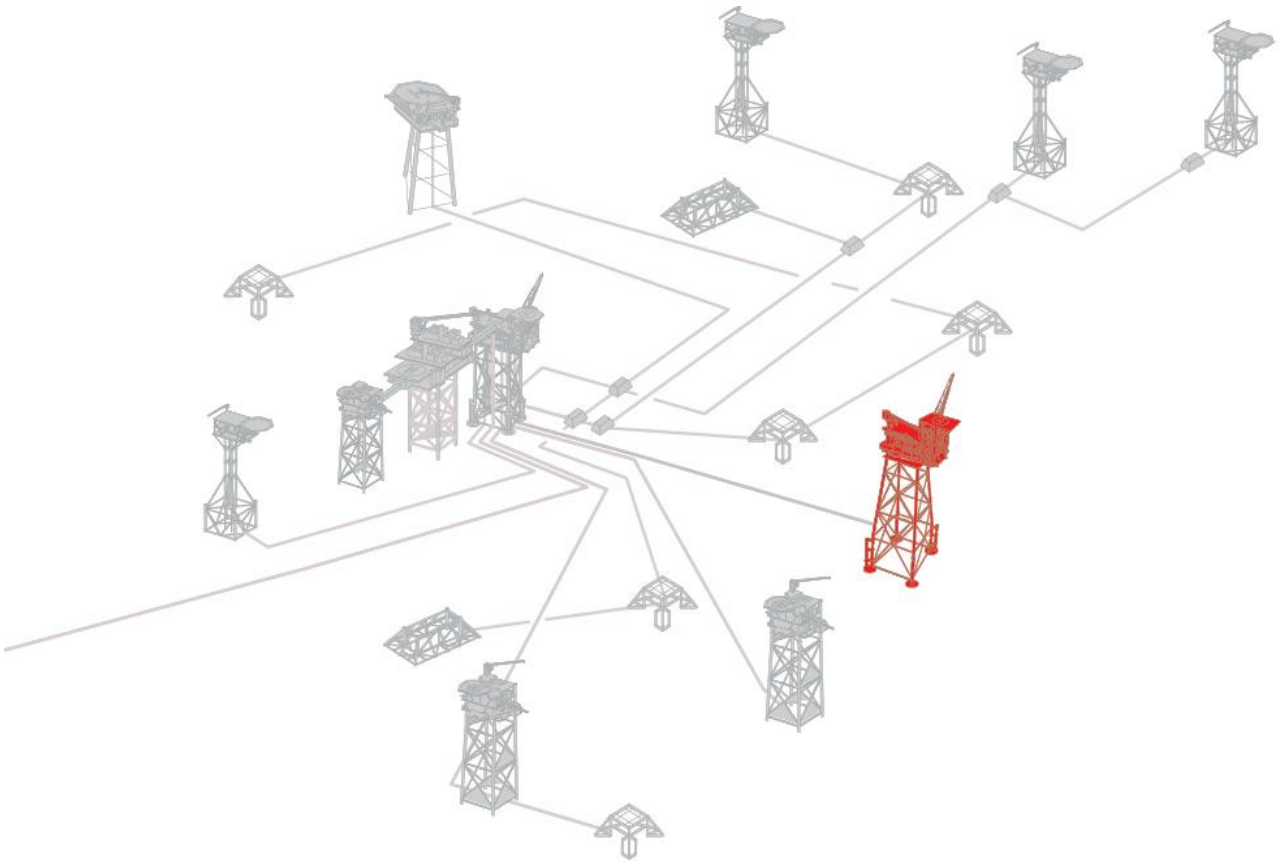
CHRYSAOR



Caister Decommissioning Programmes: CDP1a

Caister CM Platform and Associated Riser Sections

FINAL
11th March 2020

DOCUMENT CONTROL

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DISTRIBUTION

Name	Position	Company
Richard Tocher	Decommissioning Manager	Chrysaor Production (U.K.) Limited
Peter Lunny	Interim Commercial & JV / Head of Legal, UK	Neptune E&P UKCS Limited
Philip McIntyre	Asset Manager – Non-operated Assets, UK Business Unit	Premier Oil E&P UK Limited
Fiona Livingston	Senior Decommissioning Manager	OPRED
I Rowe	General Manager	NFFO
S Alexander	Managing Director	SFF
R James	Secretary	NIFPO
J Wrottesley	Permitting Manager	Global Marine Services

Contents

A. Table of Terms and Abbreviations

Abbreviation	Explanation
AWV	Accommodation Work Vessel
CA	Comparative Assessment
CM	Caister CM Satellite Platform
CMS	Caister Murdoch System
CoP	Cessation of Production
cSAC	Candidate Special Area of Conservation
CSV	Construction Support Vessel
BEIS	Department for Business, Energy and Industrial Strategy
EIA	Environmental Impact Assessment
EMS	Environmental Management System
ES	Environmental Statement
ESD	Emergency Shut Down
FPAL	First Point Assessment Limited (UK)
HLV	Heavy Lift Vessel
ICES	International Council for the Exploration of the sea
km	kilometre
KP	Kilometre Point
KPI	Key Performance Indicator
LAT	Lowest Astronomical Tide
LOGGS	Lincolnshire Offshore Gas Gathering System
m	metres
MAT	Master Application Template
MCZ	Marine Conservation Zones
MeOH	Methanol
NORM	Naturally Occurring Radioactive Material
NUI	Normally Unattended Installation
NW	North West
OGA	Oil and Gas Authority
OGUK	Oil and Gas United Kingdom
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
P&A	Plug and Abandon
PMT	Project Management Team
PWA	Pipeline Works Authorisation
SAC	Special Area of Conservation
SAT	Subsidiary Application Templates
SCI	Sites of Community Interest
SLV	Shear Leg Vessel
SNS	Southern North Sea
Te	Tonne
TGT	Theddlethorpe Gas Terminal
Tscf	Trillion standard cubic foot
UKCS	United Kingdom Continental Shelf

B. Table of Figures and Tables

C. Table of Appendices

1 Executive Summary

1.1 Combined Decommissioning Programmes

This document contains two decommissioning programmes to support the decommissioning of the Caister CM installation:

(1) The decommissioning programme for the Caister CM Platform Installation.
(2) The decommissioning programme for the truncated riser sections attached to the Caister CM platform (previously connected to the Caister CM to Murdoch MD interfield pipelines). The remaining interfield pipeline sections attached to Murdoch MD will be part of a subsequent decommissioning programme submission.

1.2 Requirement for Decommissioning Programmes

Installations:
In accordance with the Petroleum Act 1998, Chrysaor Production (U.K.) Limited as Operator and Chrysaor (U.K.) Beta Limited as equity owner of the Caister Field and on behalf of the Section 29 notice holders (see Table 1.2 and Section 8) is applying to the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) to obtain approval for decommissioning of the Caister CM installation and drilling template, detailed in Section 2 of this document.

Pipelines:
In accordance with the Petroleum Act 1998, Chrysaor Production (U.K.) Limited as Operator and Chrysaor (U.K.) Beta Limited as equity owner of the Caister Field and on behalf of the Section 29 notice holders (see Table 1.4 and Section 8) is applying to the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) to obtain approval for decommissioning of two associated sections of pipeline risers on the Caister CM installation detailed in Section 2 of this document.

In conjunction with public, stakeholder and regulatory consultation, the decommissioning programmes are submitted in compliance with national and international regulations and with consideration of OPRED guidelines. The schedule outlined in this document is for a decommissioning project which commenced with the topsides stabilisation and disconnection in 2016, well abandonment in 2018 and will span another 5 years till completion.

1.3 Introduction

The Caister Bunter Field and Caister Carboniferous Field are in the UK Southern North Sea in block 44/23a, licence P.452.

The block was first licenced to BP as Licence P.003. The 44/23-1 discovery well was drilled in 1967 and encountered gas in the Bunter Sandstone formation. During drilling, the rig was blown off location and there was an uncontrolled gas release. A relief well, 44/23-2, was drilled but was not successful in controlling the gas release, which continued for over a year. The block was relinquished in 1971.

In 1983, licence P.452 was granted to a Texas Gas Exploration (UK) led consortium and the 44/23-3 Bunter appraisal well was drilled. In 1985, the 44/23-4 exploration well encountered gas in the Carboniferous Westphalian A and B sandstones and shales. This was followed by the 44/23-5, 44/23-6 and 44/23-7 exploration and appraisal wells, drilled in 1985 and 1986, which penetrated the Caister Sandstone Formation.

In 1988, operatorship was assigned to Total Oil Marine p.l.c. who operated until 2000. During this period, the 44/23 block was partially relinquished and the 44/23a sub-block was created. Annex B approval for the Caister Field development was awarded in April 1992. First production was in 1993 and the last development well was drilled in 2000.

Chrysaor Production (U.K.) Limited took over operatorship of the Caister Field in 2000 during which time the platform ceased production, the wells were plugged and abandoned and the platform was put into cold suspension. In 2019, the operatorship and associated remaining decommissioning operations was taken over by Chrysaor Production (U.K.) Limited.

The Caister Bunter Field had three production wells. One of these was a horizontal sidetrack that was plugged and abandoned due to water/sand production issues.

The Caister Carboniferous Field 44/23-9 development well, was drilled in 1989. Four further development wells were drilled in 1992 through 1994. In 1997, an additional well and two sidetracks were drilled but encountered a fault and never produced.

The Caister CM platform was installed in 1993 and a 16" diameter gas pipeline and 3.5" diameter methanol pipeline were laid to the Murdoch complex. These decommissioning programmes include the platform and truncated riser sections attached to the Caister platform that will be removed with the platform. The remaining pipeline lengths spanning from the base of the Caister CM jacket to Murdoch MD will be included in a subsequent decommissioning programme.

The Caister field covered by these Decommissioning Programmes have produced 296 Bscf.

