rock will be placed as per Option 2.
PL2446	Option 2	Product is trenched and buried, with an additional 221 tonnes of rock cover. Product is stable with no snagging hazards. At both ends of the flowline, rock has been placed up to the end of the transition point, eliminating Option 3a. Rock will be placed as per Option 2.
PL2446JI2	Option 3a	Product is trenched and buried, with an additional 656 tonnes of rock cover. Product is stable with no snagging hazards. The transition sections at either end of the flowline will be dredged and buried to a depth of no less than 0.6m.

Table 3.6: Outcomes of Comparative Assessment		
Pipeline No.	**Recommended Option**	**Justification**
PLU2447	Option 3a	Product is trenched and buried, with an additional 52 tonnes of rock cover. Product is stable with no snagging hazards. The transition sections at either end of the flowline will be dredged and buried to a depth of no less than 0.6m.
PLU2447JI2	Option 3a	Product is trenched and buried. Product is stable with no snagging hazards. The transition sections at either end of the flowline will be dredged and buried to a depth of no less than 0.6m.
PL2448	Option 2/3a	Product is trenched and buried, with an additional 9,827 tonnes of rock cover on the SSIV-PLEM flowline. Product is stable with no snagging hazards. At the PLEM end of the main flowline, rock has been placed over the surface laid flowline, eliminating Option 3a. Rock will be placed as per Option 2 in this location. The three other transition sections will be dredged and buried to a depth of no less than 0.6m.
PLU2449	Option 3a	Product is trenched and buried. Product is stable with no snagging hazards. The transition sections at either end of the flowline will be dredged and buried to a depth of no less than 0.6m.
PL2799	Option 2	Product is trenched and buried, with an additional 16,404 tonnes of rock cover. Product is stable with no snagging hazards. At both ends of the flowline, rock has been placed up to the end of the transition point, eliminating Option 3a. Rock will be placed as per Option 2.
PL2800	Option 2	Product is trenched and buried, with an additional 10,885 tonnes of rock cover. Product is stable with no snagging hazards. At both ends of the flowline, rock has been placed up to the end of the transition point, eliminating Option 3a. Rock will be placed as per Option 2.
PLU2802	Option 2/3a	Product is trenched and buried, with small area of rock covering ~70m (585 tonnes). Product is stable with no snagging hazards. At the Blackbird Manifold end of the umbilical, rock has been placed over the surface laid section, eliminating Option 3a. Rock will be placed as per Option 2 in this location. The transition section at the FPSO will be dredged and buried to a depth of no less than 0.6m.
PL2919	Option 2	Product is trenched and buried, with an additional 13,670 tonnes of rock cover. Product is stable with no snagging hazards. At both ends of the flowline, rock has been placed up to the end of the transition point, eliminating Option 3a. Rock will be placed as per Option 2.

Table 3.6: Outcomes of Comparative Assessment		
Pipeline No.	**Recommended Option**	**Justification**
PLU2920	Option 2	Product is trenched and buried, with two small areas of rock totalling 1,206 tonnes. Product is stable with no snagging hazards. At both ends of the flowline, rock has been placed up to the end of the transition point, eliminating Option 3a. Rock will be placed as per Option 2.

3.6 Flowline & Umbilical Stabilisation Features

Table 3.7: Flowline & Umbilical Stabilisation Features			
Stabilisation features	**Number**	**Option**	**Disposal Route**
Concrete Mattresses	395	Full recovery.[Note 1]	Return to shore for reuse or recycling.
Grout Bags	~5,000	Full recovery	Return to shore for recycling.
Formwork	n/a	-	-
Frond Mats	n/a	-	-
Rock Dump	75,377 Te	Leave in-situ.	N/A
Other	n/a	-	-

Note 1: Four concrete mattresses will be left in-situ in the Blackbird field, which have been buried beneath rock. All decommissioning options for these mattresses are discussed in the Comparative Assessment Report..

3.7 Wells

Table 3.8: Well Plug and Abandonment
All wells, as listed in Sections 2.4 (Table 2.6) and 2.8 (Table 2.12) will be plugged and abandoned in accordance with *Oil & Gas UK Guidelines for the Suspension and Abandonment of Wells*. A PON5/Portal Environmental Tracking System (PETS)/Marine Licence application will be submitted in support of any such work that is to be carried out.

