



Banff SAL Buoy Decommissioning Programmes

Rev.	Date	Reason for issue	Prepared	Checked	Approved
05	10/10/2019	OPRED comments updated	PM Johnsen	F Khan	D Millar
04	30/09/2019	OPRED comments updated	PM Johnsen	F Khan	D Millar
03	27/09/2019	Consultation responses included along with update of table 1.2	PM Johnsen	F Khan	D Millar
02	29.08.2019	Amended with BEIS comments	PM Johnsen	F Khan	D Millar
01	23.08.2019	Draft	PM Johnsen	F Khan	D Millar

<table border="1"> <thead> <tr> <th colspan="2">Document Status</th> </tr> </thead> <tbody> <tr><td>1</td><td>Draft</td></tr> <tr><td>2</td><td>For Comments</td></tr> <tr><td>3</td><td>Comments Included</td></tr> <tr><td>4</td><td>For Construction</td></tr> <tr><td>5</td><td>Issued/As Built</td></tr> <tr><td>6</td><td>Void</td></tr> <tr><td>+1</td><td>Issued for Information</td></tr> </tbody> </table>				Document Status		1	Draft	2	For Comments	3	Comments Included	4	For Construction	5	Issued/As Built	6	Void	+1	Issued for Information	Owner Company Name / Logo 			
Document Status																							
1	Draft																						
2	For Comments																						
3	Comments Included																						
4	For Construction																						
5	Issued/As Built																						
6	Void																						
+1	Issued for Information																						
Originator/Contractor/Supplier Company Name / Logo Teekay				Sub Supplier Company Name / Logo																			
Project no 43030				Sub Supplier Document Number																			
Originator no. 01		Contract/ PO No		Originator/Contractor/Supplier Document Number																			
Document Title Banff Field Single Anchor Loading (SAL) buoy Decommissioning																							
Area	Discipline	System	Doc. type	Document Number	No of Sheets	SFI	Document Status	Rev															
	U	19	RA	PJB-01-U-19-RA-000003-001	20	199	3	06															

BANFF FIELD SINGLE ANCHOR LOADING (SAL) BUOY DECOMMISSIONING

TABLE OF CONTENTS:

1	EXECUTIVE SUMMARY	4
	Decommissioning Programmes.....	4
	Requirement for Decommissioning Programme	4
	Overview of Installation Being Decommissioned	5
	Overview of Items being Decommissioned	6
2	FIELD LOCATION INCLUDING FIELD LAYOUT AND ADJACENT FACILITIES	7
2.1	Industrial Implications.....	9
3	DESCRIPTION OF ITEMS TO BE DECOMMISSIONED	10
3.1	Installation(s) and Pipeline(s):	10
3.2	Inventory Estimates	11
4	REMOVAL AND DISPOSAL METHODS FOR WASTES	11
4.1	Removal and Disposal Methods <i>for Wastes</i>	11
5	ENVIRONMENTAL APPRAISAL OVERVIEW	12
6	INTERESTED PARTY CONSULTATIONS	13
7	PROGRAMME MANAGEMENT	14
7.1	Project Management	14
7.2	Post Debris Clearance and Verification.....	14
7.3	Schedule.....	14
7.4	Costs.....	14
7.5	Close Out.....	14
7.6	Post-Decommissioning Monitoring and Evaluation	14
7.7	Management of residual Liability	14
8	PARTNER LETTER(S) OF SUPPORT	15
9	SUPPORTING DOCUMENTS.....	20

TERMS AND ABBREVIATIONS

Abbreviation	Explanation
AHT	Anchor Handler Tug
BEIS	The Department for Business, Energy and Industrial Strategy
EA	Environmental Appraisal
N/A	Not Applicable
OGA	Oil & Gas Authority
OPRED	Offshore Petroleum Regulator for Environment Decommissioning
PL	Pipeline
SAL	Single Anchor Loading
Te	Tonne
UK	United Kingdom
UKCS	United Kingdom Continental Shelf
WGS84	World Geodetic System 1984