Cessation of Production applications were submitted and approved as follows:

Installation	Submission Date	Approval Date
Caister CM	14th April 2016	4th May 2016

The Caister CM Platform is a small installation with total combined Topsides and Jacket weights of 2,696 tonnes; standing in 41 metres of water. The Caister CM installation is tied back to the Murdoch Complex via Murdoch MD. The small size, shallow water depth and design life of the Caister facilities has determined the philosophy of their decommissioning, which will be to:

- Well Plug and Abandon (P&A)
- Clean and Flush prior to platform removal
- Remove the satellite platform

1.4 Overview of Installations and Pipelines Being Decommissioned

1.4.1 Installations

Table 1.1 Installations Being Decommissioned			
Field Names		**Quad / Block**	
Fields	Caister	**Production Type**	Gas / Condensate
Water Depth	41m below LAT	**UKCS block**	Quad 44 Blocks 23a

Surface Installations			
Number	**Type**	**Topsides Weight (Te)**	**Jacket Weight (Te)**
1	Fixed steel jacket	1255 (inclusive of 313Te removed during AWV campaign)	1253 (inclusive of piles to 3m below the mudline)

Subsea Installations		Number of Wells	
Number	**Type**	**Number**	**Type**
1	Drilling template (to -3m below mud line) 41Te	8	Platform

Drill Cuttings Piles		Distance to Netherlands Median	Distance from nearest UK coastline
Number of Piles	**Total Est volume m^3**	**km**	**km**
0	0	Caister CM 23km	Caister CM 163 km

See Figure 1.1 for further details.

Table 1.2 Installation Section 29 Notice Holders Details		
Section 29 Notice Holders	**Registration Number**	**Equity Interest**
Chrysaor Production (U.K.) Limited (Operator)	00524868	9.0%
Chrysaor (U.K.) Beta Limited	02316577	30.0%
Neptune E&P UKCS Limited	03386464	21.0%
Premier Oil E&P UK Limited	02761032	40.0%

1.4.2 Pipelines

Table 1.3 Pipelines Being Decommissioned		
Number of Pipelines	2 (removal of 57m section of riser from the Caister CM end of each pipeline)	See table 2.3
Subsea tee structures	0	See Table 2.3

Table 1.4 Pipelines Section 29 Notice Holders Details		
Section 29 Notice Holders	**Registration Number**	**Equity Interest**
Chrysaor Production (U.K.) Limited (Operator)	00524868	9.0%
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Premier Oil E&P UK Limited	02761032	40.0%

1.5 Summary of Proposed Decommissioning Programmes

Table 1.5: Summary of Decommissioning Programmes		
Selected Option	**Reason for Selection**	**Proposed Decommissioning Solution**
1. Topsides		
Complete removal, dismantlement and reuse/ recycling and disposal.	Topsides past design life, equipment obsolete and degraded, or recovery no longer economic.	Removed by Heavy Lift Vessel (HLV) transported to appropriate land-based facility for dismantlement, recycling and disposal. Equipment that cannot be re-used will be recycled or disposed of as appropriate.
2. Jacket		
Complete removal (3m below seabed), dismantlement and reuse/recycling and disposal.	Meets OPRED regulatory requirements. Jacket is past design life.	Removed by HLV, transported to appropriate land-based facility for dismantlement, recycling and disposal.
3.Subsea Installations – drilling template		
Complete removal (3m below seabed), dismantlement and reuse/recycling and disposal.	Meets OPRED regulatory requirements	Removed by Construction Support Vessel (CSV), transported to appropriate land-based facility for dismantlement, recycling and disposal.
4. Pipelines, Flowlines and Umbilical's		
Pipelines flushed clean and risers removed to the touch down point on the seabed.	Meets OPRED regulatory requirements	Risers attached to platform will be removed in conjunction with the topsides and jacket removals.
5.Well Abandonment Operations		
Permanent well Plug and Abandonment (P&A).	Meets OGA and HSE regulatory requirements.	Abandonment in accordance with Oil and Gas UK Well Decommissioning Guidelines.
6. Drill Cuttings		
None required.	No Drill Cuttings Piles have been identified by seabed survey.	None required.
7. Interdependencies		
Platform removal can only occur after Well P&A and Topsides / Pipeline cleaning.		

1.6 Field Location including Field Layout and Adjacent Facilities

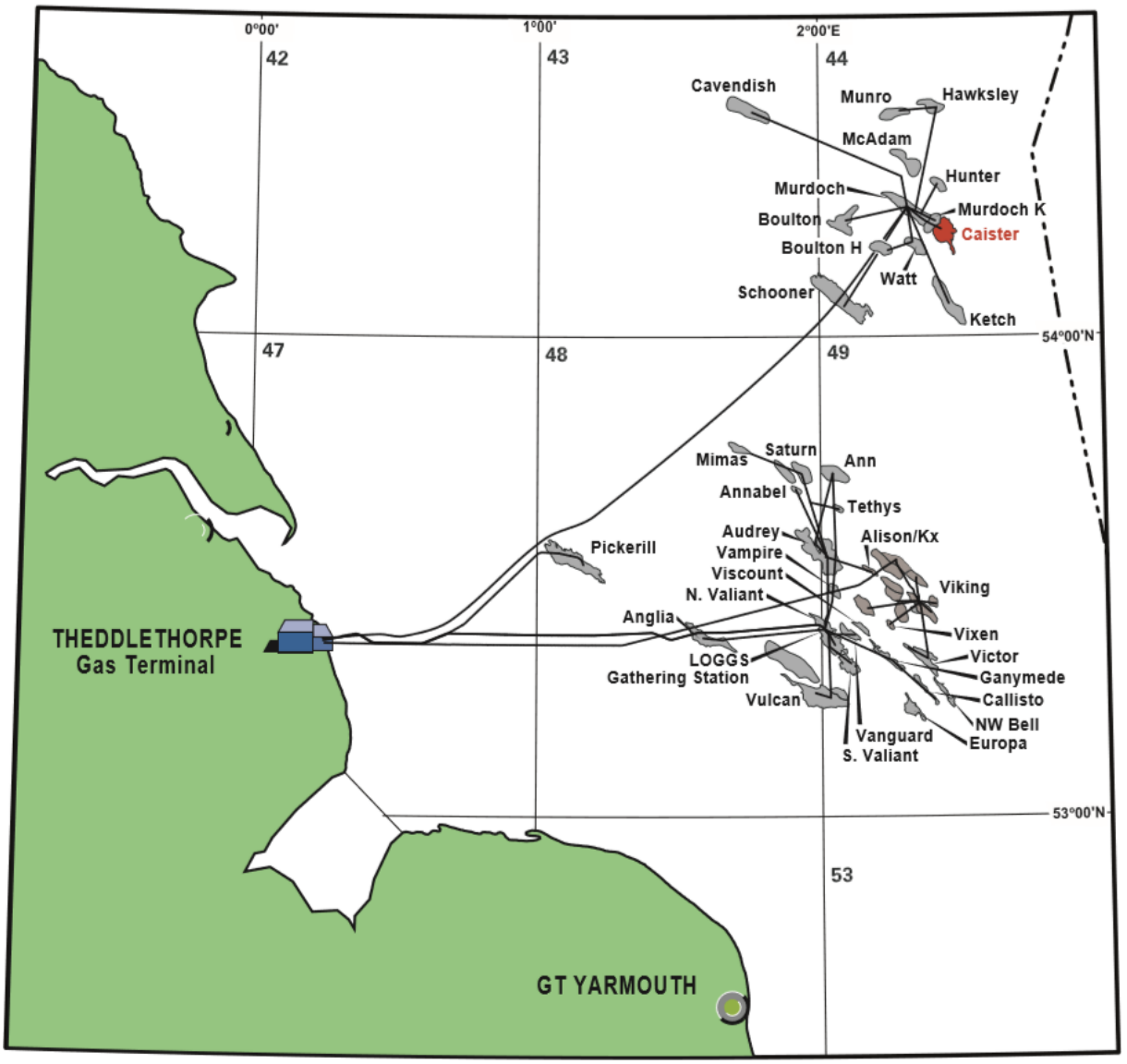


Figure 1.1 – Location of Caister Field in UKCS

The Caister development is part of the Chrysaor Southern North Sea (SNS) Gas Operation with the installations covered by these decommissioning programmes highlighted in the Field Layout Figure 1.2.

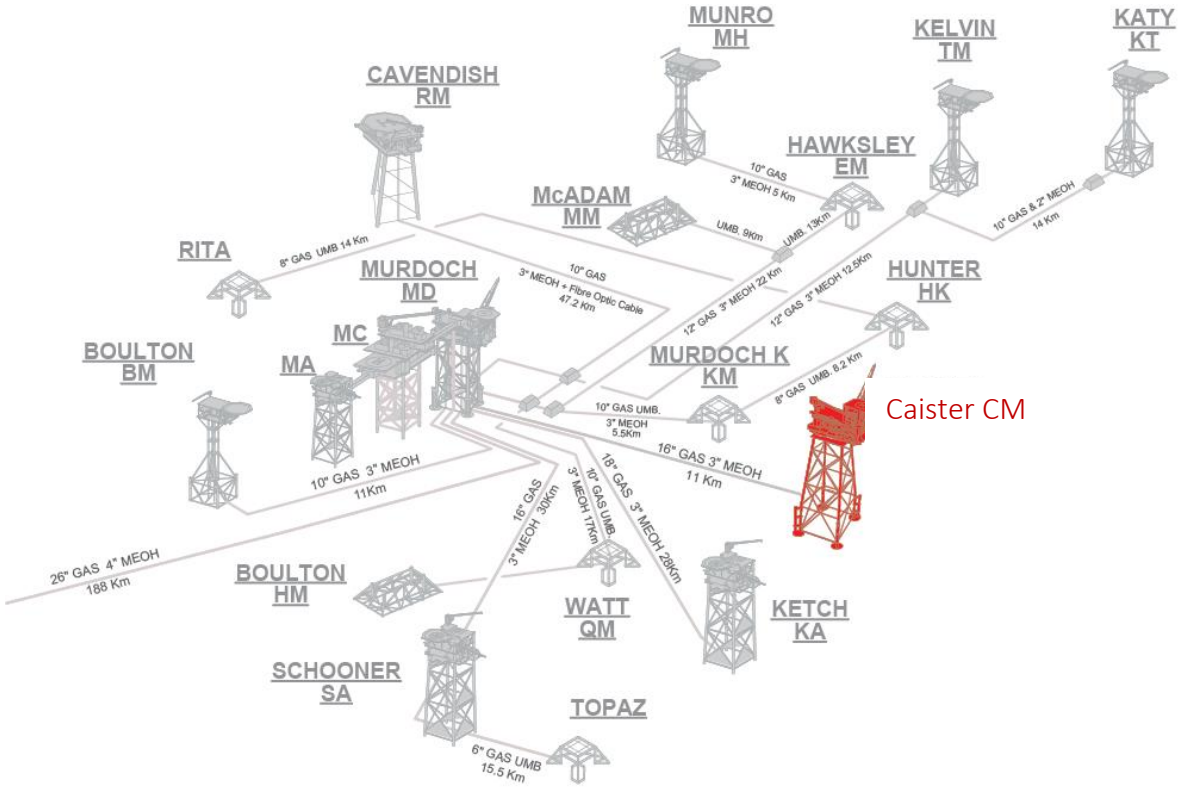


Figure 1.2 – Caister Development Layout

Facilities adjacent to the Caister Facilities that are potentially impacted by these decommissioning programmes are listed below in Table 1.6 and highlighted in Figure 1.3.

