

# Memorandum

To: Clare Morgan

Cc: Michael Hanrahan, Kara English

From: Stephen Jewell

Date: 28<sup>th</sup> November 2019

Subject: Kinsale Area Fields – Decommissioning Plan  
– Consent Application No. 2, Technical Review

## **Introduction**

An application for consent (the “**Consent Application**”) for the decommissioning of the Kinsale Head and Ballycotton fields (Ref.1) has been received by the Department of Communications, Climate Action and Environment (“**DCCA**”). The Consent Application is dated 8<sup>th</sup> August 2019 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 Kinsale Energy Limited (“**KEL**”). In this application, referred to as No. 2 (or Phase 2), only the Jackets have been considered for decommissioning. The removal of topsides, subsea facilities (manifolds / jumpers etc.) and wells has been covered in the No. 1 application, which was reviewed and documented in an earlier memorandum (Ref. 2). This memorandum considers only items included in Consent Application No. 2.

Guidelines related to offshore installations (excluding wells) issued in 2018 by the UK Regulator (Ref. 3) have also been reviewed for comparison.

Correspondence and discussions with KEL subsequent to its initial submission (Ref. 1) have also been considered in this review.

Finally, no responses received from the Public Consultation are considered to require technical review.

## **Summary of findings, conditions and recommendations**

1. KEL’s consent application includes some discussion regarding the depth to which the jacket legs should be cut in order to comply with OSPAR Decision 98/3. In its initial submission (Ref. 1) KEL proposed to remove the Kinsale jackets by cutting the supporting legs ‘at or just above’ the seabed. According to OSPAR Decision 98/3 definitions, Kinsale’s Alpha and Bravo platforms fall into the category of a ‘disused

offshore installation' which can also be described as a 'steel installation'. Piles and structural elements located 'below the surface of the sea-bed' are excluded from this definition and would not need to be removed. This implies that for KEL to comply with OSPAR Decision 98/3 the jackets would need to be cut 'below' the seabed in order to claim that they had been fully recovered. Subsequent discussions with KEL have revealed that inspections of the platform legs indicate that 5 of the 16 main legs can be cut internally 'below the seabed' and that it is KEL's intention to do so. KEL has also stated that the remaining 11 legs have been found to contain excessive grout and/or other restrictions which would prevent this. In these cases, KEL intends to excavate around the legs in order to cut them externally 'below the seabed'. KEL acknowledges that the seabed at Kinsale is very hard (rock not sediment) and that such excavation will be limited to a minimum depth necessary to achieve the OSPAR Decision 98/3 requirement to cut 'below the seabed'. KEL's proposal, as stated subsequent to its initial submission (Ref. 1), would therefore be compliant with OSPAR Decision 98/3. **Approval of the Consent Application No.2 should be conditional upon all platform legs being cut 'below the seabed'.**

#### **DEFINITIONS**

1. For the purposes of this Decision,
  - "concrete installation" means a disused offshore installation constructed wholly or mainly of concrete;
  - "disused offshore installation" means an offshore installation, which is neither
    - a. serving the purpose of offshore activities for which it was originally placed within the maritime area, nor
    - b. serving another legitimate purpose in the maritime area authorised or regulated by the competent authority of the relevant Contracting Party;but does not include:
    - c. any part of an offshore installation which is located below the surface of the sea-bed, or
    - d. any concrete anchor-base associated with a floating installation which does not, and is not likely to, result in interference with other legitimate uses of the sea;
  - "relevant Contracting Party" means the Contracting Party, which has jurisdiction over the offshore installation in question;
  - "steel installation" means a disused offshore installation, which is constructed wholly or mainly of steel;
2. KEL'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. Options for the final method adopted for removal and disposal of the jackets as presented by KEL are reasonable and comply with the requirements of OSPAR Decision 98/3. Consenting to a multi-option approach also makes sense and will allow KEL to optimise the execution of the decommissioning works in terms of both time and cost.
3. KEL states that economic and technical evaluations to justify the proposed CoP (Cessation of Production date) for Kinsale 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 No.2 should be conditional upon decommissioning starting by a defined date agreed with KEL and all consented activities should be completed within three years of the start date.**
5. No viable case for the re-use of Kinsale Platform jackets and pipelines has been identified by KEL, nor proposed by any third parties. KEL is no longer proposing to delay the removal of the Kinsale jackets.
- 6. Decommissioning cost estimates and reporting should follow good oilfield practice. Clearly distinguishing between the Kinsale and Seven Heads leases in these costs should be a condition of consent.**
7. Following a review of the UK guidelines (Annex C in particular) (Ref. 3), DCCAE may wish to consider the following points:
  - With regard to pile cutting the UK Guidelines state: *'... any piles should be severed below the natural seabed level at such a depth to ensure that any remains are unlikely to become uncovered. operators should aim to achieve a cut depth of 3m below the natural seabed level, however consideration will be given to the prevailing seabed conditions and currents....'*

Given the seabed conditions at Kinsale, it might be unreasonable for KEL to achieve an external cut '3m below the natural seabed level'. However, KEL should be expected to achieve a cut 'below the seabed level' in all cases.

