

# Memorandum

To: Clare Morgan

Cc: Michael Hanrahan

From: Stephen Jewell

Date: 21st March 2019

Subject: Seven Heads Fields – Decommissioning Plan  
– Consent Application No. 1, Technical Review

## Introduction

An application for consent (the “**Consent Application**”) for the decommissioning of the Seven Heads fields (Ref. 1) has been received by the Department of Communications, Climate Action and Environment (“**DCCAE**”). The Consent Applications is dated 28<sup>th</sup> June 2018 and has been subject to a statutory period of public consultation, now closed.

This memorandum summarises the findings of a technical review of the Consent Application submitted by the applicant, PSE Seven Heads Limited (“**SHL**”). In this application, referred to as No. 1 or Phase 1, only the removal of topsides, subsea facilities (manifolds, jumpers etc.) (“**Facilities**”) and wells is covered. Pipelines will be addressed in a further application, No. 2 or Phase 2. This memorandum considers only items included in Phase 1, or circumstances where a Phase 1 activity may have an impact on subsequent Phase 2 decommissioning.

Guidelines related to offshore installations (excluding wells) issued in 2018 by the UK Regulator (Ref. 2) have also been reviewed for comparison and a number of observations made.

Finally, responses to the Public Consultation have been considered and any relevant technical matters identified.

## Summary of findings, conditions and recommendations

1. **Overall there are no technical concerns with SHL’s consent application that would prevent the Minister of DCCAE from consenting to the Consent Application.** SHL’s proposed approach to decommissioning is conventional and consistent with that taken by Operators in the UK sector of the North Sea to date with similar aged infrastructure. The proposed methodology is also in-line with the requirements of OSPAR 98/3.

2. **None of the activities proposed in this application will prejudice the planning or implementation of any future phases of the decommissioning at Seven Heads or Kinsale related to platform jackets and pipelines.**
3. SHL states that economic and technical evaluations to justify the proposed CoP (Cessation of Production date) for Seven Heads will be provided separately to the Minister. **Approval of any decommissioning plans should be conditional upon a satisfactory justification for the proposed CoP.**
4. **Approval of the Consent Application should be conditional upon decommissioning starting by a defined date agreed with SHL and all consented activities should be completed within three years of the start date.**
5. Whilst the potential for re-use of facilities and wells in this application at Seven Heads remains, it seems unlikely this will be fully determined prior to the requirement to commit to decommissioning.
6. DCCAE should consent to the plugging and abandonment of the wells in principle, but not to a specific method (as presented). Approval of actual methods for well abandonment are a matter for the Commission for the Regulation of Utilities (“CRU”).
7. It is understood that consent for the ‘suspension’ or ‘temporary abandonment’ of one former Exploration and Appraisal (E&A) well (48/23-3) has been given previously and that the well has already been plugged. However, it is understood that SHL considers its ‘suspension’ design to meet the technical requirements of a permanent abandonment. SHL will need to confirm this in writing. In addition, the removal of the associated wellhead (and surface casing stumps) is the final stage of the well abandonment process and consent to complete this activity is now being sought.
8. The proposed Decommissioning Close Out report makes no reference to wells or costs. **Appropriate references to both wells and costs should be made in all reports related to the field decommissioning and this should be a condition of consent.**
9. One well (48/25-10) is referred to as a Seven Heads area E&A well but has not been included in the inventory – this has been confirmed to be a typographical error.
10. **Decommissioning cost estimates and reporting should be prepared in accordance with good oilfield practice. SHL should clearly distinguish between the Kinsale and Seven Heads leases in its cost reporting and this should be a condition of consent.**
11. For seabed clearance the term ‘significant debris’ is used by SHL with no further definition of what ‘significant’ means in practice. Under DCCAE Rule 3.8.2 SHL is already required to demonstrate that the seabed has been adequately cleared of debris through the submission of a ‘Seabed Clearance Certificate’.