Table 1.6 List of Adjacent Facilities					
Owner	**Name**	**Type**	**Distance / Direction**	**Information**	**Status**
Surface Installations					
Chrysaor Production (U.K.) Ltd	Murdoch Complex	Manned 3 Jacket bridge linked complex	Murdoch MD: 11km NW of Caister CM	Complex transported Caister Gas to TGT for Processing	Warm Stacked
Subsea Manifolds					
Chrysaor Production (U.K.) Ltd	Murdoch K KM	Single well subsea manifold	Murdoch K KM: 5km NW of Caister CM	Subsea manifold connected to Murdoch MD	Shut in at the Xmas tree
Pipelines					
Chrysaor Production (U.K.) Ltd	PL935	16” Gas Pipeline	Adjacent to Caister CM	Pipeline interconnects Caister CM with Murdoch MD	Out of use
Chrysaor Production (U.K.) Ltd	PL936	3.5” MeOH Pipeline	Adjacent to Caister CM	Piggy backed onto PL935 Pipeline interconnects Caister CM with Murdoch MD	Out of use
Chrysaor Production (U.K.) Ltd	PL1923	10” Gas Pipeline	PL1923: 5km NW of Caister CM	Pipeline interconnects Murdoch K KM with Murdoch MD	Out of use
Chrysaor Production (U.K.) Ltd	PL1926	3” MeOH Pipeline	PL1926: 5km NW of Caister CM	Piggy backed onto PL1923 Pipeline interconnects Murdoch K KM with Murdoch MD	Out of use
Chrysaor Production (U.K.) Ltd	UM8*	Control Umbilical	UM8: 5km NW of Caister CM	Umbilical interconnects Murdoch K KM with Murdoch MA	Out of use

Note A PLU number for this umbilical is being raised and OGA are dealing with the request.*

Impacts of Decommissioning Proposals
No anticipated impact on adjacent facilities mainly due to the significant distance of adjacent facilities from CM.

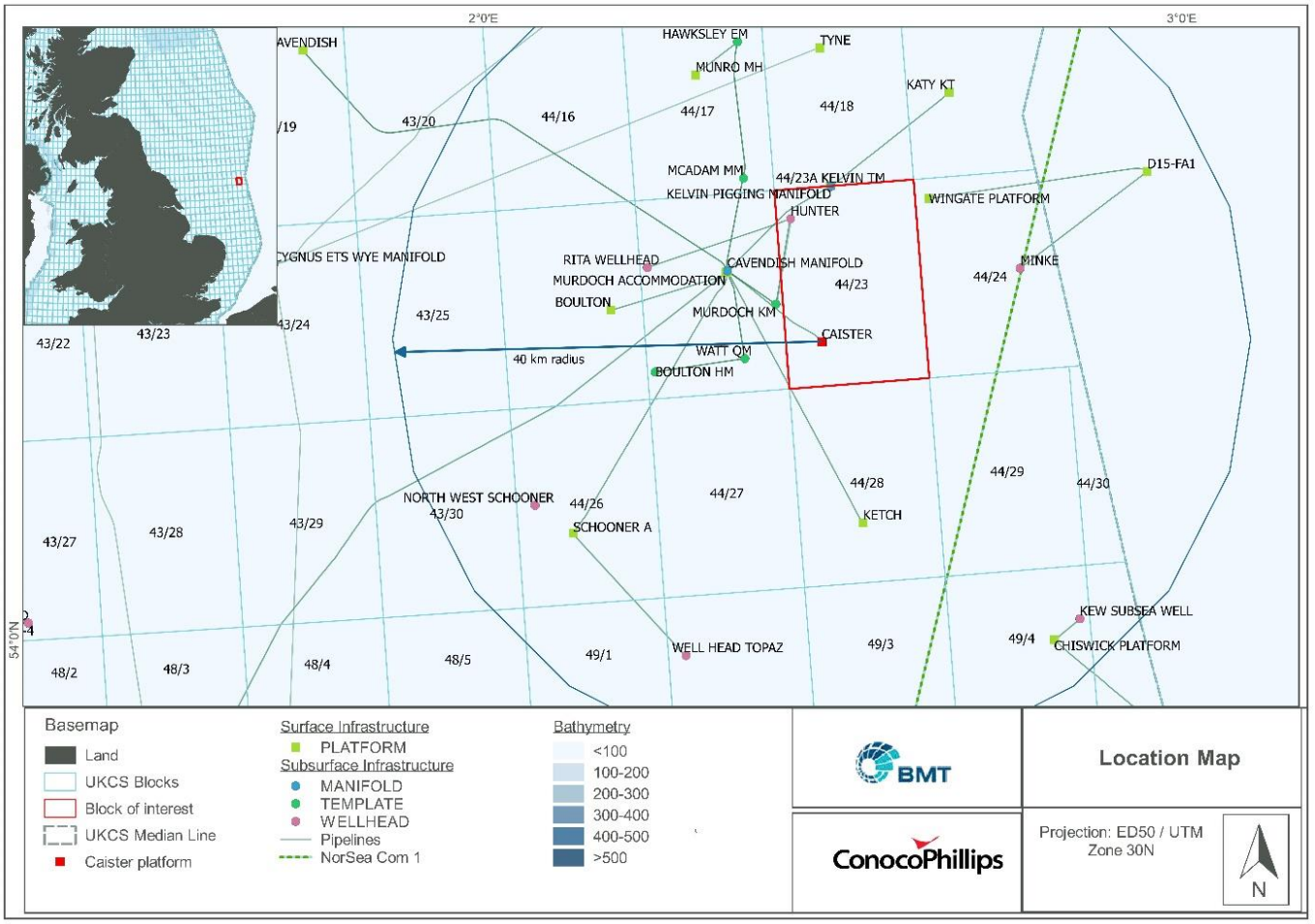


Figure 1.3 – Adjacent Third Party Facilities

1.7 Industrial Implications

Principles of the contracting and procurement strategies to be utilised by Chrysaor as operator and on behalf of the other Section 29 notice holders, for the decommissioning of the Caister CM platform and associated risers are listed below:

1. Chrysaor participates in the PILOT Share Fair events providing one to one sessions with the UK supply chain on the SNS decommissioning programmes and timeline.

2. The First Point Assessment (FPAL) database is the primary source for establishing tender lists for contracts / purchases valued at US$ 100,000 and above, although it is also used under this limit.

3. Chrysaor is committed to competitively bidding all of its major contracts where possible and practicable. We are supporters of the UK Supply Chain Code of Practice and our performance in this regard has been acknowledged through Excellence Awards from Oil & Gas UK.

4. Chrysaor are active participants in various industry initiatives including:
    a. Oil & Gas UK Supply Chain Forum;
    b. Inventory sharing initiative (Ampelius);
    c. OGA Decommissioning Board - Supply Chain sub-group.

2 Description of Items to be Decommissioned

2.1 Surface Facilities (Topsides and Jackets)

Table 2.1 Surface Facilities Information								
Name	Facility Type	Location	Topsides / Facilities		Jacket (if applicable)			
		WGS84 Decimal/ WGS84 Decimal Minute	Weight (Te)*	No of modules	Weight (Te)**	No of Legs	No of piles	Weight of piles (Te)***
Caister CM	Fixed steel jacket	54.2031º N / 54º 12.184' N 02.4498º E / 02º 26.991' E	1255	1	998	4	4	254

*Note** *Weights are based on structural designs and review of the Return to Scene (R2S) footage*
*Note*** *Weights are based on design drawings, and exclude piles and marine growth*
*Note **** *Weight of piles to -3m below mudline*

Figure 2.1.1 Photograph of Caister CM Platform

2.2 Subsea Installations and Stabilisation Features

Table 2.2 Subsea Installation and Stabilisation Features				
Subsea installations and stabilisation features	**Number**	**Size / Weight (Te)**	**Locations**	**Comments / Status**
			WGS84 Decimal/ WGS84 Decimal Minute	
Wellheads	0	0	None	None present
Manifolds	0	0	None	None present
Templates	1	9m x 9m/ 41Te (pile weight to -3m below mudline)	54.2031º N / 54º 12.184' N 02.4498º E / 02º 26.991' E	Disused
Protection frames	0	0	None	None present
SSIV	0	0	None	None present
Concrete mattresses	0	0	None	None present
Grout bags	0	0	None	None present
Formwork	0	0	None	None present
Frond mats	0	0	None	None present
Rock dump	0	0	None	None present
Other	0	0	None	None present