3.8 Drill Cuttings

No Oil Based Mud discharge reported at an Ettrick or Blackbird site. There are no piles that exceed the OSPAR criteria and they will be left in place to degrade naturally.

3.9 Waste Streams

Table 3.9: Waste Stream Management Methods	
Waste Stream	**Removal and Disposal Method**
Bulk liquids	All subsea flowline cleaning chemicals and treated flush water was returned to the FPSO for processing and discharge in line with the existing production permits. Slops Tanks were discharged in port, at which point the final tank cleaning and gas-freeing activities were completed.
Marine growth	Where practicable, marine growth will be removed subsea. All remaining marine growth will be removed on the vessel deck or onshore disposal facility, in accordance with all applicable guidelines.
NORM / LSA scale	Where any product containing, or suspected to contain, NORM materials is to be recovered to surface, a suitable monitoring and containment regime will be enforced. Any items found to contain NORM during recovery will be quarantined and taken to shore for disposal under the appropriate permit. All NORM contaminated items will be decontaminated at an approved facility prior to disposal. All NORM materials will be disposed of at a suitably permitted facility.
Asbestos	Not applicable.
Other hazardous wastes	Any hazardous wastes remaining in the recovered infrastructure shall be disposed of under appropriate permit.
Onshore dismantling sites	All items of subsea infrastructure removed from the seabed shall be managed by a waste handling company once onshore, with disposal of the decommissioned equipment completed at an appropriately licensed waste management facility (or combination of facilities).

Table 3.10: Ettrick Inventory Disposition			
	Total Inventory Tonnage	**Planned Tonnage to Shore**	**Planned Left *In-Situ***
Installations	5,058 tonnes	4,109 tonnes	949 tonnes
Pipelines	2,974 tonnes	1,345 tonnes	1,629 tonnes

Table 3.11: Blackbird Inventory Disposition			
	Total Inventory Tonnage	**Planned Tonnage to Shore**	**Planned Left *In-Situ***
Installations	349 tonnes	305 tonnes	44 tonnes
Pipelines	3,161 tonnes	1,035 tonnes	2,126 tonnes

All items recovered to shore shall be disposed of by appropriately qualified & registered waste handling companies, with reuse and recycling being the preferred disposal option wherever

practicable. It is anticipated that over 90% of this material will be reused or recycled, in keeping with the waste hierarchy defined in Section 3.1. The materials which are not suitable for reuse or recycling will be considered for other forms of value recovery (e.g. energy) or, where this is not possible, disposed of to landfill.

4.0 ENVIRONMENTAL IMPACT ASSESSMENT

4.1 Environmental Sensitivities (Summary)

Table 4.1: Environmental Sensitivities	
Environmental Receptor	**Main Features**
Conservation interests	Surveys carried out in the area have identified no environmentally sensitive habitats protected under Annex I of the EC Habitats Directive. The nearest SCIs to the Ettrick and Blackbird Fields are the Braemar Pockmarks and the Scanner Pockmark which lie approximately 150 km east northeast and 93 km northeast of Block 20/3 respectively. The nearest onshore protected site is the Buchan Ness to Collieston Coast SPA, which is approximately 70 km southwest of the developments. The nearest ncMPA is Turbot Bank approximately 40 km south of Block 20/2, whilst the nearest pMPA search location is the Southern Trench search location, located approximately 46 km west of the field.
Seabed	The surface sediment in the area of the Ettrick and Blackbird Fields is predominantly fine silty sand to very fine sands. Pockmarks have been seen in the area, associated with the near surface geology of the Witch Ground Formations. A few small seabed depressions and one large depression, which have been attributed to scour around boulders, were identified in the proximity of the field. The benthic communities in the area are species rich and relatively abundant. The macrofauna found in the area is characteristic of the fine sand substrates of the CNS and any variations are likely to be driven by change in sediment type, seabed features, depth and temperature.
Fish	The fish spawning grounds and nursery grounds found in the Ettrick and Blackbird Fields are typical of the CNS. Of the species identified in the area, those which are Priority Marine Features in Scotland are mackerel, Norway pout, cod, whiting, sandeels, blue whiting, herring and ling.
Fisheries	The Ettrick and Blackbirds Field Developments occur in an area (ICES rectangle 44E9) of moderate fishing effort in terms of days at sea. Overtrawl trials will be carried out to ensure no hazards to fishers in the area.