FIGURES AND TABLES

Description	Page
Table 1.1 Installation being Decommissioned	5
Table 1.2 Installation Section 29 Notice Holders details	5
Table 1.3 Summary Decommissioning Programme	6
Figure 2.1: Field Location in UKCS	7
Figure 2.2: Field Layout and Adjacent Facilities	8
Table 3.1: Installations to be decommissioned	10
Table 3.2: Inventory Part of the Installation being Removed	11
Table 4.1: Waste Stream Manage Method	11
Table 5.1: Environmental Appraisal	12

APPENDICES

Appendix	Description	Page
1		
2		
3		
4		

Banff Field Single Anchor Loading (SAL) buoy
Decommissioning

DOC.NO. : PJB-01-U-19-RA-000003-001
REV. : 06
DATE : 10.10.2019
PAGE : 4 of 20

1 EXECUTIVE SUMMARY

Decommissioning Programmes

This document contains decommissioning programmes for the removal of the disused and disconnected Banff Field SAL (Single Anchor Loading) buoy on Block 22/27A. The decommissioning of the SAL buoy including a portion of the disused pipeline, PL1550A will be treated as a standalone project. The portion of PL1550A from the SAL anchor to blanked flange will be part of the Field decommission.

Requirement for Decommissioning Programme

In accordance with the Petroleum Act 1998, the Section 29 notice holders of the Banff Field installation(s) (see Table 1.2) are applying to The Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) to obtain approval for decommissioning of the installation and pipeline detailed in section 2.1 of this decommissioning programmes. (See also Section 7 - Partner Letter(s) of Support).

The decommissioning programmes are submitted in compliance with national and international regulations and OPRED guidelines. The schedule outlined in this document is for a 2 day decommissioning project scheduled for early start the 8th September and latest completion by 15th September.

The SAL offloading system was made redundant in 2001 due to low uptime.

Since then the system has been wet stored awaiting field decommissioning. However, due to the risk that the mooring wire will fail, a standalone programme has been developed.

During the 2019 annual inspection it was found that the SAL buoy mooring wire was severely corroded at the buoy end and a few wire strands had parted, see picture below. The condition of the mooring wire is impossible to access. However, it is doubtful if it will survive another winter.



If the mooring wire break, the buoy will raise a few meters in the water column being held back by the loading hose and potentially start to move around. The oil export route to the FSU and a PLEM may then be damaged by dragging the offloading hose (PL1550A) with a loading head at the end over them.

Furthermore, the loading hose may break and the buoy will raise to sea surface, start drifting and become a threat to marine traffic and surrounding subsea infra structure.

This decommissioning programme explains the principles of the removal activities that will be undertaken, along with a summary of environmental impacts which have been included in the relevant permit applications.

Overview of Installation Being Decommissioned

Table 1.1: Installation being decommissioned			
Field(s)	Banff Field	Production Type (Oil/Gas/Condensate)	N/A
Water Depth (m)	Approx 90 metres	UKCS block	22/27A
Discrete Area description		Well Type	Number of Wells
Wet stored Single Anchor Loading System(SAL).		N/A	N/A
Description of work being undertaken			
<p>The portion of disused and disconnected loading hose, PL1550A, suspended from the SAL anchor, via the buoy and part resting on seabed together with the SAL buoy will be decommissioned. The sequence of work will be that the loading hose will be cut loose from SAL buoy and anchor and retrieved to an Anchor Handler Tug (AHT). The mooring wire of the buoy will be cut and buoy retrieved to AHT.</p> <p>The in-situ suction anchor will be in place until Field decommissioning.</p>			

Table 1.2 Installation(s) Section 29 Notice Holders Details

Section 29 Notice Holder(s)	Registration Number	Equity Interest (%) <i>If zero show 0%</i>
Banff L.L.C	962000	0%
CNR International (U.K.) Developments Limited	01021629	22.275%
CNR International (U.K.) Limited	00813187	65.325%
Dana Petroleum (E & P) Limited	02294746	12.4%
Teekay Petrojarl Floating Production UK Ltd	02436350	0%
Teekay Petrojarl Production AS	939 545 832	0%
Chrysaor Production (U.K.) Limited	00524868	0%