  - '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. the jacket legs cannot be cut cleanly below the seabed);
  - 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; and
  - The UK encourages, but does not require, independent verification of all decommissioning activities.
8. The public consultation yielded no material points requiring technical review / assessment.
9. KEL's responses to the public consultation have not been considered in this review.

## **Kinsale Area Fields**

Each of the sections presented by KEL in its Consent Application No. 2 has been reviewed and is summarised below.

### **Section 1 – Introduction**

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 Kinsale Area fields.

The objectives stated appear reasonable with no obvious omissions.

KEL has repeated much of what was incorporated in its Consent Application No. 1.

### **Section 2 – Facilities Description**

A brief description and history of the fields and related facilities, including wells, is provided. Reference is made to the Seven Heads Field which is tied back to the Kinsale Field area complex.

KEL states that no LSA (Low Specific Activity) scale or NORM (Naturally Occurring Radioactive) scale has ever been detected at Kinsale.

A high-level inventory of the facilities to be decommissioned under Part 2 is provided in Section 2.2. These include the Kinsale Alpha jacket (estimated weight 8,100 tonnes) and the almost identical Kinsale Bravo jacket (estimated weight 7,600 tonnes). In both cases, basic dimensions and details of well conductor slots, risers etc. are provided along with a high-level list of items making up the estimated jacket weight. Since both jackets are less than 10,000 tonnes in weight, their complete removal is a stated requirement of OSPAR Decision 98/3.

Notably, pipelines and related infrastructure have been excluded from this application. This is understood to be because KEL's preference will be to leave buried pipeline infrastructure in place following decommissioning, which will be subject to an application for consent to do so under Section 5 of the Dumping at Sea Act 1996. This is consistent with OSPAR Decision 98/3 since the pipeline infrastructure is considered to be below the seabed.

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

KEL describes the reasoning for the anticipated cessation of production for the Kinsale area fields. Given the present rates of production (around 20mmscfd) and the compressor

suction pressure limit which has now been reached (around 5 psig), it is clear that the fields are approaching the end of their productive lives. The stated recovery factor (RF) for the field (96%) should be considered with caution as, with all recovery factors, it assumes that the gas initially in place (GIIP) estimate is correct. Irrespective of the RF, the operating pressures indicate clearly that the fields will be unable to produce economically for much longer – operating conditions are at the technical limit.

KEL states that technical and economic evaluations to justify the proposed CoP date will be provided separately to the Minister. Approval of any decommissioning plan application should be conditional upon a satisfactory justification for the proposed CoP.

KEL has briefly considered other uses for the wells and all the facilities (which includes the jackets and pipelines) and has detailed these in the consent submission. These were reviewed in an earlier memorandum for Consent Application No.1 (Ref. 2).

KEL concludes that no re-use options for its wells and facilities (including jackets) have yet been identified and consequently states that there is no longer a reason for deferring removal of the jackets alone. This is a change from its conclusion in Consent Application No. 1. KEL remains open to the possibility that some of the pipelines might be preserved for re-use pending more detailed study of such options.

#### Section 4 – Decommissioning Options

##### Platform Jackets

KEL has concluded that no feasible re-use options for the platform jackets is currently available and that decommissioning of the jacket structures by their removal, in accordance with OSPAR Decision 98/3, is its preferred solution.

KEL has considered three options for achieving this:

- Full removal
- Partial removal
- Toppling of the jackets in-situ

Since only 'Full Removal' is compliant with OSPAR Decision 98/3, the options for partial removal and/or toppling have been rejected and not considered further.

KEL's approach to jacket removal once the legs have been cut is reasonable and consistent with that taken by Operators in the UK sector of the North Sea with similar sized infrastructure. Nothing unconventional or innovative is being proposed for the decommissioning of the platform jackets.

KEL has not considered the removal of pipelines in this Consent Application No. 2 for the reasons stated in Section 2 above.

## Section 5 – Decommissioning Project Management

KEL's description of its Decommissioning Project Management is the same as that provided in its Consent Application No. 1.