Table 4.1: Environmental Sensitivities	
Environmental Receptor	**Main Features**
Marine Mammals	There are five species of cetaceans found regularly in the vicinity of the Ettrick and Blackbird Fields, especially during the summer months. These are minke whale, white-beaked dolphin, whitesided dolphin, Risso's dolphin and harbour porpoise. It is possible that small numbers of grey seals may forage in the area.
Birds	Seabirds are generally not at risk from routine offshore production operations. However, they are vulnerable to oily surface pollution, which can cause direct toxicity through ingestion and hypothermia as a result of the birds' inability to waterproof their feathers. Birds are most vulnerable in the moulting season when they become flightless and spend a large amount of time on the water surface. This significantly increases their vulnerability to oil spills. JNCC has registered a 'period of concern' from July to September in Block 20/2 and July to October in Block 20/3 due to drilling activities.
Onshore Communities	All onshore facilities used during the decommissioning of the Ettrick and Blackbird Fields – including offload ports and recycling facilities – will comply with all permitting and legislative requirements.
Other Users of the Sea	Shipping in the area is considered moderate. The increase in vessel activity associated with the decommissioning / activities will primarily be within the exclusion zones and is therefore unlikely to impact on general shipping activity.
Atmosphere	Decommissioning activities will have an unavoidable impact on local air quality due to emissions associated with offshore and onshore work. However, the scale of the emissions is considered to be low.

4.2 Potential Environmental Impacts and their Management

The results of the Environmental Impact Assessment indicate that none of the planned activities are anticipated to have a significant impact on the physical, biological or socio-economic environment in the area.

There will be no planned use of explosives during these activities. We acknowledge that there will be a requirement for an environmental protection plan to be produced and submitted to BEIS should this plan change.

Table 4.2: Environmental Impact Management		
Activity	**Main Impacts**	**Management**
Topsides Removal	Not applicable	Not applicable
Floating Facility Removal	Disconnection and submersion of the Disconnectable Turret Buoy to -45m causing interference with other vessels.	Buoyancy of DTB specified to ensure depth >25m to minimise risk to other vessels in the area. An SFF guard vessel will remain on station to ensure any approaching shipping is made aware of the obstruction and advised to change course if necessary.
Subsea Installations Removal	Physical of presence of vessel causing interference with fishing, offloading tankers and supply vessels.	All 500m safety zones maintained, including new SI 500m zone at the site of the FPSO. Consultation with SFF to continue throughout proposed activities.
	Physical of presence of non-biodegradable materials left in place causing hazard to sea users.	All flowlines and umbilicals left in-situ will be treated as per the outcomes of Comparative Assessment, and will be subject to post-decommissioning monitoring as discussed and agreed with BEIS. All pile sections remaining in-situ will be severed to a depth sufficient to remove any hazard to other users of the sea. Seabed clearance survey to be completed.
	Vessel emissions causing deterioration of local air quality and contribution to climate change.	Conformance to MARPOL NOx and SOx limits.
	Recovery of subsea installations and temporary storage on seabed causing localised impact on benthic communities.	Rapid recovery of seabed. Activities covered on EIA Justification and Marine Licence.
	Underwater noise (including subsea cutting) generating elevated sound levels which can affect the behaviour of fish and marine mammals in the area.	Assessed in EIA Justification. Noise considered below action threshold unless explosives are used. If explosives are used a full impact assessment and adherence to JNCC protocol for use of explosives (JNCC, 2009).