12. Following a review of the UK guidelines (Annex C in particular) (Ref. 3), DCCAE may wish to consider the following points:

- 'Exceptional Circumstances' are addressed as far as possible in the UK to deal with circumstances that may arise whereby the original intended decommissioning plan cannot be executed, perhaps for technical reasons (e.g. a wellhead cannot be cleanly cut and removed as planned)
- In the UK deferral of decommissioning activities would only be permitted where re-use has already been identified – this may be relevant to the proposed (but as yet unsubstantiated) 'concepts' in Ireland e.g. CO<sub>2</sub> storage or wind turbines
- The UK does not require independent verification of all decommissioning activities but encourages it.

13. The public consultation yielded the following broad points:

- Seven Heads facilities (subsea manifolds and pipelines) should be retained for potential use in any Barryroe development; and
- Kinsale facilities may also be of potential future use for exploration success resulting from the activities of neighbouring Authorisation Holders.

In all cases no justification for the technical suitability of the facilities (design or condition) has been provided, nor were any suggestions made regarding how the cost of preservation or ongoing liabilities would be covered. The various proposals could be described as immature and not sufficiently developed to prevent or delay the ongoing preparations for decommissioning.

14. SHL's responses to the public consultation are reasonable and consistent with its previously stated position(s). However, **DCCAE should verify whether an amendment to a consented Decommissioning Plan is a feasible and practical means by which future opportunities to facilitate the re-use of infrastructure can be accommodated.**

## Seven Heads Field

### Section 1 – Background, Methodology and Overview

The historical background information and methodology described is appropriate for the proposed technical decommissioning works.

The overview of the decommissioning plan provides a convenient summary of all the activities required to complete the decommissioning of the Seven Heads field.

The objectives stated appear reasonable with no obvious omissions.

### Section 2 – Facilities Description

A brief description and history of the field and related facilities, including wells, is provided. Reference is made to the Kinsale Field area complex (Subject to separate Consent covered previously) to which the Seven Heads Field is tied back.

Seven Heads is stated as being the only source of condensate production i.e. the Kinsale area fields do not generate any discernible condensate, and export is via tote tanks rather than by pipeline. It is further stated that no LSA (Low Specific Activity) scale or NORM (Naturally Occurring Radioactive Material) scale has ever been detected at Kinsale – this is strong, but not conclusive evidence that Seven Heads subsea facilities will not contain LSA or NORM. SHL should continue to assume the possible presence of LSA or NORM during any risk assessments undertaken prior to decommissioning operations at Seven Heads.

It is stated that there are no cuttings piles present in the Seven Heads area related to historical drilling activities and this was confirmed in a recent survey (2017). Drilling at Seven Heads has been undertaken exclusively using water-based muds.

A high-level inventory of all wells, pipelines and other subsea facilities is provided in Section 2.2. It states that the cantilever structure installed at Kinsale A to tie in Seven Heads will be considered as part of the Kinsale Area decommissioning activity.

The wells inventory includes one exploration / appraisal well (48/23-3) which has been previously 'temporarily abandoned' or 'suspended'. This means it has been plugged downhole but still requires the wellhead at the seabed to be removed to be classed as fully plugged and abandoned. Of the five development wells four are still active whilst one has been shut-in indefinitely as a result of a controls problem.

A further well (48/25-10) is referred to in Section 2.2.2 but is not included in the well inventory in Table 6. This has been confirmed by SHL to be a typographical error.

### Section 3 – Cessation of Production (CoP)

SHL describes the reasoning for the anticipated cessation of production for the Seven Heads field. Recovery from Seven Heads is highly dependent on the Kinsale facilities and on operating conditions (compressor suction pressure) in particular. The stated recovery factor for the field (92%) should be considered with caution as, with all recovery factors, it assumes that the GIIP estimate is correct – some uncertainty remains on this matter and is the subject of subsurface interpretation. Nevertheless, it is clear from operating pressures that the fields will be unable to produce economically for much longer and operating conditions at the Kinsale facility are at the technical limit. It may be possible for SHL to decommission some or even all of the wells without actually declaring CoP. DCCAE might wish to make consent to decommission the wells conditional upon some form of CoP to avoid such a situation arising.