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 organisation and resources plan are presented at a high level and the intended method of reporting to the Regulator(s) is described. All the proposed reports and frequency of reporting look reasonable and should provide the various Regulators with sufficient information to monitor activities and to establish if the project remains 'on schedule' and/or 'within budget'.

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. Since the Seven Heads field is being decommissioned at the same time, the allocation of costs between the two leases should also be rigorous and transparent to DCCAE.

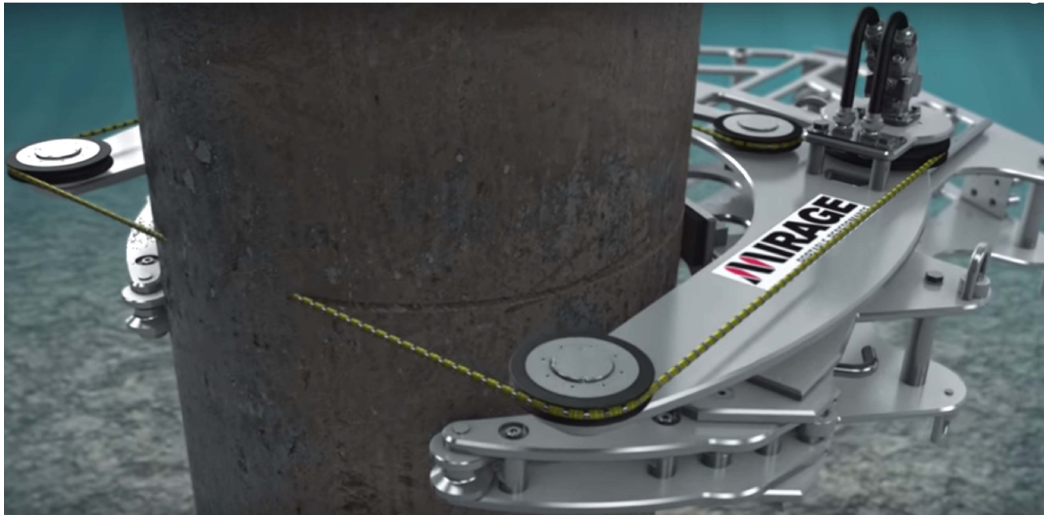
## Section 6 – Decommissioning Activities and Schedule

KEL provides a breakdown of all anticipated activities needed throughout the process of the jacket removal. Initially the jacket structures will be separated from the various subsea pipelines and umbilicals. Protective materials (e.g. concrete mattresses) will then be removed for recycling onshore before any pipe spool pieces and umbilicals will be recovered. Prior to removing the jackets, the jacket legs will require to be cut from their pile foundations. KEL states in its initial submission (Ref. 1) that any cut should be 'at, or close to, the seabed' using either internal or external pipe cutting tools. KEL further states that if it is not possible to cut the legs 'at the seabed' then it may be necessary to leave a short length (~1m) of leg stump exposed which is says will be covered by rock dumping.

In my opinion KEL's approach is not consistent with OSPAR Decision 98/3 which states that complete removal is required and that only infrastructure below the seabed (i.e. piles and related jacket structural steel) can be left in place. To achieve this KEL would need to cut 'below the seabed level'.

KEL describes two methods for achieving the jacket leg cuts (external diamond wire, or internal pipe cutting techniques – examples of both types are illustrated in Figures 1-3 below). KEL has since stated that surveys of the legs have revealed that only 5 of the 16 leg internal are clear of obstruction to permit internal cutting 'below the seabed'. The

remaining 11 have grout or other internal obstructions that would prevent this. However, KEL has confirmed its intention to excavate around these 11 legs in order to achieve an external cut, also 'below the seabed level'. KEL acknowledges that the seabed around the Kinsale platform is 'hard' and excavation may be challenging. This may limit the depth to which a practical cut can be achieved and so, not unreasonably, KEL is reluctant to commit to a specific depth at which an external cut would be achieved. Providing any cut is 'below the seabed' KEL will be compliant with the requirements of OSPAR Decision 98/3.



**Figure 1** Example of an 'external' diamond wire cutter



**Figure 2** Examples of 'internal' mechanical pipe cutters

Once the cutting of the jacket legs from the pile foundations has been achieved, the jackets will be removed by one of two methods:

(1) Single Lift

- In a single lift using a specialist Heavy Lift Vessel (HLV)
- In a single lift using a large suitably equipped HLV / barge
- In a single lift using flotation

(2) Multiple Lift

- Platform cut and removed in 3 or more sections using an HLV / barge

KEL does not commit to a single preferred solution since cost and availability of specialist vessel / equipment will be important factors in its final choice of method deployed. This is a reasonable approach for KEL to take, consistent with good oilfield practice.