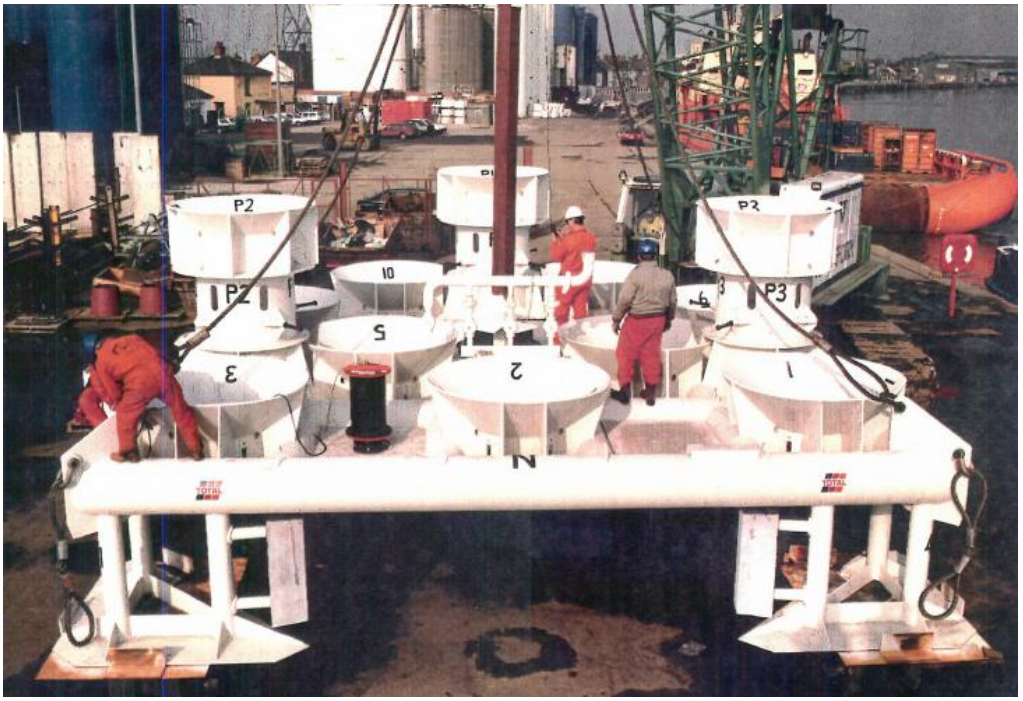


Figure 2.2.1 Photograph of Caister CM Platform Template

2.3 Pipelines Including Stabilisation Features

Table 2.3 Pipeline / Flowline / Umbilical Information									
Description	**Pipeline No (as per PWA)**	**Diameter (inches)**	**Length (km)**	**Description of Component Parts**	**Product Conveyed**	**From – To End Points**	**Burial Status**	**Pipeline Status**	**Current Content**
Gas Pipeline	PL935***	16	11.245	Steel pipe with coal tar enamel	Gas condensate, produced water	Caister CM to Murdoch MD	Trenched and buried, 16m (0.2%) exposed*, one reportable FishSafe spans within 500m zone**.	Out of use	Untreated seawater with <30mg/l hydrocarbons
MeOH Pipeline piggy-backed onto PL935	PL936***	3.5	11.330	Steel pipe with Fusion Bonded Epoxy corrosion coating	MeOH corrosion inhibitor	Murdoch MD to Caister CM	Trenched and buried, 16m (0.2%) exposed*, one reportable FishSafe spans within 500m zone**.	Out of use	Potable water

Note * *As per pipeline survey length*
Note ** *As per FishSAFE span reporting criteria: 'significant' pipeline spans (i.e. over 10m long and 0.8m above the seabed)*
Note *** *Approximately 57m of the risers will be removed as part of this Decommissioning Programme, CDP1a. The remaining sections will be covered in the CDP1b Decommissioning Programme.*

No spans have been recorded in the Caister 500m zone, apart from the exposure adjacent to the riser. This spanning section was removed to the touch down point during pipeline disconnection activities in 2019 to enable platform removal. No further spans have been identified in the Caister 500m zone.

2.4 Wells

Table 2.4 Well Information			
CM Platform Wells	**Designation**	**Status**	**Category of Well**
CM_044_23a_A1	Gas Production	P&A	PL 4-3-3
CM_044_23a_A2	Gas Production	P&A	PL 4-4-3
CM_044_23a_A4	Gas Production	P&A	PL 3-3-3
CM_044_23a_A5*	Gas Production	P&A	PL 3-3-3
CM_044_23a_A6*	Gas Production	P&A	PL 4-3-3
CM_044_23a_A7	Gas Production	P&A	PL 0-3-3
CM_044_23a_A8*	Gas Production	P&A	PL 4-3-3
CM_044_23a_A9*	Gas Production	P&A	PL 3-4-3

*Note * Conductors severed above the mudline beneath the platform template. During post platform removal debris clearance, the stumps remaining in the scour bowl will be remediated if necessary.*

For further details of well categorisation see OGUK guidelines “Well Decommissioning Guidelines” – Issue 6 – June 2018.

2.5 Drill Cuttings

Table 2.5 Drill Cuttings Pile Information		
Location of Pile Centre (Latitude / Longitude)	**Seabed area (m^2)**	**Estimated volume of cuttings (m^3)**
None of the facilities has a cuttings pile present	0	0

No drill cuttings were identified on the seabed adjacent to the installation during the subsea inspections conducted in 2019 in support of the conductor stump recovery operations. The dynamic marine environment has resulted in the redistribution of drill cuttings.

2.6 Inventory Estimates

Table 2.6 Current Installation Material Functional Category Summary							
Installation	**Haz Mat / NORM Te**	**Concrete Te**	**Ferrous Metal Te**	**Non-Ferrous Metal Te**	**Plastics Te**	**Other Non-Haz Te***	**Total Te**
Caister CM	165	49	2137	32	15	112	2508
Drilling Template			41				41
Total	**165**	**49**	**2178**	**32**	**15**	**112**	**2549**

*Note** *Weights include the estimated 212Te marine growth associated with the installation*

Table 2.7 Pipeline Riser Material Functional Category Summary							
Pipeline No	**Description**	**Haz Mat / NORM Te**	**Concrete Te**	**Ferrous Metal Te**	**Non-Ferrous Metal Te**	**Plastics Te**	**Other Non-Haz Te**
PL935	Caister CM to Murdoch MD Gas	-	-	7.6	-	0.05	0.7
PL936	Murdoch MD to Caister CM MeOH	-	-	1.5	-	0.01	0.2
	Mattresses	-	-	-	-	-	-
Total				9.1		0.06	0.9

3 Removal and Disposal Methods

In line with the waste hierarchy, the re-use of an installation (or parts thereof) is first in the order of preferred decommissioning options considered.

Options considered for re-use of the Caister Facilities' were:

- Further Hydrocarbon production from development local to the satellites
- Relocation elsewhere to produce hydrocarbons
- Sale for reuse to others

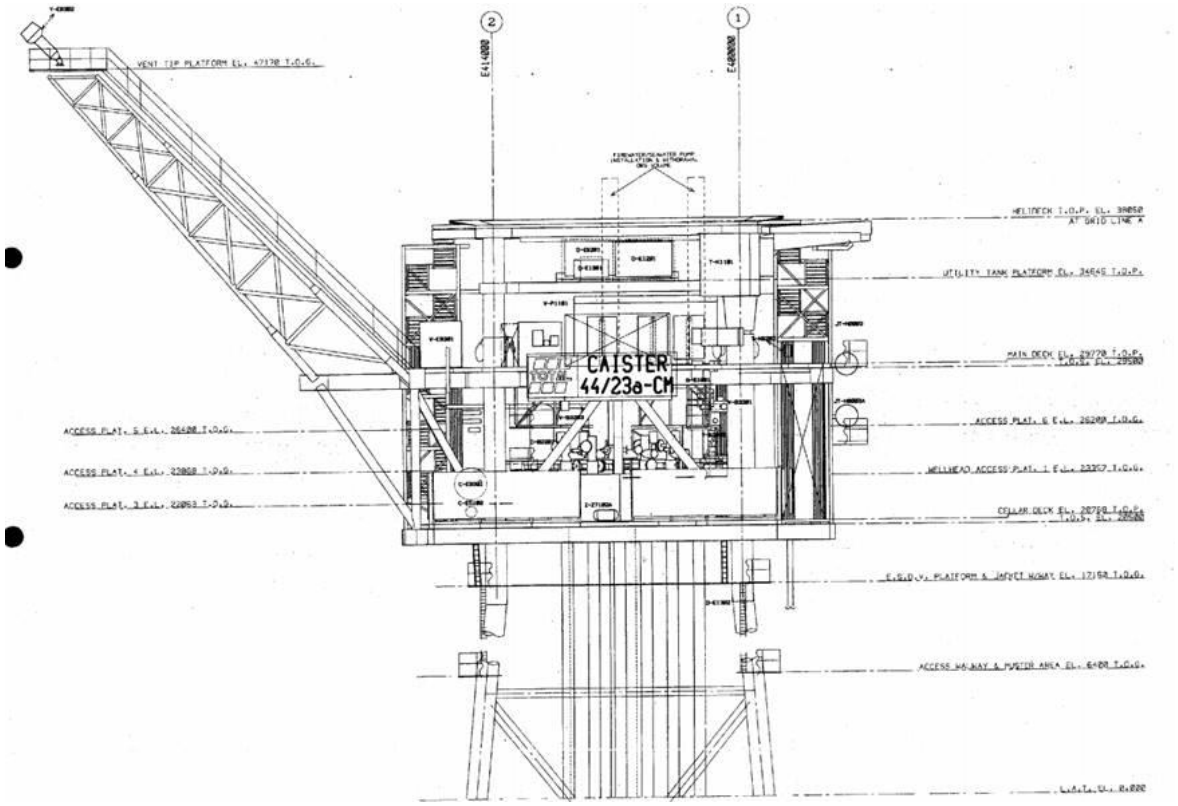
No economic hydrocarbon developments local to any of the Caister Facilities were identified. The Caister Facilities are past their design life, require refurbishment and contain obsolete control systems and components. Their re-use is uneconomic.

The selected option for the Caister Facilities is to remove, dismantle and dispose of them, ensuring a high level of material recycling.