Table 4.2: Environmental Impact Management		
Activity	**Main Impacts**	**Management**
Decommissioning Pipelines	Potential discharge of chemicals and hydrocarbons during subsea disconnections causing local water quality deterioration.	Variation to offshore production chemical permit to capture use and discharge. Least harmful chemicals selected (subject to chemical risk assessment).
Decommissioning Stabilisation Features	Recovery of subsea installations and temporary storage on seabed causing localised impact on benthic communities.	Rapid recovery of seabed. Activities covered on EIA Justification and Marine Licence.
Decommissioning Drill Cuttings	Not applicable	Not applicable

5.0 INTERESTED PARTY CONSULTATIONS

Table 5.1: Summary of Consultee Comments		
Who	**Comment**	**Response**
Informal Consultations		
Marine Scotland,12/06/14 *Meeting arranged to discuss scope of decommissioning ahead of Comparative Assessment Workshop.*	A map based format is preferred for presentation of data to allow scaling.	The format of the Comparative Assessment was updated to reflect discussions. Noted that additional map-based presentation of data would be beneficial for future stakeholder consultations.
	Percentages are a useful way of presenting data, e.g. pipe length vs. trenched %.	
Statutory Consultations		
Statutory Consultees	Various comments received on EIA.	EIA document updated in accordance with comments and re-issued.
	Where rock cover is deployed, we would look for the size and profile of the rock to follow normal industry standards and would recommend that such rock dump berms are incorporated into the post decommissioning debris clearance trawl sweeps to verify that, at the time of deposit, they did not pose a risk to fishing.	All rock placed in the fields will be of normal industry standard grading and berm profile. Trawl sweeps will be executed at all locations subject to decommissioning activity, including any instances of additional rock placement.

6.0 PROGRAMME MANAGEMENT

6.1 Programme Management and Verification

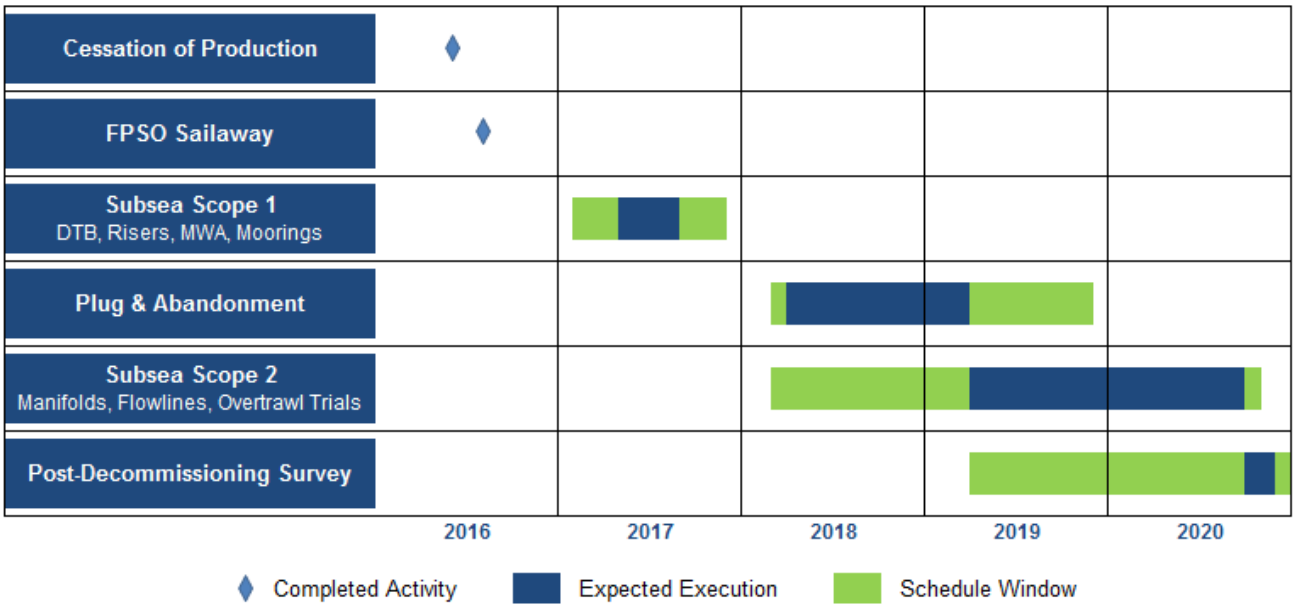
A Nexen Project Management Team will be appointed to manage suitable contractors for the removal of the Ettrick and Blackbird subsea infrastructure. Nexen will endeavour to reduce offshore execution costs by coordinating the work with other projects or decommissioning operations in the vicinity of the Ettrick and Blackbird fields. Nexen will monitor and track the process of consents and the consultations required as part of this process. Any changes in detail to the offshore removal programme will be discussed and agreed with BEIS.