Note: Teekay Petrojarl Floating Production UK Ltd are the owners of the buoy and responsible for 100% of the cost of the decommissioning

Banff Field Single Anchor Loading (SAL) buoy
Decommissioning

DOC.NO. : PJB-01-U-19-RA-000003-001

REV. : 06

DATE : 10.10.2019

PAGE : 6 of 20

Table 1.3 Pipeline(s) Section 29 Notice Holders Details

Section 29 Notice Holder(s)	Registration Number	Equity Interest (%) <i>If zero show 0%</i>
Teekay Petrojarl Floating Production UK Ltd	02436350	100%

Overview of Items being Decommissioned

Table 1.3: Summary of Proposed Decommissioning Programme	
Proposed Decommissioning Solution	Reason for Selection
Installation(s) and Pipeline(s)	
The SAL buoy with the portion of PL1550A suspended from the SAL anchor via the buoy and partly resting on seabed will be decommissioned	Decommissioning of SAL buoy and portion of PL1550A will have minimal disturbance of the seabed.
Wells	
N/A	N/A
Interdependencies	
PL 1550A has been flushed with inhibited sea water. The removal of the SAL buoy with mooring wire and portion of disused PL1550A will not prejudice the future decommissioning solution of the suction anchor and the remaining part of PL1550A.	