3.1 Topsides

3.1.1 Topsides Descriptions

Caister CM
The Caister CM topsides are a minimal facility designed for use as a NUI which extends 47.2m above Lowest Astronomical Tide (LAT). The Topsides weigh 1255 Te have a deck size of approximately 14m x 23.5m and comprise of a main deck, cellar deck and a helideck. The topsides structure consists of two main levels, a cellar deck at EL+20.5m and a main deck at EL+29.5. The topsides supports a flare, a helideck and a single crane.



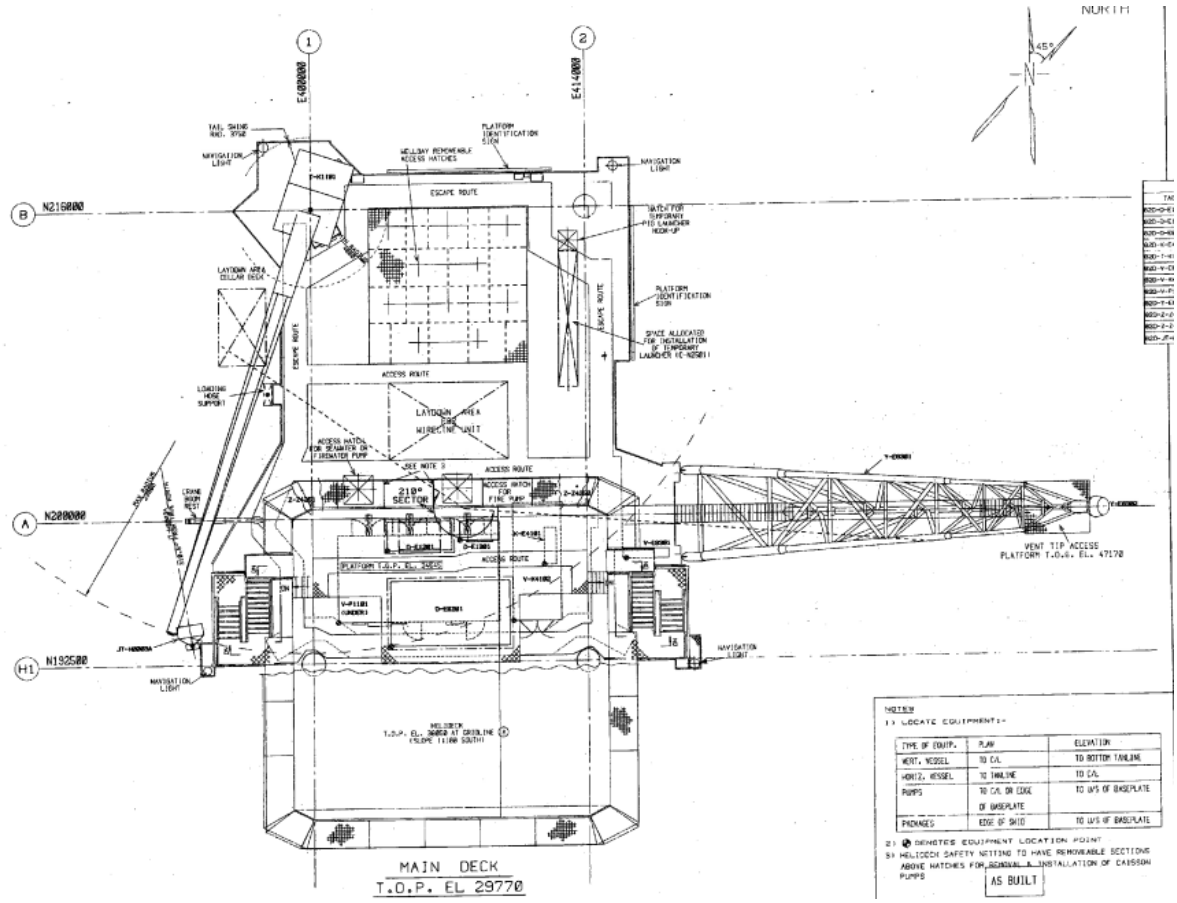


Figure 3.1.1 Caister CM Topsides

Preparation / Cleaning: Table 3.1 describes the methods that will be used to flush, purge and clean the topsides offshore**,** prior to removal to shore.

Table 3.1 Cleaning of Topsides for Removal		
Waste Type	**Composition of Waste**	**Disposal Route**
Hydrocarbons	Process fluids	Has been flushed, Nitrogen purged and vented
Produced solids	Sand, NORM	Produced solids will be removed and disposed of during the dismantlement of the Topsides onshore.
Diesel	Bunkered Diesel fuel	Bunkered Diesel has been drained and returned onshore for re-use or disposal.
Lubricating oils	Lubricants for equipment e.g. gearboxes, pumps, pedestal crane compressor skid	Lubricating oils has been drained and returned onshore for re-use or disposal.

3.1.2 Removal Methods

Given the size and weight of the topsides and jacket it is likely that the removal will be modular in nature for the topsides and jacket.

Table 3.2 Topsides Removal Methods	
☑ 1) HLV (semi-submersible crane vessel) ☑ 2) Monohull crane vessel ☑ 3) SLV ☑ 4) Piece small ☑ 5) Other Simultaneous removal of Topsides with Jacket	
Methods Considered	**Description**
Single lift removal complete with Jacket by HLV / Monohull crane vessel / SLV	Removal of Topsides complete with Jacket in a single lift and transportation to shore for dismantlement, disposal and recycling.
Modular lift removal of Topsides by HLV / Monohull crane vessel / SLV	Removal of Topsides for transportation to shore for dismantlement, disposal and recycling.
Offshore removal "piece small" for onshore disposal	Removal of Topsides and dismantlement offshore for transportation onshore for disposal and recycling.
Proposed removal method and disposal route.	**Removal of Topsides** **Caister CM topsides will be removed using a single lift** **Transportation to shore for dismantlement, disposal and recycling** **Trans-frontier shipments of waste will not be required**

Note: ☑ *Option Considered*

3.2 Jacket

The Caister CM is a single jacket with 4 legs.

3.2.1 Jacket Decommissioning Overview

The Caister CM Jacket will be removed to 3m below the seabed. The satellite topsides will be removed separately.

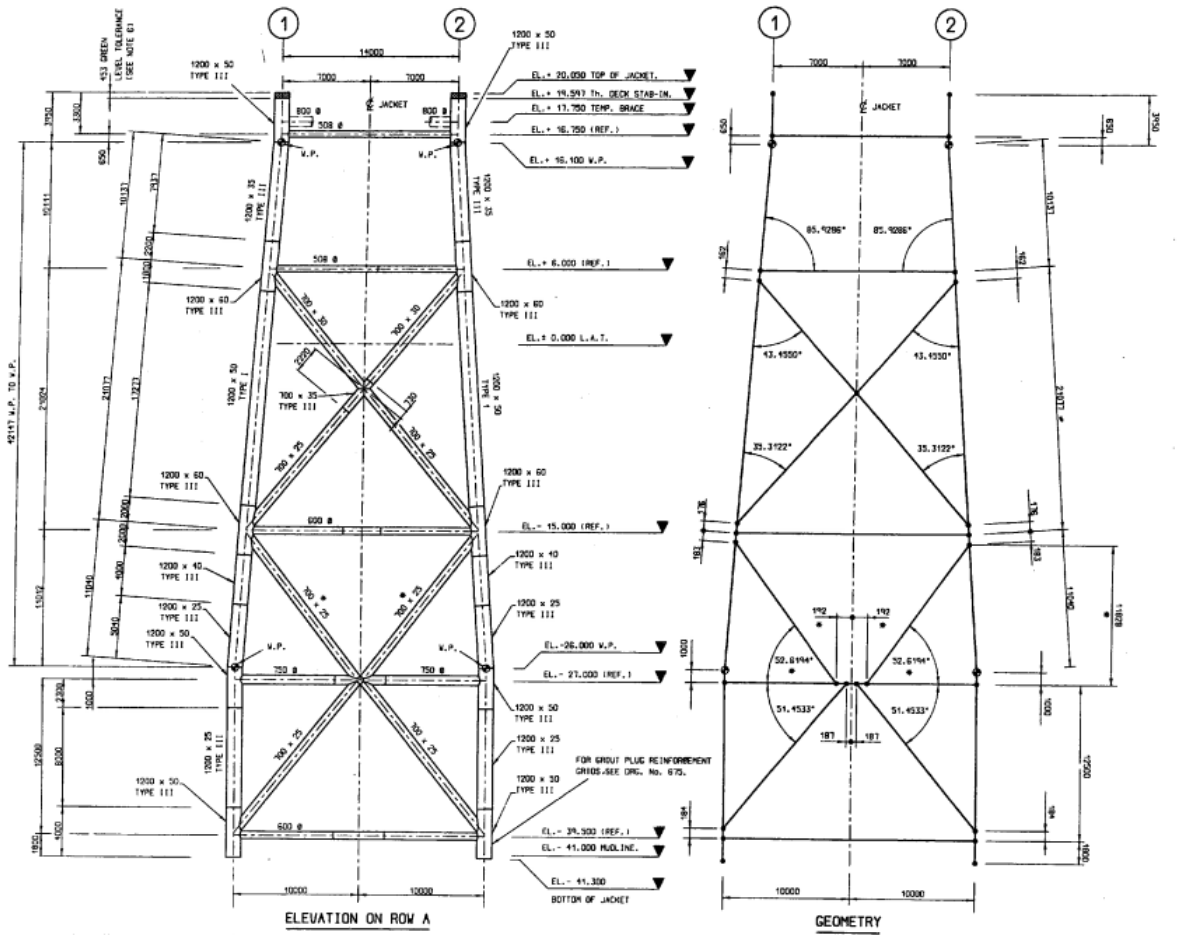


Figure 3.2.1 Caister CM Jacket Elevation

3.2.2 Jacket Removal Methods

Table 3.3 Jacket Removal Methods	
☑ 1) HLV (semi-submersible crane vessel) ☑ 2) Monohull crane vessel ☑ 3) SLV ☑ 4) Piece small ☑ 5) Other Simultaneous removal of Topsides with Jacket	
Method	**Description**
Jacket Piles cut 3m below seabed and removed via single lift complete with Topsides by HLV / Monohull crane vessel / SLV	Jacket Piles cut 3m below seabed. Removal of Jacket complete with Topsides in a single lift and transportation to shore for dismantlement, disposal and recycling.
Jacket Piles cut 3m below seabed and removed via single lift by HLV / Monohull crane vessel / SLV	Jacket Piles cut 3m below seabed. Removal of Jacket in a single lift and transportation to shore for dismantlement, disposal and recycling.
Offshore removal “piece small” for onshore disposal	Jacket Piles cut 3m below seabed. Removal of Jacket and dismantlement offshore for transportation onshore for disposal and recycling.
Proposed removal method and disposal route.	**Jacket Piles cut 3m below seabed.** **Removal of Jacket and topsides will be separate lifts** **Transportation to shore for dismantlement, disposal and recycling.** **Trans-frontier shipments of waste will not be required**

Note: If there is a delay between jacket and topsides removal activities, appropriate navigational aids shall be in place, as per Consent to Locate requirements.

