



# Banff SAL Buoy Interim Close-Out Report

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## Terms and Abbreviations

Abbreviation	Explanation
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
SAL	Single Anchor Loading
CSV	Construction Support Vessel

## Appendices

Appendices	
None	

## Contents

<b>1</b>	<b>SUMMARY .....</b>	<b>3</b>
1.1	Summary of Approved Decommissioning Programme .....	3
1.2	Overview of Infrastructure/pipelines Decommissioned.....	3
1.3	Schematic of Installation(s)/Pipeline(s) Being Decommissioned .....	2
1.4	Actual completion dates against approved schedule.....	2
<b>2</b>	<b>AS-LEFT STATUS .....</b>	<b>2</b>
<b>3</b>	<b>FUTURE MONITORING AND MANAGEMENT PLAN .....</b>	<b>3</b>
<b>4</b>	<b>SEABED CLEARANCE VERIFICATION .....</b>	<b>2</b>
<b>5</b>	<b>ENVIRONMENTAL IMPACTS .....</b>	<b>3</b>
<b>6</b>	<b>MATERIALS/WASTE .....</b>	<b>3</b>
<b>7</b>	<b>LESSONS LEARNED .....</b>	<b>3</b>
<b>8</b>	<b>COST.....</b>	<b>4</b>
<b>9</b>	<b>PHOTOGRAPHS.....</b>	<b>5</b>
<b>10</b>	<b>APPENDICES .....</b>	<b>6</b>

# 1 summary

## 1.1 Summary of Approved Decommissioning Programme

The Banff Field SAL (Single Anchor Loading) buoy was situated between the Banff FPSO and the Apollo Spirit Floating Storage Unit (FSU), 193 km from the nearest Scottish coastline and 62 km from the UK/Norway transboundary line. During the 2019 annual inspection it was found that the Banff Field SAL (Single Anchor Loading) buoy mooring wire in Block 22/27A was severely corroded at the buoy end and a few wire strands had parted. The corrosion presented a significant risk of the mooring wire breaking and causing a navigation hazard. Therefore, the decision was taken to decommission the SAL buoy, including a portion of the disused pipeline, PL1550A as a standalone project. The decommissioning programme was submitted to OPRED on 07 November 2019 and approved on 20 November 2019.

The portion of PL1550A from the SAL anchor to blanked flange will be part of the wider Banff and Kyle Field decommissioning.

A summary of the infrastructure decommissioned and the approved decommissioning options are outlined in the tables below.

## 1.2 Overview of Infrastructure/pipelines Decommissioned.

Table 1.2 Overview of Installation(s) decommissioned		
Sub-Surface Installation(s)		
Quantity	Type	Weight (Te)
1	SAL buoy	23
1	SAL Buoy mooring wire	4

Table 1.3: Pipeline(s) Decommissioned	
Number of Pipeline(s) decommissioned	1 (PL1550A)
Total M of Pipeline(s) decommissioned	276

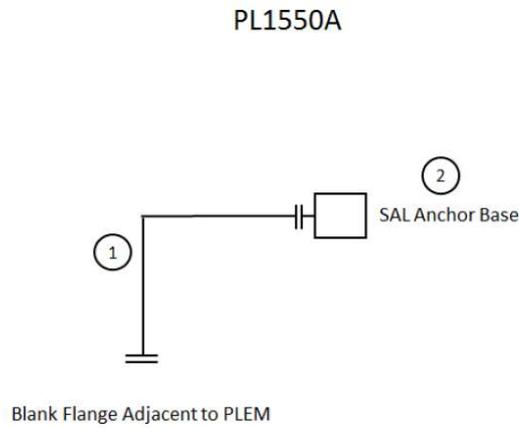
Table 1.4: Completed Decommissioning Activity against proposed decommissioning solution	
1. Sub-surface installation (buoy and wire)	
Approved Decommissioning Solution	Completed Decommissioning Activity



SAL Buoy and SAL Buoy mooring wire and to be completely removed.	Buoy mooring wire cut at anchor and complete assembly lifted onto a Construction Support Vessel (CSV). CSV on location and removed installation between 8 <sup>th</sup> and 12 <sup>th</sup> September 2019.
<b>2. Pipelines, Flowlines &amp; Umbilicals</b>	
<b>Approved Decommissioning Solution</b>	<b>Completed Decommissioning Activity</b>
PL1550A (12" loading Bonded hose) and PL1550A end valve to be completely removed as part of sub-surface removal.	Bonded loading hose cut at anchor. CSV removed subsea installations as part of sub-surface removal.