2 FIELD LOCATION INCLUDING FIELD LAYOUT AND ADJACENT FACILITIES

Figure 2.1: Field Location in UKCS

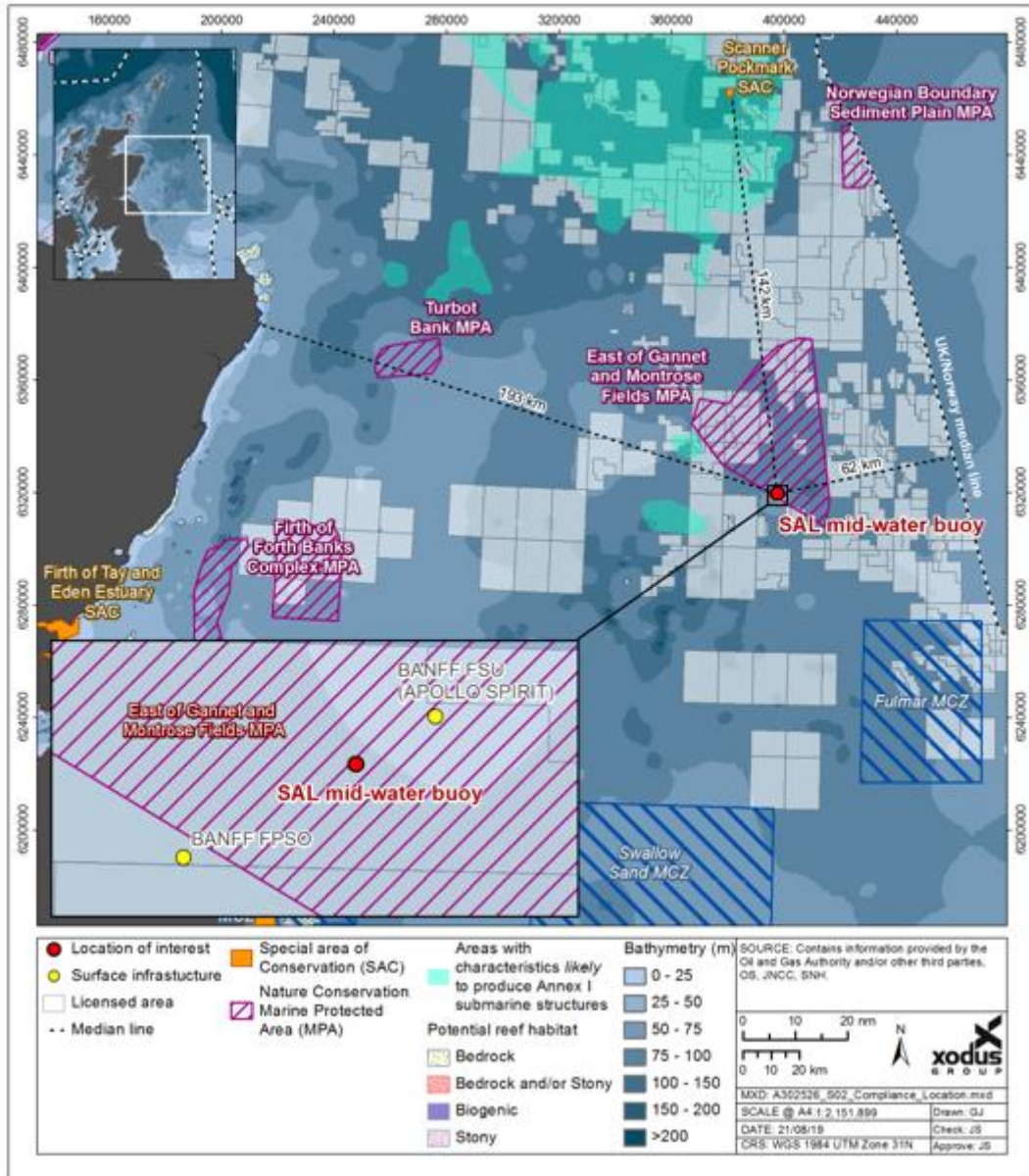
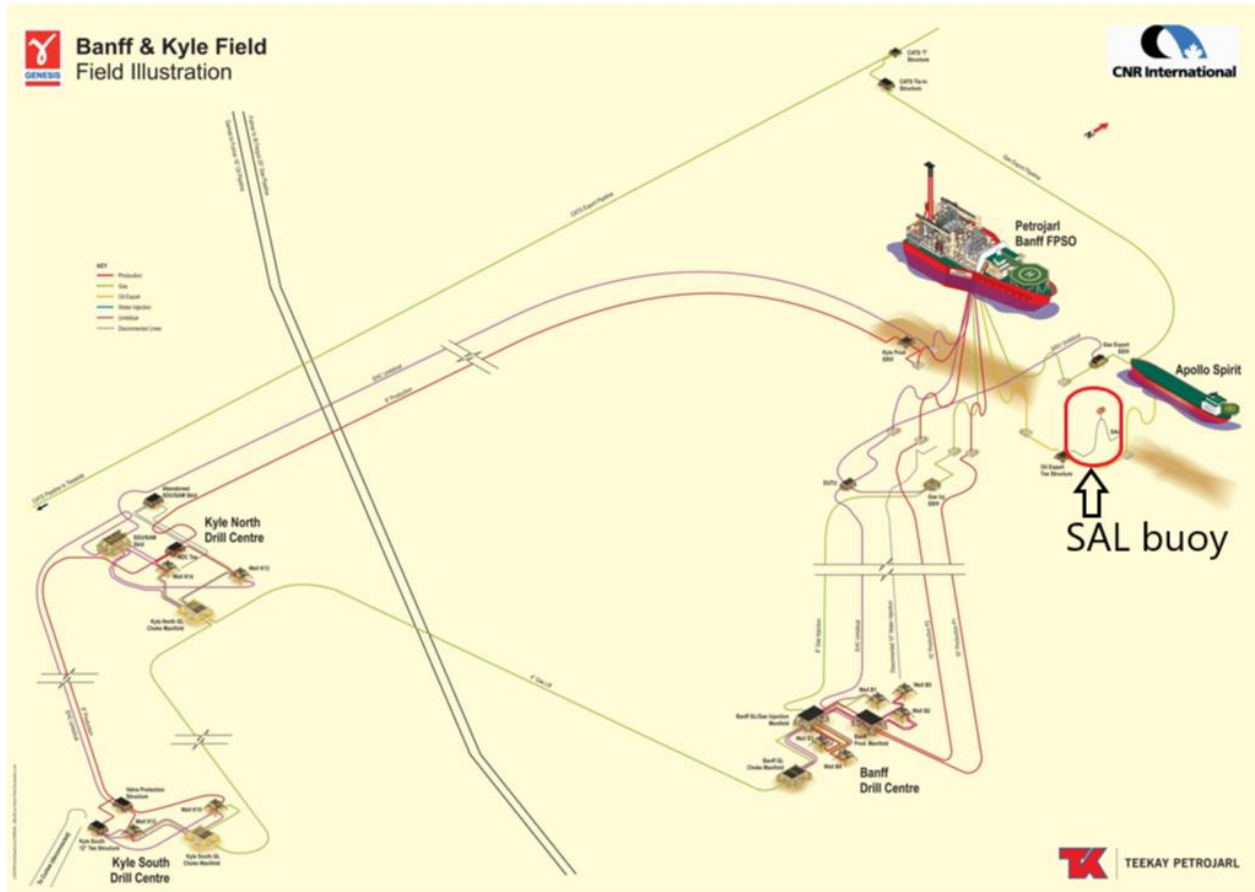