Note: ☑ *Option Considered.*

3.3 Subsea Installations and Stabilisation Features

Table 3.4 Subsea Installations and Stabilisation features			
Subsea installations and stabilisation features	**Number**	**Option**	**Disposal Route**
Wellheads	0	None	None
Manifolds	0	None	None
Templates	1	Full Removal	Removed and transported to appropriate land-based facility for dismantlement, recycling and disposal.
Protection frames	0	None	None
SSIV	0	None	None
Concrete mattresses	0	None	None
Grout bags	0	None	None
Formwork	0	None	None
Frond mats	0	None	None
Rock dump	0	None	None
Other	0	None	None

3.4 Pipelines

The associated pipelines will be considered as part of the CDP1b decommissioning programmes, however the riser sections of these pipelines, attached to the Caister platform, will be removed during the removal of the installation.

The riser sections were disconnected to the touchdown point as part of the preparations for platform removal. The disconnect to the touchdown point was intended to provide the exposed cut ends the opportunity to bury through the natural movement of the surrounding sediments and reduce the likelihood of the requirement to further remediate post platform removals. Should the cut pipeline ends remain exposed post platform removal, rock placement will be used to cover the pipeline ends to provide adequate protection from snagging by other users of the sea.

The remaining sections attached to the Caister platform will be removed as part of these decommissioning programmes. The remaining infield sections connected to the Murdoch platform, including associated stabilisation materials, will be considered as part of the CPD1b decommissioning programme.

The riser sections to be removed with the platform removals are approximately 57m each in length between the ESD (Emergency Shut Down) Valve on Caister CM and the subsea cut point at the base of the jacket. The pipeline riser sections are a part of PL935, the 16” gas export riser, and PL936, the 3.5” methanol import riser.

3.5 Wells

Table 3.5: Well Plug and Abandonment
The Caister CM wells have been plugged and abandoned by the Ensco 92 Jack up Mobile Offshore Drilling Unit in a 255-day programme of work, which commenced in February 2018. A Master Application Template (MAT) and the supporting Subsidiary Application Templates (SATs) have been submitted in support of all well plug and abandonment activities.

3.6 Drill Cuttings

3.6.1 Drill Cuttings Decommissioning Options

No drill cuttings were identified on the seabed adjacent to the installation during the 2015 pre-decommissioning baseline survey and subsea inspections conducted in 2019 in support of the conductor stump recovery operations. The dynamic marine environment has resulted in the redistribution of drill cuttings.

3.7 Waste Streams

Table 3.6 Waste Stream Management Methods	
Waste Stream	**Removal and Disposal method**
Bulk liquids	Bulk liquids removed from vessels and transported to shore. Vessels and pipework will be drained prior to removal to shore and shipped in accordance with maritime transportation guidelines. Bulk fluids taken onshore for handling at an appropriately permitted facility prior to onshore treatment and disposal.
Marine growth	To be taken onshore with the infrastructure identified for removal for handling at the appropriately permitted decontamination and disposal facility prior to onshore disposal via landfill or composting.
NORM	To be taken onshore with the infrastructure identified for removal and decontamination at the appropriately permitted decontamination and disposal facility prior to onshore disposal. (EA Section 11).
Asbestos	To be taken onshore with the infrastructure identified for removal for handling at the appropriately permitted disposal yard prior to onshore disposal.
Other hazardous wastes	To be taken onshore with the infrastructure identified for removal for handling at an appropriately permitted decontamination and disposal facility prior to onshore disposal.
Onshore Dismantling sites	Appropriately permitted sites selected through the Chrysaor procurement process. The decontamination and disposal facility selection considered the suitability of the facility, systems in place for the safe and efficient segregation and storage of waste in accordance with operational site permits, proven materials re-use and recycling performance including the use of innovative materials management practices to minimise the quantity of materials disposed of. All structures are to be consigned to the Veolia Petersons Outer Harbour Decommissioning Facility, Great Yarmouth, United Kingdom. Trans-frontier shipment of waste will not be required.

Table 3.7 Inventory Disposition			
	Total Inventory Tonnage	**Planned Tonnage to shore***	**Planned Tonnage Decommissioned in situ**
Installations	3101	2549	552 (Piles below -3m below Mudline)
Risers	10	10	0

Note Includes 212Te marine growth associated with the installation jacket and weight*

It is not currently possible to predict the market for re-usable materials with confidence. However, there is a target that >95% of the materials will be recycled.

In accordance with the Chrysaor Corporate Waste Management Standard, all facilities receiving waste are to be approved by the Company prior to use. Approval requires a favourable assessment of a waste facility's ability to avoid environmental harm through protective designs, operations, monitoring, financial integrity and institutional controls. Post approval, the facility will be audited to confirm operations are undertaken within the conditions of associated site permits and to confirm its ongoing suitability for continued use and to identify opportunities for improvement.

Chrysaor will collaborate with the operator of the waste facility to communicate the proposed consignment of the waste to the local regulatory authority in accordance with the site permits.

4 Environmental Appraisal Overview

4.1 Environmental Sensitivities (Summary)

Table 4.1: Environmental Sensitivities	
Environmental Receptor	**Main Features**
Conservation interests	**Sites of Conservation Importance** The Caister CM infrastructure included within the scope of the Decommissioning Programmes is located within close proximity to two sites of conservation importance; the Dogger Bank Special Area of Conservation (SAC) and the Southern North Sea SAC. The Dogger Bank SAC is location 5 km to the north west of the project area. This site is designated for Annex I habitat sandbanks which are slightly covered by sea water all the time. The Southern North Sea SAC is located 10 km south east of the project area. This site is designated for the protection of harbour porpoises. Additionally, North Norfolk Sand Banks and Saturn Reef SAC is located 54 km from the project area. This site is designated for the presence of two Annex I habitats; reefs and sandbanks which are slightly covered by sea water all of the time. **Nature Conservation Marine Protection Area (MPAs)** The closet MPA to the Caister facilities project area is the Markham's Triangle MCZ located 26 km to the south east of the project area. This site is designated for a number of protected features including subtidal coarse sediments, subtidal mixed sediments, subtidal mud and subtidal sand.
Seabed	Seabed survey of the location described the seabed at Caister as fine to medium sand with shells and shell fragments. Observed fauna include Annelida, Arthropoda, Echinodermata and Mollusca.
Fish	The Caister CM area is located within the spawning grounds of herring (August to November), cod (January to April [peak spawning February – March]), whiting (February to June), mackerel (May to July [peak spawning June-July]), plaice (January to March [peak spawning February-March)], sole (March to May [peak spawning April]), lemon sole (April to September), Nephrops (all year [peak spawning April-June]), sand eel (November to February) and sprat (May to August). High intensity spawning occurs for plaice and sandeel.

Table 4.1: Environmental Sensitivities	
Environmental Receptor	**Main Features**
	The following species have nursery grounds in the vicinity of the Caister CM location: anglerfish, cod, lemon sole, ling, Nephrops, sprat, whiting, tope shark, plaice, sandeel, blue whiting, spurdog, herring, hake, mackerel and sole. High intensity nursing occurs for plaice and sandeel.
Fisheries	The main species targeted are demersal and shellfish, with demersal species dominating the catch. The highest number of effort days takes place in the summer months (May-October), but fishing activity is low in comparison to other regions of the North Sea with a total of 194 days in 2018.
Marine Mammals	Cetaceans regularly recorded in the North Sea include the harbour porpoise, bottlenose dolphin, minke, killer whale, Atlantic white-sided dolphin and white-beaked dolphin. Rarer species that are occasionally observed in the North Sea include fin whale, long-finned pilot whale, Risso's dolphin and the short beaked common dolphin. However, harbour porpoise and white-beaked dolphin are the only cetaceans considered as regular visitors in the Southern North Sea throughout most of the year, and minke whale as a frequent seasonal visitor (EA Section 4.3.1). Pinnipeds sighted in the area include grey seals, and harbour seals. Grey seals may travel past the infrastructure towards foraging grounds, but densities generally reduce with distance offshore. Harbour seals are more likely to be sighted further offshore, travelling to this area from breeding and haul out sites in The Wash to forage for food (EA Section 4.3.2).
Birds	The most common species of seabird found in these areas of the SNS include fulmar, gannet, guillemot, kittiwake, razorbill, puffin and little auk, as well as numerous species of gull, tern and skua. In Block 44/23, the sensitivity of seabirds to oil pollution reflected by the Seabird Oil Sensitivity Index (SOSI) is high from November to January and in July. Where data are available, low vulnerability occurs throughout the rest of the year.
Onshore Communities	An onshore decontamination and dismantlement facility will be used that is deemed able to comply with all relevant permitting and legislative requirements.