SHL states that technical and economic evaluations to justify the proposed cessation of production (CoP) date for Seven Heads will be provided separately to the Minister. These should be carefully scrutinised as part of the consenting process. However, there may be circumstances (e.g. equipment failure or sudden loss of a well) which might force a premature cessation prior to the expiry of the 12-month notice period.

SHL refers to re-use options it has considered for the Kinsale Area fields and re-states these in the Seven Heads Consent Application. SHL clearly states that there are presently no technical options for the re-use of the Seven Heads facilities and wells specifically. It is understood that a neighbouring Authorisation holder, Providence Resources, is considering appraisal drilling of a potential hydrocarbon accumulation in close proximity to Seven Heads (Barryroe). It is not known if SHL has entered into discussions with Providence Resources regarding the potential re-use of wells and facilities but, in my opinion, it seems unlikely that any potential future technical requirements at Barryroe will be known or determined prior to the consenting of Seven Heads decommissioning.

### Section 4 – Decommissioning Options

#### Subsea Wells

SHL proposes to plug and abandon its subsea development wells using either a conventional drilling rig or a lightweight intervention vessel (LWIV). This approach would enable any wells not successfully abandoned with the LWIV to be re-entered and fully abandoned with a rig, if required.

One well in the Seven Heads area is a former exploration / appraisal well which has already been plugged downhole but still requires removal of the surface wellhead (and associated casing strings to below the mudline). It is understood that consent for this activity is now being sought.

## Section 5 – Project Management

Management of the decommissioning project will be undertaken in accordance with Petronas' Project Management System (PPMS) – this system appears to adopt a 'stage gate' approach which would be considered 'best practice' by most larger organisations in the oil and gas industry.

The Consent Application states that a cost estimate will be provided to DCCAE separately. DCCAE should request an initial cost estimate for all proposed activities prior to the start of decommissioning works. DCCAE should also make it a condition of any consent that a monthly report of costs be provided, either as part of the proposed monthly activity reporting or else as a standalone report if including costs is a sensitive matter. The provision of cost information will assist DCCAE in the monitoring of activity levels and progress. The Minister will want to also ensure that there is an equitable split of costs between the two producing fields (Kinsale Area and Seven Heads).

## Section 6 – Activities and Schedule

SHL provides a chronological breakdown of all anticipated activities needed throughout the process of field decommissioning – this is presented at a high level but covers the period prior to CoP through to the completion of all decommissioning operational activities. Post decommissioning inspections and reporting etc. are covered separately. An indicative high-level project schedule is appropriate at this stage of preparation for decommissioning and this has been provided by SHL to show how the various activities will be executed.

Materials and waste management are covered in section 6.5 where tonnages of various waste streams are detailed along with their anticipated transport and ultimate fate (disposal or recycling).

Finally, reference is made to SHL's long established HSEMS and the various Safety Cases that will be required in order to execute the proposed decommissioning plan.

## Section 7 – Post Decommissioning

The post decommissioning survey described does not define what is meant by 'significant debris'. However, SHL will be required to issue a Seabed Clearance Certificate under Rule 3.8.2 which should ensure satisfactory clearance of the seabed has been achieved. There is no reference to inspection of abandoned well locations to detect the presence of hydrocarbons. DCCAE may wish to consider conditioning a suitable inspection and defining/agreeing a method and timing (e.g. after 12 months) to confirm integrity of all abandoned wells. In the UK at present Operators are under no obligation to inspect wells for leaks once the wellhead is removed and the well is considered fully abandoned. Further

thought should be given to what is meant or intended by 'residual liability' and 'post decommissioning monitoring'.