Figure 2.2: Field Layout & Adjacent Facilities



Banff Field Single Anchor Loading (SAL) buoy
Decommissioning

DOC.NO. : PJB-01-U-19-RA-000003-001

REV. : 06

DATE : 10.10.2019

PAGE : 9 of 20

2.1 Industrial Implications

Contract strategy is to contract an AHT with active heave compensated crane (AHC) to remove the buoy. Thereafter the disposal and recycling will be undertaken by a reputable disposal and recycling company, currently identified as One Petersons, Greenhead industrial base in Shetland.

Banff Field Single Anchor Loading (SAL) buoy
Decommissioning

DOC.NO. : PJB-01-U-19-RA-000003-001

REV. : 06

DATE : 10.10.2019

PAGE : 10 of 20

3 DESCRIPTION OF ITEMS TO BE DECOMMISSIONED

3.1 Installation(s) and Pipeline(s):

Table 3.1: Equipment to be Decommissioned				
Installation	Description of the ringfenced area of work	Size/Weight (Te) if relevant	Location*	Comments**
SAL Buoy	Submerged, floating buoy	Weight 23 Te Uplift 40Te	57° 00' 0.46" N 01° 19' 01.45" E	N/A
PL1550A	Bonded 12" loading hose partly resting on Seabed and suspended underneath buoy	Weight approx. 46 Te Length: 276m	57° 00' 30.46" N 01° 19' 01.45" E	N/A
PL1550A End Valve	End valve	1.5 Te	57° 00' 34.05" N 01° 18' 50.75" E	N/A
SAL Buoy mooring wire	Spiral strand wire	51 metres, approx. 4Te	57° 00' 30.46" N 01° 19' 01.45" E	N/A

3.2 Inventory Estimates

Table 3.3 Inventory parts of the Installation being removed		
Material	Weight (Te)	Estimated volume (m ³)
Steel	27	
Concrete	N/A	
Plastic	46	
Non Ferrous	N/A	
Hazardous	N/A	
Radioactive waste (NORM etc.)	N/A	
Other	N/A	

4 REMOVAL AND DISPOSAL METHODS FOR WASTES

4.1 Removal and Disposal Methods for Wastes

Table 4.1: Waste Stream Management Methods	
Waste Stream	Removal and Disposal method if applicable
NORM/LSA Scale	N/A
Asbestos	N/A.
Marine Growth	Removed onshore. Disposed according to guidelines
Bulk Liquids	PL1550A is filled with inhibited water. Will be disposed to sea when retrieved
Other hazardous wastes	N/A
Onshore Dismantling sites	One Peterson Greenhead Base at Lerwick has been selected for the disposal and recycling site.

5 ENVIRONMENTAL APPRAISAL OVERVIEW

The environmental impact of the proposed activities have been assessed in a separate Environmental Appraisal document (Ref 05). A summary of the main impacts and associated management is provided in Table 5.1 below.