An indicative project schedule is provided to show how the various activities will be executed.

Materials and waste management are covered in section 6.3 where tonnages of various waste streams are detailed along with their anticipated transport and ultimate fate (disposal or recycling).

Finally, reference is made to KEL'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

KEL describes the status of the lease area (OPL-1) following decommissioning of all the facilities and confirms that a Post Decommissioning Survey will be completed.

The Post Decommissioning Survey described does not define what is meant by 'significant debris'. However, KEL 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.

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

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

KEL refers to there being no residual liabilities (since no facilities will be left in place). However, KEL also refers to the pipelines and associated umbilicals stating that they will be the subject of 'future application(s) as required'. Finally, KEL clearly states that it proposes to do no post decommissioning monitoring.



It is still unclear whether there will actually be any residual liabilities and what monitoring, if any, will be required. This can only be resolved once the fate of the pipelines and related equipment is known.

*Section 8 – Environmental Assessment*

This specialist section has not been reviewed here.

*Section 9 – Stakeholder Engagement*

This specialist 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 also has experience of a number of different decommissioning projects and is 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). These guidelines have been briefly reviewed in the context of the Kinsale and Seven Heads consent submissions. 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)
- UK Guidelines are very clear regarding expectations with regard to pile cutting depth (Section 7.9): *‘In this instance any piles should be severed below the natural seabed level at such a depth to ensure that any remains are unlikely to become uncovered. operators should aim to achieve a cut depth of 3m below the natural seabed level, however consideration will be given to the prevailing seabed conditions and currents and this should be detailed in the decommissioning programme and discussed with the relevant decommissioning team.’*  
In my opinion the seabed conditions around Kinsale are particularly challenging due to the very hard seabed conditions. Whilst it would be unreasonable to expect KEL to achieve *‘a cut depth of 3m below the natural seabed level’*, they should be still expected to achieve a cut *‘below the seabed level’* in order to comply with OSPAR Decision 98/3.
- In section 5.18 it states that deferral of decommissioning activities is only permitted where re-use has been identified – KEL is no longer seeking deferral for the jackets since no feasible alternative use has been identified.
- 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 has not been fully addressed in this application
- 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 has not been considered by KEL in this 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>
Preliminary discussions with OPRED	Detailed discussions with OPRED	Draft DP following comment resolution with OPRED	Commence main works	Close Out report & detail of all post DP surveys, within one year of full completion.
Possible option screening for pipelines	Assessment of options - Comparative Assessment or similar including assessment of risk	Formal submission of the DP and approval under the 1998 Act	Regular DP progress reports to OPRED	Update OPRED with amendments to post DP monitoring plan
Data & evidence collection & surveys	Development & submission of consultation DP and Environmental Appraisal to OPRED and through consultation to other interested parties /public for consideration		Identify and discuss potential DP revisions	Monitoring of site & site remediation as required
	Derogation case - OSPAR consultation prior to final submission			Management plan for any infrastructure remaining in situ

Figure 3 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 DCCAIE:

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

KEL's comments to the Public Consultation have not been reviewed here.

### **Comments by the Department of Culture, Heritage and the Gaeltacht**

In a letter to PAD (Ref. 4) the Department of Culture, Heritage and the Gaeltacht has pointed out the sensitivity to archaeological sites of interest in close proximity to the facilities to be decommissioned (they refer specifically to two known shipwrecks in close proximity to the main gas pipeline). Since it is KEL's intention to decommission the pipelines and leave them in place, physical disturbance of such sites is highly unlikely – KEL would be able to confirm this on request.



**Stephen Jewell**  
Selgovia Limited

## References

- (1) Report “Decommissioning Plan – Kinsale Head Petroleum Lease (OPL 1), Consent Application No. 2”, Kinsale Energy, Ref. 253993-00-REP-23, 8<sup>th</sup> August 2019
- (2) Memorandum from Stephen Jewell to Clare Morgan “Kinsale Area Fields – Decommissioning Plan – Consent Application No. 1, Technical Review” 21<sup>st</sup> March 2019
- (3) 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
- (4) Letter from Michael Murphy of the Development Applications Unit of the Department of Culture, Heritage and the Gaeltacht to the Petroleum Affairs Division at DCCAE entitled ‘Proposed removal of the Kinsale Alpha and Kinsale Bravo platform sub-structures (jackets) and all associated works, at offshore petroleum licensing Blocks 48/20 and 49/16 about 40km from the Cork coastline’, dated 13<sup>th</sup> September 2019