The Decommissioning Close Out report proposed by SHL in section 7.3 should also explicitly include the following:

1. An Operations Report; and
2. A Verification Report on Operations.

It is recommended that SHL is also requested to include appropriate references to wells and costs in all decommissioning close-out reports.

#### Section 8 – Environmental Assessment

This section has not been reviewed here.

#### Section 9 – Stakeholder Engagement

This section has not been reviewed here.

## **UK Guidelines for Decommissioning of Offshore Oil and Gas Installations**

Decommissioning in the UK provides a good comparator for activities in Ireland because the marine environment is similar, the UK has experience of a number of different decommissioning projects and is also operating under EU legislation.

UK guidelines have recently been re-issued (2018 – Ref. 3) by the UK Offshore Petroleum Regulator for Environment and Decommissioning (OPRED), a division of the UK Department for Business, Energy and Industrial Strategy (BEIS). We have briefly reviewed these guidelines in the context of the Seven Heads consent submission. The following high-level observations have been made:

- the UK has a 5 stage Decommissioning Programme process – summarised in Figure 1 below - it is unclear which stage of the UK’s decommissioning process is most comparable to the Irish consent application. It appears to be a combination of Stage 2 and Stage 3 (see Section 5 of Ref. 3)
- In section 5.18 it states that deferral of decommissioning activities is only permitted where re-use has been identified – this is relevant to the jacket deferral option at Kinsale, to be considered in Application No. 2
- Section 7.26 Exceptional Circumstances covers occasions where, for instance, the full removal of the jackets is not possible for unforeseen technical reasons (e.g. excessive grouting during installation) – this should be addressed in consideration of Application No. 2
- Pipeline monitoring post decommissioning (Sections 10.20 to 10.22) is a requirement in the UK and any associated monitoring programme (extent and frequency) must be agreed with the Regulator – this should also be considered when reviewing a No.2 application
- Verification of seabed clearance surveys is a requirement (Annex c 15), although independent verification appears to be voluntary, but encouraged – see Close Out Report Section 14.2. OPRED states requirements for independent verification which are referred to at several points in the UK guidelines
- Annex C details what the UK Regulator expects to see in a Decommissioning Programme but this appears to be more detailed than that required in Ireland for a Consent Application



Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
<b>Early discussions</b>	<b>Planning &amp; producing the Decommissioning programme</b>	<b>Submit the programme</b>	<b>Execution of the programme</b>	<b>Close out</b>
<p>Preliminary discussions with OPRED</p> <p>Possible option screening for pipelines</p> <p>Data &amp; evidence collection &amp; surveys</p>	<p>Detailed discussions with OPRED</p> <p>Assessment of options - Comparative Assessment or similar including assessment of risk</p> <p>Development &amp; submission of consultation DP and Environmental Appraisal to OPRED and through consultation to other interested parties /public for consideration</p> <p>Derogation case - OSPAR consultation prior to final submission</p>	<p>Draft DP following comment resolution with OPRED</p> <p>Formal submission of the DP and approval under the 1998 Act</p>	<p>Commence main works</p> <p>Regular DP progress reports to OPRED</p> <p>Identify and discuss potential DP revisions</p>	<p>Close Out report &amp; detail of all post DP surveys, within one year of full completion.</p> <p>Update OPRED with amendments to post DP monitoring plan</p> <p>Monitoring of site &amp; site remediation as required</p> <p>Management plan for any infrastructure remaining in situ</p>

Figure 1: UK Decommissioning Programme 5 Stage Process (see Ref. 3)

## **Responses to the Public Consultation**

The following documents have been reviewed, being responses to the Public Consultation on Kinsale Area Decommissioning conducted by DCCA E:

- *Letter from CRU regarding Safety Permit, dated 20<sup>th</sup> July 2018*

CRU points out the need for a Safety Permit in the consenting and execution of decommissioning activities.