Table 5.1: Environmental Appraisal		
Activity	Main Impacts	Management
Removal of the SAL buoy and PL1550A	Seabed disturbance will be caused by the removal of the PL1550A which partially lies on the seabed. This will incur a localised, temporary disturbance of an area of seabed, within The East of Gannet and Montrose Field NCMPA. (EA section 4.3)	The lifting activity will be undertaken while vessel is on dynamic positioning, thus will be undertaken through controlled, precise manoeuvring. This will minimise any lateral movement which will ensure the area of seabed temporarily disturbed will be kept as low as possible.
Disconnection of PL1550A	The discharge to sea of 20m ³ of inhibited seawater to the water column was assessed to have negligible environmental impact. (EA Section 4.1)	PL1550A is currently isolated from any other pipeline system, thus only the 20m ³ volume (Primarily seawater) will be discharged. The inhibited seawater was introduced into pipeline system in 2001. Therefore, any biocide present in the line is expected to be degraded and inactive. A worst-case assessment was undertaken of fresh biocide in the line which indicated that it would have no significant environmental effects.
Vessel mobilisation	Localised Effects on Air quality (EA section 4.2)	The proposed operations will be undertaken as efficiently as possible and the removal activity is expected to be complete in two days on location. This will reduce as much as possible the associated emissions from the vessel.

The Environmental Appraisal supporting this Decommissioning Programme has considered all the potential environmental implications of the work scope to remove the Banff SAL Buoy. This process identified three primary impacts which were further assessed and concluded as follows:

- A subsea discharge of 20 m³ historic inhibited seawater will occur when PL1550A is cut for removal. This discharge will be rapidly diluted in the water column. Given that this fluid is principally seawater with degraded biocide, any associated environmental effects from this discharge are anticipated to be negligible. The results of chemical risk assessment indicate that the chemical discharge to sea is not likely to pose a risk to the marine environment.
- The proposed work will amount to approximately 0.0009 % of the CO₂ generated by shipping in UK waters in 2017. Gaseous emissions will disperse rapidly such that emissions from the vessels are not considered to have a significant impact.

- The area of disturbed seabed will be relatively small and temporary in nature. Furthermore, the benthic species associated with the area impacted are widespread. Therefore, the impact to benthic habitats is considered to be negligible.

Teekay has reviewed the environmental sensitivities in the area of the proposed operations and the significance of the potential impacts resulting from the anticipated time of operations. It is concluded that the proposed activities will not have a significant environmental impact.

6 INTERESTED PARTY CONSULTATIONS

Consultations Summary:

Table 6.1: Summary of Stakeholder Comments		
Who	Comment	Response
Informal Consultations		
Public consultation in the Press & Journal	No representations received	N/A
Statutory Consultations		
Global Marine Systems Limited	No representations received	N/A
National Federations of Fishermen's Organisations (NFF)	No representations received	N/A
NIPFO	No representations received	N/A
Scottish Fishermen's Federation	Receipt of letter acknowledged – no representations received	N/A

7 PROGRAMME MANAGEMENT

7.1 Project Management

Project Plan:

A competent project management team has been appointed by Teekay to manage the operations of the competent Contractor selected for the SAL and PL1550A removal programmes. Since this is a non-planned decommissioning programme and the time frame to execution is short, the team will be in close contact with Regulators to achieve consent.

7.2 Post Debris Clearance and Verification

A post decommissioning as-left visual survey will be carried out with an ROV. The survey will focus on the "as left" status and physical disturbance on site.

7.3 Schedule

The decommissioning work early start 8th September 2019 and latest finish date 15th September 2019.

7.4 Costs

Decommissioning cost will be provided separately to OPRED and OGA.

7.5 Close Out

A close out report will be issued separately to OPRED following completion of offshore works for the removal of the SAL buoy with PL1550A. The report will explain any variance from the Decommissioning programme.

7.6 Post-Decommissioning Monitoring and Evaluation

The requirement for any post-decommissioning monitoring and evaluation will be discussed and agreement with OPRED.

7.7 Management of residual Liability.

A full statement on the management of residual liability and its requirements will be provided in the close out report following full decommissioning of the Banff field.