6.2 Post-Decommissioning Debris Clearance and Verification

A post decommissioning site survey will be carried out around 500m radius of installation sites and 200m corridor along each existing pipeline route. Any seabed debris related to offshore oil and gas activities will be recovered for onshore disposal or recycling in line with existing disposal methods. Independent verification of seabed state will be obtained by trawling the installation sites and pipeline corridors. This will be followed by a statement of clearance to all relevant governmental departments and non- governmental organisations.

During site clearance activities, Nexen will undertake best endeavours to recover any dropped objects subject to any outstanding Petroleum Operations Notices (PON2).

6.3 Schedule



6.4 Costs

Table 6.1: Provisional Decommissioning Programmes Costs	
Item	**Estimated Cost**
Operator Project Management	Provided to BEIS
Facility Running / Owner Costs	Provided to BEIS
Wells Abandonment	Provided to BEIS
Facilities / Pipelines Making Safe	Provided to BEIS
Topsides Preparation	Provided to BEIS
Topsides Removal	Provided to BEIS
Substructure Removal	Provided to BEIS
Substructure Onshore Recycling	Provided to BEIS
Subsea Infrastructure	Provided to BEIS
Site Remediation	Provided to BEIS
Monitoring	Provided to BEIS
Assess/Select Phase	Provided to BEIS
Define Phase	Provided to BEIS
Contingency	Provided to BEIS

6.5 Close Out

In accordance with BEIS Guidelines, a close out report will be submitted to BEIS explaining any variations from the Decommissioning Programmes within 4 months of the completion of the offshore decommissioning scope, including debris removal and independent verification of seabed clearance and the first post-decommissioning environmental survey.

6.6 Post-Decommissioning Monitoring and Evaluation

A post-decommissioning environmental seabed survey will be carried out. The post-decommissioning sampling undertaken will, as far as possible, employ the same sampling techniques and locations as have been used for previous sampling to allow comparisons with the data currently available. The survey intensity will be sufficiently robust such that post-decommissioning comparisons of the levels of hydrocarbons, heavy metals and other contaminants can be made and that any significant changes in the habitats present or the benthic communities can be detected.

Results of this survey will be available once the work is complete, with a copy forwarded to BEIS. All pipeline routes and structure sites will be the subject of surveys when decommissioning activity has concluded. After the surveys have been sent to BEIS and reviewed, a post-decommissioning monitoring survey regime will be agreed by both parties, typically a minimum of two post-decommissioning environmental surveys and structural pipeline surveys.

7.0 SUPPORTING DOCUMENTS

Table 7.1: Supporting Documents	
Document Number	**Document Title**
ETRK0001-GE-O000-LC-RPT-0006	Environmental Impact Assessment
ETRK0001-PI-O000-DO-RP-0002	Comparative Assessment Report

8.0 PARTNERS LETTERS OF SUPPORT

NEXEN ETTRICK U.K. LIMITED
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Department for Business, Energy & Industrial Strategy
3rd Floor, Wing C
AB1 Building
Crimon Place
Aberdeen
AB10 1BJ

Date: 22nd March 2017

Dear Sir or Madam

ETTRICK DECOMMISSIONING PROGRAMMES PETROLEUM ACT 1998

We acknowledge receipt of your letter dated 20th March 2017.

We, Nexen Ettrick U.K. Limited confirm that we authorise Nexen Petroleum U.K. Limited to submit on our behalf abandonment programmes relating to the Ettrick facilities as directed by the Secretary of State on 13th May 2009 and 14th August 2014.

We confirm that we support the proposals detailed in the Ettrick Decommissioning Programmes dated 21st March 2017, which is to be submitted by Nexen Petroleum U.K. Limited to in so far as they relate to those facilities in respect of which we are required to submit an abandonment programme under section 29 of the Petroleum Act 1998.