- *Letter from An Taisce, dated 27<sup>th</sup> July 2018*

An Taisce writes about environment related matters only.

- *Letter from Lansdowne Oil and Gas, dated 20<sup>th</sup> July 2018*

Lansdowne, as Partners in the Barryroe discovery, support the points made by Providence.

- *Letter from Predator Oil and Gas Holdings, dated 30<sup>th</sup> July 2018*

Predator Holdings state generally that the Kinsale Area facilities should be preserved for the future development of oil and gas prospectivity they have identified in the area – this includes gas storage potential. Predator does not address the related technical suitability, condition or cost of preservation issues.

- *Letter from Providence Resources, dated 30<sup>th</sup> July 2018*

Providence state that the Seven Heads manifold, export line and Kinsale 24" export line might be of use to them in the development of the Barryroe discovery. Providence does not confirm that these facilities would actually be technically suitable, nor does it address the cost of preservation of such facilities pending approval of any Barryroe development.

- *Email from Sea Fisheries, dated 30<sup>th</sup> July 2018*

Sea Fisheries had no comment.

## **SHL's comments to the Public Consultation responses**

In respect of Predator's response to the Public consultation, SHL states that (Ref. 3):

1. SHL has always been supportive of making Kinsale and Seven Heads' infrastructure available to third parties to accommodate technically and commercially viable gas discoveries in the area
2. SHL has not been approached by Predator (or any other party) in respect of 1. above.

3. Other than SHL no other company has drilled an exploration well for dry gas in the North Celtic Sea within the last 10 years
4. There are no material gas reserves remaining on the existing Leases

In addition, SHL states that it still wishes to progress consent for its decommissioning plans as soon as reasonably practicable but remains open to the possibility of a transfer of infrastructure ownership, on commercial terms. SHL suggests that if such an alternative opportunity arose after consent for decommissioning had been secured then it would lodge an amendment to its application to accommodate this.

**In my opinion SHL's responses are reasonable and consistent with its previously stated position(s).**

DCCAIE should verify whether an amendment of the kind proposed by SHL is feasible and respond to SHL accordingly.

With regard to the additional responses from Providence and Lansdowne (Ref. 5) SHL states that it welcomes an opportunity to facilitate re-use of facilities at Kinsale and Seven Heads resulting from any potential appraisal drilling of the Barryroe discovery. However, this would need to be on commercial terms, and SHL rightly points out the difficulties in respect of timing of any Barryroe appraisal well and the influence this would have on any potential development decision making and timing.

SHL restates that regardless of any present or future ideas from third parties it still wishes to progress consent for its decommissioning plans as soon as is reasonably practicable.

**In my opinion SHL's responses are reasonable and consistent with its previously stated position(s).**

DCCAIE should verify whether an amendment of the kind proposed by SHL is feasible and respond to SHL accordingly.



**Stephen Jewell**  
Selgovia Limited

## References

- (1) Decommissioning Plan - Seven Heads Petroleum Lease – Consent Application No. 1, 12<sup>th</sup> June 2018, Hartley Anderson-ARUP  
Doc Ref: 253993-00-REP-16
- (2) Guidance Notes for the Decommissioning of Offshore Oil and Gas Installations and Pipeline, May 2018, published by UK Department for Business, Energy and Industrial Strategy
- (3) Letter from Fergal G Murphy (SHL) to Bill Morrissey (DCCAE) dated 18<sup>th</sup> October 2018 re. Predator Observations
- (4) Letter from Fergal G Murphy (SHL) to Bill Morrissey (DCCAE) dated 18<sup>th</sup> October 2018 re. Ervia / ESB Observations
- (5) Letter from Fergal G Murphy (SHL) to Bill Morrissey (DCCAE) dated 18<sup>th</sup> October 2018 re. Providence / Lansdowne Observations