Banff Field Single Anchor Loading (SAL) buoy
Decommissioning

DOC.NO. : PJB-01-U-19-RA-000003-001
REV. : 06
DATE : 10.10.2019
PAGE : 15 of 20

8 PARTNER LETTER(S) OF SUPPORT



BRINGING ENERGY TO THE WORLD

Offshore Petroleum Regulator for Environment and Decommissioning
Department for Business, Energy & Industrial Strategy
3rd Floor, Wing C
AB1 Building
Crimon Place
Aberdeen
AB10 1BJ

11 October 2019

Dear Sir or Madam

BANFF SAL BUOY DECOMMISSIONING PROGRAMME PETROLEUM ACT 1998

We acknowledge receipt of your letter dated 9 October 2019.

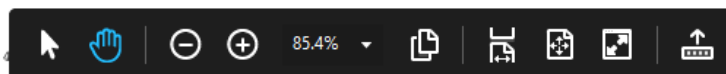
We, Banff L.L.C., confirm that we authorise Teekay Petrojarl Floating Production UK Ltd to submit on our behalf abandonment programme relating to the Banff SAL Buoy as directed by the Secretary of State on 9 October 2019.

We confirm that we support the proposals detailed in the Teekay Petrojarl Floating Production UK Ltd Decommissioning Programme dated 10 October 2019, which is to be submitted by Teekay Petrojarl Floating Production UK Ltd 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

A handwritten signature in blue ink, appearing to read 'Anne Liversedge', is written over a light blue circular stamp.

Anne Liversedge
President
For and on behalf of **Banff L.L.C.**



Banff Field Single Anchor Loading (SAL) buoy
Decommissioning

DOC.NO. : PJB-01-U-19-RA-000003-001
REV. : 06
DATE : 10.10.2019
PAGE : 16 of 20



Dana Petroleum (E&P) Limited
King's Close
62 Huntly Street
Aberdeen
AB10 1RS
United Kingdom

t: +44 (0) 1224 616 000
f: +44 (0) 1224 616 001
www.dana-petroleum.com

Offshore Petroleum Regulator for Environment and Decommissioning
Department for Business, Energy and Industrial Strategy
3rd Floor, Wing C
AB1 Building
Crimon Place
Aberdeen
AB10 1BJ

Attn. Stewart Welsh

25 October 2019

Dear Mr. Walsh,

PETROLEUM ACT 1998

Banff Field Single Anchor Loading Buoy ("SAL Buoy") Decommissioning Programmes

Dana Petroleum (E&P) Limited confirm that we authorise Teekay Petrojarl Floating Production UK Ltd ("Teekay") to submit on our behalf abandonment programmes relating to the SAL Buoy as directed by the Secretary of State on 9th October 2019.

We confirm that we support the proposals detailed in the Teekay Decommissioning programme for the SAL Buoy dated 10th October 2019 which will be submitted by Teekay, insofar 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 (E&P) Limited

A handwritten signature in black ink, appearing to read "E Wildgoose".

Ewan Wildgoose
Acting Chief Finance Officer

Banff Field Single Anchor Loading (SAL) buoy
Decommissioning

DOC.NO. : PJB-01-U-19-RA-000003-001
REV. : 06
DATE : 10.10.2019
PAGE : 17 of 20



10 October 2019

Offshore Petroleum Regulator for Environment and Decommissioning
Department for Business, Energy and Industrial Strategy
3rd Floor, Wing C
AB1 Building
Crimon Place
ABERDEEN
AB10 1BJ

FAO: Stewart Welsh

Dear Sir or Madam

PETROLEUM ACT 1998
Banff Field Single Anchor Loading Buoy ("SAL Buoy") Decommissioning Programmes

We, CNR International (U.K.) Limited, confirm that we authorise Teekay Petrojarl Floating Production UK Ltd ("Teekay") to submit on our behalf abandonment programmes relating to the SAL Buoy as directed by the Secretary of State on 9 October 2019.