Figure 1.2: Schematic of SAL Anchor and disused Pipeline following conclusion of Decommissioning activities.



### 1.4 Actual completion dates against approved schedule

The planned removal had a window between 8 and 15<sup>th</sup> September 2019. Actual removal was between 8<sup>th</sup> and 12<sup>th</sup> September 2019 (Figure 1-1).

Figure 1-1 Planned removal dates against approved schedule

Sal Removal Planned against Actual		08.sep	09.sep	10.sep	11.sep	12.sep	13.sep	14.sep	15.sep
Dates									
Planned window for Removal									
Actual Removal									

## 2 As-left status

Table 1.5: As Left status of infrastructure / pipelines left in situ
1. Substructures (SAL Buoy)

The SAL Anchor base will remain in situ and be decommissioned during the wider Banff and Kyle Field decommissioning programmes.

### **2. Pipelines, Flowlines & Umbilicals**

The 48 m section of disused loading hose will remain in situ and be decommissioned part of the wider Banff and Kyle Field decommissioning.

### **3. Debris Clearance Survey**

Upon completion of the Banff and Kyle Field decommissioning works, full post decommissioning survey will be undertaken. This will include sonar searches for surrounding debris in 500m radius round the installation site.

All seabed debris will be recovered and handed over to a waste management contractor.

## **3 future monitoring and management plan**

The post decommissioning environmental survey will be undertaken upon completion of wider field Banff and Kyle Decommissioning Programmes.