Table 4.1: Environmental Sensitivities	
Environmental Receptor	**Main Features**
Other Users of the Sea	**Shipping** The North Sea contains some of the world's busiest shipping routes, with significant traffic generated by vessels trading between ports at either side of the North Sea and the Baltic. North Sea oil and gas fields also generate moderate vessel traffic in the form of support vessels. Block 44/23 is defined as having moderate shipping density areas. **Oil & Gas Industry** The infrastructure is located in the SNS gas basin which is densely populated by various installations. See table 1.6 for a list of adjacent facilities. **Offshore Renewables** The Hornsea Project One - Heron East windfarm, which is currently under construction, is located 37 km to the southeast of the Caister area. Hornsea Project Three (HOW03) and Hornsea Project Two (HOW02) are located 25 km and 34 km from the platform respectively.
Atmosphere	Atmospheric emissions during decommissioning activities will occur in the context of the cessation of production. As such, almost all future emissions (from Project operations and vessels) will cease (EA Section 3.1).

4.2 Potential Environmental Impacts and their Management

4.2.1 Environmental Impact Assessment Summary

The potential environmental impacts associated with the Caister CM decommissioning activities have been assessed and it is concluded that the proposed decommissioning can be completed without causing significant adverse impact to the environment. The results of the Environmental Impact Assessment (EIA) will be reported and presented in an Environmental Appraisal (EA) accompanying the Decommissioning Programmes.

The EA makes an assessment of the potential environmental impacts by identifying interactions between the proposed decommissioning activities and the associated environmental receptors. The EA also describes the proposed mitigation measures designed to avoid or reduce the identified potential environmental impacts and how these will be managed in accordance with Chrysaor's Environmental Management System (EMS) while considering responses from stakeholders.

Table 4.2: Environmental Impact Management

Activity	Main Impacts	Management
Topsides Removal	Energy use and atmospheric emissions (EA Section 3.1)	All engines, generators and combustion plant on the vessels will be well maintained and correctly operated to ensure that they are working efficiently to minimise energy use and gaseous emissions. Vessel operations will be minimised where practical.
	Accidental hydrocarbon release (EA Section 5.2)	Hydrocarbon inventories are to be removed from the topsides prior to commencing removal operations. The SNS Oil Pollution Emergency Plan has been updated in agreement with OPRED to include all planned decommissioning operations.
Jacket Removal	Energy use and atmospheric emissions (EA Section 3.1)	All engines, generators and combustion plant on the vessels will be well maintained and correctly operated to ensure that they are working efficiently to minimise energy use and gaseous emissions. Vessel operations will be minimised where practical.

Table 4.2: Environmental Impact Management		
Activity	**Main Impacts**	**Management**
	Underwater noise (EA Section 3.1)	An initial assessment of the potential impacts of underwater noise concluded that no further assessment was necessary. There is no intention to use underwater explosives during these activities.
	Accidental hydrocarbon release (EA Section 5.2)	The SNS Oil Pollution Emergency Plan has been updated in agreement with OPRED to include all planned decommissioning operations.
	Seabed disturbance and loss of habitat (EA Section 5.1)	The decommissioning operations will be carefully designed and executed so as to minimise the area of seabed that will be disturbed. Loss of habitat through the introduction of new material to the marine environment is to be avoided or minimised throughout the proposed operations.
Subsea Installation Removal	Energy use and atmospheric emissions (EA Section 3.1)	All engines, generators and combustion plant on the vessels will be well maintained and correctly operated to ensure that they are working efficiently to minimise energy use and gaseous emissions. Vessel operations will be minimised where practical.

Table 4.2: Environmental Impact Management		
Activity	**Main Impacts**	**Management**
	Underwater noise (EA Section 3.1)	An initial assessment of the potential impacts of underwater noise concluded that no further assessment was necessary. There is no intention to use underwater explosives during these activities.
	Accidental hydrocarbon release (EA Section 5.2)	The SNS Oil Pollution Emergency Plan has been updated in agreement with OPRED to include all planned decommissioning operations.
	Seabed disturbance and loss of habitat (EA Section 5.1)	The decommissioning operations will be carefully designed and executed so as to minimise the area of seabed that will be disturbed. Loss of habitat through the introduction of new material to the marine environment is to be avoided or minimised throughout the proposed operations.
Decommissioning Pipelines (Platform Riser Sections)	Energy use and atmospheric emissions (EA Section 3.1)	All engines, generators and combustion plant on the vessels will be well maintained and correctly operated to ensure that they are working efficiently to minimise energy use and gaseous emissions. Vessel operations will be minimised where practical.
	Underwater noise (EA Section 3.1)	An initial assessment of the potential impacts of underwater noise concluded that no further assessment was necessary.

Table 4.2: Environmental Impact Management		
Activity	**Main Impacts**	**Management**
		There is no intention to use underwater explosives during these activities.
	Accidental hydrocarbon release (EA Section 5.2)	The SNS Oil Pollution Emergency Plan has been updated in agreement with OPRED to include all planned decommissioning operations. The pipelines will be flushed tor remove mobile hydrocarbons prior to subsea disconnect.
	Seabed disturbance and loss of habitat (EA Section 5.1)	The decommissioning operations will be carefully designed and executed so as to minimise the area of seabed that will be disturbed. Loss of habitat through the introduction of new material to the marine environment is to be avoided or minimised throughout the proposed operations.
Decommissioning Drill Cuttings Piles	No drill cuttings piles present	No drill cuttings piles present.

Note: The verification of the seabed state within the Caister CM 500m zone will be conducted at the time of decommissioning.

5 Interested Party Consultations

Note Section 5 to be populated post consultation.

Table 5.1 Summary of Stakeholder Comments		
Stakeholder	**Comment**	**Response**
Statutory Consultees (NFFO, SFF, NIFPO)	NFFO: The data recorded within the environmental appraisal on commercial fishing activity in ICES rectangle 37-F2 which highlights a significant decline in effort in 2018, should not be taken as an indication of activity in forthcoming years. This effort could increase significantly and is dependent on a number of factors including quota uplift, changing weather patterns, displacement due to restrictions when MPA/MCZ management measures are implemented and changing commercial fishing patterns as the Offshore Wind farm developments restrict fishing in adjacent areas.	Comments Noted
Statutory Consultees (GMS)	No comments received	N/A
Other (VisNed)	No comments received	N/A
Public	No comments received	N/A

6 Programme Management

6.1 Project Management and Verification

Chrysaor has established a UK Decommissioning organisation as a department to manage and execute decommissioning projects. Chrysaor existing processes for Operations, Planning, Project Management, Procurement, Health Safety and Environment, will be used and tailored to meet the specific requirements of decommissioning projects. Chrysaor will manage all permitting, licences, authorisations, notices, consents and consultations.

Any changes to this decommissioning document will be discussed and agreed with OPRED.

6.2 Post-Decommissioning Debris Clearance and Verification

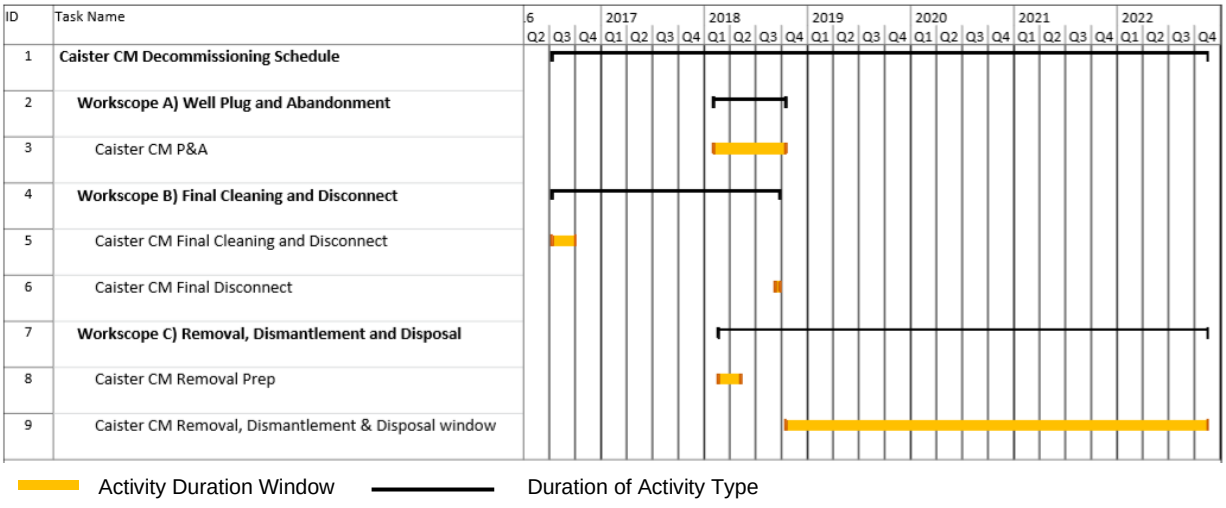
A post decommissioning site survey will be carried out around a 500m radius of the Caister installation site. Oil and Gas seabed debris will be recovered for onshore disposal or recycling in line with existing disposal methods.

Independent verification of seabed state will be obtained. Whilst the worst-case seabed disturbance from overtrawl has been assessed, it is recognised that some of the decommissioning activities are occurring in close proximity to the Dogger Bank, therefore different methods of determining debris clearance and snag risk may be required. The methods used will therefore be discussed and finalised with OPRED. This will be followed by a statement of clearance to all relevant governmental departments and statutory consultees.

The outcomes of the verification of the seabed state in the 500m zone will be reported in the Close Out Report.

6.3 Schedule

Schedule of debris clearance activities and close out reporting to be agreed as part of the greater SNS-wide decommissioning campaign. Debris clearance to be undertaken in a suitable timeframe following platform removal. Post-removal surveys and close-out reporting to follow debris clearance of the 500m zones.



Note: This is an indicative schedule and is subject to change based on technical, market, and commercial, factors.