We confirm that we support the proposals detailed in the Teekay Decommissioning Programme for the SAL Buoy dated 10 October 2019 which is to be submitted by Teekay, 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

Roy Aspden
Decommissioning Projects Manager
For and on behalf of CNR International (U.K.) Limited

Banff Field Single Anchor Loading (SAL) buoy
Decommissioning

DOC.NO. : PJB-01-U-19-RA-000003-001
REV. : 06
DATE : 10.10.2019
PAGE : 18 of 20



10 October 2019

Offshore Petroleum Regulator for Environment and Decommissioning
Department for Business, Energy and Industrial Strategy
3rd Floor, Wing C
AB1 Building
Crimon Place
ABERDEEN
AB10 1BJ

FAO: Stewart Welsh

Dear Sir or Madam

PETROLEUM ACT 1998
Banff Field Single Anchor Loading Buoy ("SAL Buoy") Decommissioning Programmes

We, CNR International (U.K.) Developments Limited, confirm that we authorise Teekay Petrojarl Floating Production UK Ltd ("Teekay") to submit on our behalf abandonment programmes relating to the SAL Buoy as directed by the Secretary of State on 9 October 2019.

We confirm that we support the proposals detailed in the Teekay Decommissioning Programme for the SAL Buoy dated 10 October 2019 which is to be submitted by Teekay, 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




Roy Aspden
Decommissioning Projects Manager
For and on behalf of CNR International (U.K.) Developments Limited

Banff Field Single Anchor Loading (SAL) buoy
Decommissioning

DOC.NO. : PJB-01-U-19-RA-000003-001
REV. : 06
DATE : 10.10.2019
PAGE : 19 of 20

9 COPY OF PUBLIC NOTICE



The Petroleum Act 1998

**BANFF FIELD SINGLE ANCHOR LOADING (SAL)
BUOY DECOMMISSIONING PROGRAMME**

Teekay Petrojarl Floating Production UK Ltd has submitted, for the consideration of the Secretary of State for Business, Energy and Industrial Strategy, a draft Decommissioning Programme for the Banff Field SAL (Single Anchor Loading) buoy 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 covered by the Decommissioning Programme are:

- Removal of the disused and disconnected Banff Field SAL buoy located in Block 22/27A, weighing 23Te in air, with dimensions 8.5 metres long and 3.5 meters diameter.
The buoy is located about 193 Km East of Aberdeen. Coordinates are 57° 00' 30.46"N 01° 19' 01.45"E.
- Removal of a portion of the disused pipeline, PL1550A suspended from the SAL anchor, via the SAL buoy and partly resting on the seabed. Dimension is 12" and length 246 metres. Total weight is about 48.5Te including a loading head of about 1.5Te.
Coordinates are 57° 00' 30.46"N 01° 19' 01.45"E

Teekay Petrojarl Floating Production UK Ltd hereby gives notice that a summary of the Banff Field Single Anchor Loading (SAL) Buoy Decommissioning Programme can be viewed at the internet address:

<https://www.gov.uk/guidance/oil-and-gas-decommissioning-of-offshore-installations-and-pipelines#table-of-draft-decommissioning-programmes-under-consideration>

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

**David Millar
Teekay House
Unit 3 Prospect Park, Prospect Road
Arnhall Business Park, Westhill
AB32 6FJ**

Representations regarding the Banff Field Single Anchor Loading (SAL) Buoy Decommissioning Programme should be submitted in writing to the above address where they should be received by 9th September 2019 and should state the grounds upon which any representations are being made.

Date: 2nd September 2019

David Millar
Asset Manager (Petrojarl Banff)
Teekay Offshore production Ltd.

Banff Field Single Anchor Loading (SAL) buoy
Decommissioning

DOC.NO. : PJB-01-U-19-RA-000003-001

REV. : 06

DATE : 10.10.2019

PAGE : 20 of 20

10 SUPPORTING DOCUMENTS

Ref 01: Banff Reconfiguration Pipeline Works Authorisation Field Lay Out: 0305 -S-TY-003

Ref 02: SAL System Loading Hose Laydown Arrangement: BFD-DG-U-0098-001

Ref 03: Captive tanker SAL – Suction Anchor Subsea Layout

Ref 04: Presentation; SAL Buoy Removal

Ref 05: Banff SAL Buoy Removal - Decommissioning Environmental Appraisal