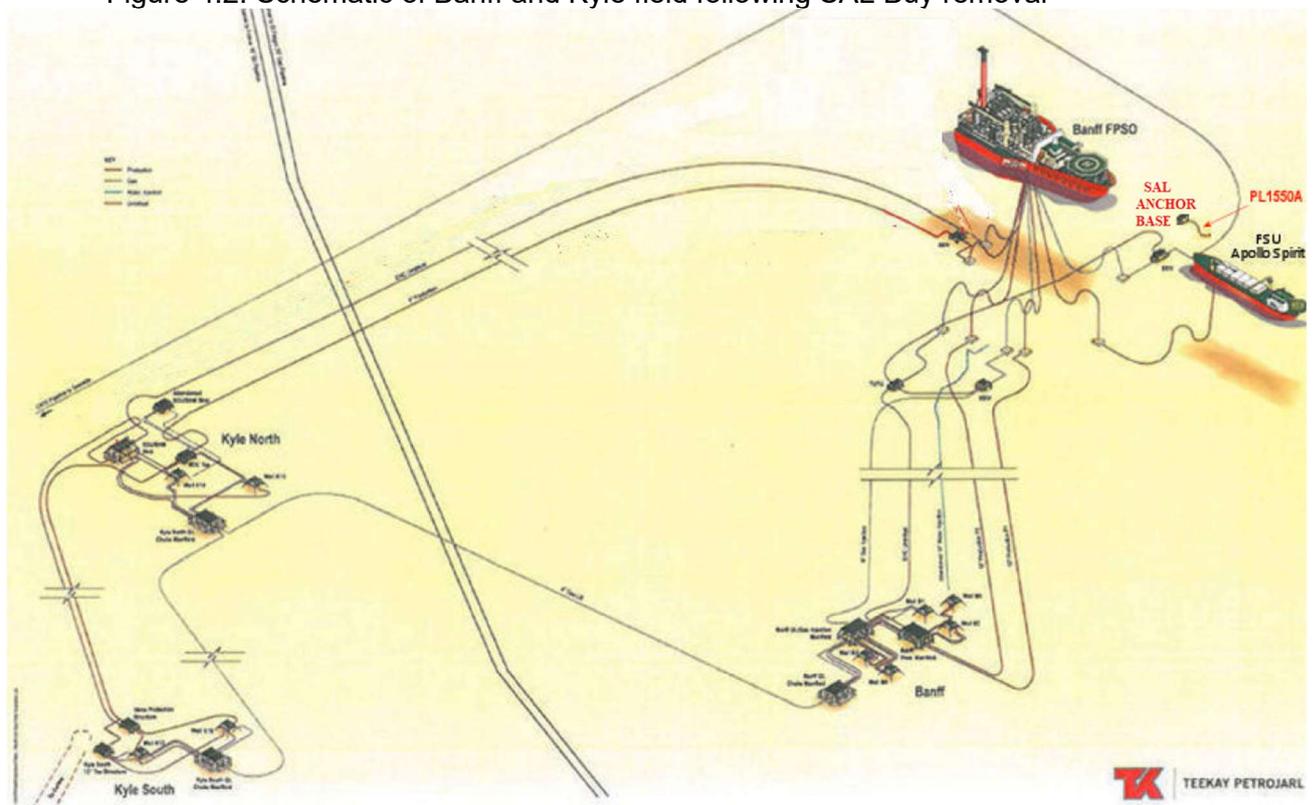
## 4 Seabed clearance verification

The remaining infrastructure at the SAL Buoy location comprises of the SAL anchor base and 48m section of disused loading hose (Figure 4.2). The SAL anchor has since been marked with a special marker buoy as it is not over trawlable. The UK Hydrographic Office and Kingfisher have subsequently been notified of the marker buoy locations along with two other marker buoy positions at the former FPSO and FSU locations.

Due to the nature of the decommissioning, a limited as left survey with ROV of the SAL anchor was carried out on 12<sup>th</sup> September 2019,. This was undertaken in the immediate vicinity Sal Buoy via visual inspection following successful recovery of the SAL Buoy and loading hose as shown in the images in Section 9. The corridor for the loading hose that was removed, was carried out as part of as left survey with no findings.

The anchor with disused loading hose will be removed as part Banff and Kyle Field decommissioning. Details on how the debris identification and removal from seabed will be undertaken as part of the wider field decommissioning will be outlined in subsequent Banff and Kyle Field Decommissioning Programmes. Final seabed clearance and certification will be obtained after decommissioning activities for the full Banff and Kyle Field have been completed.

Figure 4.2: Schematic of Banff and Kyle field following SAL Buoy removal



## 5 Environmental impacts

The environmental impacts of recovering the SAL Buoy structures were captured in Marine Licence (ML/524), submitted under Standalone Application (SA/1219). The work was executed as detailed in the application and minimal seabed disturbance from lifting the bonded loading hose was incurred.

A full post-decommissioning survey at the Banff and Kyle Fields will be conducted when Field Decommissioning is complete. Details of the post decommissioning survey will be outlined in future decommissioning programmes and agreed with OPRED. The results of the survey will be reported in the final field decommissioning close out report in line with BEIS decommissioning guidance notes.

## 6 Materials/Waste

All waste materials were returned to shore using appropriately licenced waste management and recycling contractors. The hierarchy of waste management was followed and reuse options were identified for the loading hose. The SAL Buoy and steel were recycled. Peterson Green Base at Lerwick was the recycling contractor. The amount of waste generated from the decommissioning of the buoy, mooring wire and loading hose is detailed in Table 1.6.

Table 1.6: Waste generated and disposed of following decommissioning Activity		
Materials	Disposal/Fate	Tonnes
Structural material - metals (SAL Buoy) and steel cable (wire))	Recycled	28.32
Loading Hose (various materials)	Sale / Reuse	42.00
Hazardous waste	N/A	0.00

## 7 Lessons Learned

Removing a subsurface buoy by cutting mooring wire and loading hose from anchor using a CSV with sufficient capacity active heave compensated crane was an efficient way of decommissioning. The crane was hooked up to the buoy prior to cutting and the buoy ballasted to give it a slight negative buoyancy.

## 8 Cost

Table 7.1: Provisional Decommissioning Programme(s) costs		
WBS Item	Estimated Cost (£)	Actual cost (£)
Operator Project Management	5300	5300
Substructure removal	300 070	250 000
Onshore recycling	45 956	7500
<b>TOTAL</b>	<b>351 326</b>	<b>262 800</b>

Actual costs are lower than budget forecast at DP approval.

Difference in budgeted and actual cost was due to initial cost estimation on vessel duration and day rate as well as recycling cost compared to actual.

## 9 Photographs

An as left survey was also carried out for the SAL system.



Figure 9.1: SAL buoy anchor



Figure 9.9-1: Bonded 12" hose towards flow assembly



Figure 9.9-2: Flow assembly at SAL buoy anchor base and hose cut at flow assembly



Figure 9.9-3: Mooring wire connection towards SAL anchor base



Figure 9.5: SAL buoy and loading hose retrieved to AHV deck

## 10 Appendices

None