Yours faithfully

SCOTT MCGINIGAL
GENERAL MANAGER – TECHNICAL SERVICES
For and on behalf of Nexen Ettrick U.K. Limited

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Department for Business, Energy & Industrial Strategy
3rd Floor, Wing C
AB1 Building
Crimon Place
Aberdeen
AB10 1BJ

Date: 22nd March 2017

Dear Sir or Madam

BLACKBIRD DECOMMISSIONING PROGRAMMES PETROLEUM ACT 1998

We acknowledge receipt of your letter dated 20th March 2017.

We, Nexen Ettrick U.K. Limited confirm that we authorise Nexen Petroleum U.K. Limited to submit on our behalf abandonment programmes relating to the Blackbird facilities as directed by the Secretary of State on 12th September 2011 and 2nd September 2014 .

We confirm that we support the proposals detailed in the Blackbird Decommissioning Programmes dated 21st March 2017, which is to be submitted by Nexen Petroleum U.K. Limited to in so far as they relate to those facilities in respect of which we are required to submit an abandonment programme under section 29 of the Petroleum Act 1998.

Yours faithfully

SCOTT MCGINIGAL
GENERAL MANAGER – TECHNICAL SERVICES
For and on behalf of Nexen Ettrick U.K. Limited

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Department for Business, Energy & Industrial Strategy
3rd Floor, Wing C
AB1 Building
Crimon Place
Aberdeen
AB10 1BJ

Date: 12th April 2017

Dear Sir or Madam

BLACKBIRD DECOMMISSIONING PROGRAMMES PETROLEUM ACT 1998

We acknowledge receipt of your letter dated 20th March 2017.

We, Atantic Petroleum North Sea Limited confirm that we authorise Nexen Petroleum U.K. Limited to submit on our behalf abandonment programmes relating to the Blackbird facilities as directed by the Secretary of State on 12th September 2011 and 2nd September 2014.

We confirm that we support the proposals detailed in the Blackbird Decommissioning Programmes dated 21st March 2017, which is to be submitted by Nexen Petroleum U.K. Limited to in so far as they relate to those facilities in respect of which we are required to submit an abandonment programme under section 29 of the Petroleum Act 1998.

Yours faithfully

BEN ARABO
DIRECTOR
For and on behalf of Atlantic Petroleum North Sea Limited

ATLANTIC PETROLEUM

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3rd Floor, Wing C
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Aberdeen
AB10 1BJ

Date: 12th April 2017

Dear Sir or Madam

ETTRICK DECOMMISSIONING PROGRAMMES PETROLEUM ACT 1998

We acknowledge receipt of your letter dated 20th March 2017.

We, Atlantic Petroleum North Sea Limited confirm that we authorise Nexen Petroleum U.K. Limited to submit on our behalf abandonment programmes relating to the Ettrick facilities as directed by the Secretary of State on 13th May 2009 and 14th August 2014.

We confirm that we support the proposals detailed in the Ettrick Decommissioning Programmes dated 21st March 2017, which is to be submitted by Nexen Petroleum U.K. Limited to in so far as they relate to those facilities in respect of which we are required to submit an abandonment programme under section 29 of the Petroleum Act 1998.

Yours faithfully

BEN ARABO
DIRECTOR
For and on behalf of Atlantic Petroleum North Sea Limited

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3rd Floor, Wing C
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AB10 1BJ

31 March 2017

Your ref. : DECCMII-41-17

Dear Ms. Taylor,

ETTRICK DECOMMISSIONING PROGRAMME PETROLEUM ACT 1998

We acknowledge receipt of your letter dated 20th March 2017.

We, Dana Petroleum (BVUK) Limited, confirm that we authorise Nexen Petroleum U.K. Limited to submit on our behalf an abandonment programme relating to the Ettrick facilities as directed by the Secretary of State on 13th May 2009 and 14th August 2014.

We confirm that we support the proposals detailed in the Ettrick Decommissioning Programme dated 21st March 2017, which is to be submitted by Nexen Petroleum U.K. Limited to in so far as they relate to those facilities in respect of which we are required to submit an abandonment programme under section 29 of the Petroleum Act 1998.

Yours sincerely,
Dana Petroleum (BVUK) Limited

David Crawford
Chief Finance Officer

Registered in England and Wales, Company No. 03337437
Registered Office: 5th Floor, 6 St Andrew Street, London, EC4A 3AE