Figure 6.1: Gantt Chart of Project Plan

6.4 Costs

Table 6.1 – Provisional Decommissioning Programme costs*												
Asset Name	TOTAL	Operator Project Management	Facility Running / Owner Costs	Wells Abandonment	Facilities/ Pipeline Making Safe	Topsides Preparation	Topsides Removal	Sub-structure Jacket Removal	Topside and sub-structure Onshore Recycling	Subsea Infrastructure (pipelines, umbilicals, mattresses, SSIV)	Site Remediation	Monitoring
Caister CM												
CDP1a Total												

Note: * An estimate of the overall cost has been provided separately to OPRED*

Table 6.1: Decommissioning Costs

6.5 Close Out

In accordance with OPRED guidelines a close out report will be submitted to OPRED within 12 months of completion of the offshore decommissioning scope covered by this decommissioning document. The close out report will contain debris removal and independent verification of seabed clearance, the first post-decommissioning environmental survey and explanation of any variations to the approved Decommissioning Programmes.

6.6 Post Decommissioning Monitoring and Evaluation

A post decommissioning environmental seabed survey will be carried out once the offshore decommissioning work scope covered by this decommissioning document has been completed. The survey will include seabed sampling to monitor levels of hydrocarbons, heavy metals and other contaminants to allow for a comparison with the results of the pre-decommissioning survey.

Results of this survey will be available once the decommissioning document work scope is complete.

7 Supporting Documents

Table 7.1 : Supporting Documents	
Document Number	**Title**
XOD-SNS-L-XX-X-HS-02-00005	Environmental Appraisal for the SNS Decommissioning Programme CDP1
10554.1	SNS Decommissioning Survey Caister Murdoch System (Murdoch Hub and Caister CM) - Habitat Assessment Report
10554.1	SNS Decommissioning Survey Caister Murdoch System (Murdoch Hub and Caister CM) – Pre-decommissioning Survey Report

8 Partner Letters of Support

NEPTUNE
ENERGY

Our ref.: 1337110

To:

Department for Business, Energy and Industrial Strategy (BEIS)
Offshore Petroleum Regulator for Environment & Decommissioning
AB1 Building
Crimon Place
Aberdeen
AB10 1BJ

Date: 18th March 2020

Dear Sir or Madam,

Caister CM Platform and Associated Riser Sections Decommissioning Programmes

PETROLEUM ACT 1998

We acknowledge receipt of your letter dated (17th March 2020).

We, Neptune E&P UKCS Limited (company number 03386464), a company incorporated in England and Wales having its registered office at Nova North, 11 Bressenden Place, London, England, SW1E 5BY, as a holder of a section 29 notice relative to the Caister Field and in accordance with the Guidance Notes[1] confirm that we hereby authorise Chrysaor Production (U.K.) Limited (company number 00524868), a company incorporated in England and Wales having its registered office at Brettenham House, Lancaster Place, London, England, WC2E 7EN, to submit on our behalf abandonment programmes relating to the Caister CM facilities and associated riser sections as directed by the Secretary of State on 17th March 2020.

[1] Guidance Notes issued by the Department of Energy and Climate Change on Decommissioning of Offshore Oil and Gas Installations and Pipelines under the Petroleum Act 1998

Neptune E&P UK Ltd
16 North Esplanade West
Aberdeen AB11 5RJ
United Kingdom
T: +44 (0)1224 281000
F: +44 (0)1224 281025
www.neptuneenergy.com

Company No. 01483021
Registered in England and Wales at:
Nova North, 11 Bressenden Place
London SW1E 5BY
United Kingdom

NEPTUNE
ENERGY

We confirm that we support the proposals detailed in the Caister CM Platform and Associated Riser Sections Decommissioning Programmes dated 11th March 2020, which is to be submitted by Chrysaor Production (U.K.) Limited in so far as they relate to those facilities and pipelines in respect of which we are required to submit abandonment programmes under section 29 of the Petroleum Act 1998.

Yours faithfully,

Pierre Girard
Interim Managing Director

For and on behalf of Neptune E&P UKCS Limited (company number 03386464)

Premier Oil E&P UK Limited
Upper Denburn House
Prime Four Business Park
Kingswells
Aberdeen
AB15 8PU

Telephone +44 (0)1224 618900
Fax +44 (0)1224 615999
Email premier@premier-oil.com
Website www.premier-oil.com

Department for Business, Energy and Industrial Strategy (BEIS)
Offshore Petroleum Regulator for Environment & Decommissioning
AB1 Building
Crimon Place
Aberdeen
AB10 1BJ

Date: 19th March 2020

Dear Sir or Madam,

Caister CM Platform and Associated Riser Sections Decommissioning Programme

PETROLEUM ACT 1998

We acknowledge receipt of your letter, dated 17th March 2020.

We, Premier Oil E&P UK Limited (Company Number 02761032), a company incorporated in England and Wales having its registered office at 23 Lower Belgrave Street, London, SW1W 0NR, as a holder of a Section 29 notice relative to the Caister Field and in accordance with the Guidance Notes , confirm that we hereby authorise Chrysaor Production (U.K.) Limited (Company Number 00524868), a company incorporated in England and Wales having its registered office at Brettenham House, Lancaster Place, London, England, WC2E 7EN, to submit on our behalf abandonment programmes relating to the Caister CM facilities and associated riser sections as directed by the Secretary of State on 17th March 2020.

We confirm that we support the proposals detailed in the Caister CM Platform and Associated Riser Sections Decommissioning Programmes, dated 11th March 2020, which is to be submitted by Chrysaor Production (U.K.) Limited in so far as they relate to those facilities and pipelines in respect of which we are required to submit abandonment programmes under section 29 of the Petroleum Act 1998.

Yours faithfully,

Phil McIntyre
Asset Manager – Non Operated Assets, UK Business Unit

For and on behalf of Premier Oil E&P UK Limited (Company Number 02761032)

9 Appendix 1 – Public Notices

THE GAZETTE

OFFICIAL PUBLIC RECORD

Notice details

Type:
Planning
> Pipe-Lines
Publication date:
22 January 2020, 12:00
Edition:
The London Gazette
Notice ID:
3475529
Notice code:
1608

Pipe-Lines

CHRYSAOR PRODUCTION (U.K.) LIMITED
PUBLIC NOTICE
THE PETROLEUM ACT 1998
CAISTER CM PLATFORM AND ASSOCIATED RISER SECTIONS DECOMMISSIONING PROGRAMMES

Chrysaor Production (U.K.) Limited has submitted, for the consideration of the Secretary of State for Business, Energy & Industrial Strategy, the draft Decommissioning Programmes for the Caister CM Platform and the associated riser sections, in accordance with the provisions of the Petroleum Act 1998. It is a requirement of the Act that interested parties be consulted on such decommissioning proposals.

The items/facilities covered by the Decommissioning Programmes are:

The Caister CM infrastructure lies 163 km east of the UK Lincolnshire coast in Block 44/23a. The facilities include one infield satellite platform, comprising a topside and a jacket structure and two riser sections (1 gas, 1 methanol).

Chrysaor Production (U.K.) Limited hereby gives notice that a summary of the Caister CM Platform and Associated Riser Sections Decommissioning Programmes can be viewed at this address: www.chrysaor.com.

Alternatively, a hard copy of the programmes can be inspected at the following location during office hours:

Chrysaor Production (U.K.) Limited
Rubislaw House
Anderson Drive
Aberdeen AB15 6FZ

Contact: Michael Burnett, Decommissioning Strategy and Integration Manager

Representations regarding the Caister CM Platform and Associated Riser Sections Decommissioning Programmes should be submitted in writing to the person named at the above address by the consultation closing date of 20 February 2020. Submissions should state the grounds upon which any representations are being made.

Date: 22 January 2020

The Petroleum Act 1998

Caister CM Platform and Associated Riser Sections Decommissioning Programmes

Chrysaor Production (U.K.) Limited has submitted, for the consideration of the Secretary of State for Business, Energy & Industrial Strategy, the draft Decommissioning Programmes for the Caister CM Platform and the associated riser sections, in accordance with the provisions of the Petroleum Act 1998. It is a requirement of the Act that interested parties be consulted on such decommissioning proposals.

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Chrysaor Production (U.K.) Limited
Rubislaw House
Anderson Drive
Aberdeen AB15 6FZ

Contact: Michael Burnett

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Date: 22 January 2020

Chrysaor Production (U.K.) Limited
Rubislaw House
Anderson Drive
Aberdeen AB15 6FZ

Michael Burnett
Decommissioning Strategy and Integration Manager

PUBLIC NOTICE

The Petroleum Act 1998

Caister CM Platform and Associated Riser Sections Decommissioning Programmes

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Date: 22 January 2020

Chrysaor Production (U.K.) Limited
Rubislaw House
Anderson Drive
Aberdeen AB15 6FZ

Michael Burnett
Decommissioning Strategy and Integration Manager

10 Appendix 2 – Consultee Responses

NFFO Services Ltd

30 Monkgate
York
YO31 7PF
Tel:01904 635 432
27th January 2020.

Michael Burnett
Decommissioning Strategy and Integration Manager
Chrysaor Production (UK) Ltd
Rubislaw House
Anderson Drive
Aberdeen
AB15 6FZ

Dear Michael
In reference to the decommissioning program for the Caistor CM Platform and associated infield pipelines.

The National Federation Fisherman's Organisation would like to thank Chrysaor for the detailed documentation explaining the planned methodology on planned decommissioning of these assets.

The Federation would like to make comment on the documentation received regarding the proposed decommissioning program of these assets as follows.

Reference to Environmental appraisal fishing effort, (Page 15)
The data recorded within the environmental appraisal on commercial fishing activity in ICES Rectangle 37-F2 which highlights a significant decline in effort in 2018 should not be taken as an indication of activity in forthcoming years, this effort could increase significantly all dependant on a number of factors including

1) quota uplift.

2) Weather conditions / Changing weather patterns.

3) Displacement / restrictions to areas allowed to fish once MPA /MCZ management measures are passed and put in place.

4) In addition to these possible restrictions it should be noted that commercial fishing operations are presently having to adapt to other grounds not necessarily fished traditionally due to the displacement that is taking place from Offshore Wind farm development.

NFFO Services department look forward to working closely with Chrysaor throughout the decommissioning process.

Kind Regards

Ian Rowe (General Manager)

NFFO Services Ltd