PLANNING ACT 2008

The Morecambe Offshore Windfarm Generation Assets Development Consent Order Application

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Deadline 6 submission by Spirit Energy Production UK Limited

Response to the Applicant's Deadline 5 and Deadline 5A Submissions

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1. Introduction

1.1 'Spirit Energy' is the trading name used by Spirit Energy Limited and its subsidiaries, including Spirit Energy Production UK Limited, a group which collectively conducts European oil and gas operations.

1.2 Eversheds Sutherland are instructed by Spirit Energy (**Spirit**) in relation to the proposed development consent order application (the **Application**) made by Morecambe Offshore Windfarm Ltd (the **Applicant**) for the proposed Morecambe Offshore Windfarm Generation Assets (the **Project** or **Proposed Development**).

1.3 Unless otherwise stated in this submission, Spirit adopts the definitions applied in its submission at Deadline 5 [REP5-089] (**Spirit's D5 Submission**).

Spirit's Position in light of the Applicant's submission to date

1.4 Spirit remains seriously concerned about the impact of the Project on the safety of its East Irish Sea operations. It has set out the latest position on these concerns in light of the additional evidence produced by the Applicant in the following sections of this submission – for each section, Spirit's position is summarised below:

1.4.1 **Section 2 – Aviation Buffer Distances**

Spirit requires an aviation buffer that allows it to fly safely in IMC, VMC and night VMC in order to maintain the safety of its people and assets. Its buffer requirements are driven by the nature of its operations and the actual aviation constraints of the aircraft and applicable guidance (corroborated by its expert advisors on aviation, AviateQ, and its aviation operator in the East Irish Sea, NHV). An aviation buffer reflecting only VMC requirements is not viable due to the unacceptable impacts it would have on safety, maintenance, and operations, as corroborated by its expert safety advisors, ORS.

1.4.2 **Section 3 – Aviation Impact Analysis**

With an aviation buffer of 1.5nm (as proposed by the Applicant), 30-44% of Spirit's flights would be impacted resulting in a 22% loss of time available offshore to fulfil Spirit's obligations in maintaining the safety of its East Irish Sea assets. Time lost due to impacted flights is not always recoverable: non-productive but safety-critical activities can take hours out of the offshore time available, and there are working conditions limitations that do not allow Spirit to infinitely extend the working day as the Applicant supposes. This would be yet more constrained if night VMC and IMC flying were restricted. A buffer of 1.5nm would have unacceptable and unsustainable impacts on Spirit's operations.

1.4.3 **Section 4 – Safety**

The Project as currently proposed will have a material impact on the Safety Case for Spirit's operations in the East Irish Sea. It will compromise Spirit's evacuation capability and increase the risk to individuals by requiring more flights due to less optimal means of operating and conducting maintenance across Morecambe Hub. The alternative means of operating suggested by the Applicant are not viable for the Morecambe Hub: Spirit already operates on an optimised safety and operational plan, as agreed in its Safety Case with the regulators. It should be understood that Spirit's directors are personally liable to prosecution should they fail to ensure the safety of Spirit's operations.

1.4.4 **Section 5 – Shipping and Navigation**

Spirit's shipping and navigation concerns relate to the increased collision risk caused by the situating of the Project impacting and altering shipping patterns. Until the Applicant provides a full VCRA assessing the frequency and severity of collision risks and the contribution to individual risk from such collisions, it must

be assumed that the proposed development may increase ship collision risks to personnel on the Affected Assets by increasing the likelihood of a ship collision, and by degrading Spirit's ability to detect and respond appropriately to threats within the affected area.

1.4.5 **Section 6 – Decommissioning**

Decommissioning of the Morecambe Hub will take place into the 2030s. At this early stage, the decommissioning programme is not fixed but usually takes around 3.5 – 5 years. Helicopter access in all flyable conditions (VMC, night VMC and IMC) will be required throughout the decommissioning process to ensure emergency access is not compromised and prevent cost escalations due to schedule delays, particularly in relation to offshore workers, vessel hire periods, and specialist vendors. The schedule will be fixed once CoP is reached in accordance with MER and the OGA strategy, not accelerated contrary to those policies to suit the Applicant's Project timeline.

1.4.6 **Section 7 – Morecambe Net Zero (MNZ)**

MNZ is critical to national net zero targets. Spirit has endeavoured to develop MNZ with co-existence with the Project in mind. However, direction from the NSTA under the carbon storage licence for MNZ sets a number of requirements including that wells within the redline boundary of the Project are monitored, requiring sufficient access secured in Protective Provisions to bring a rig to the wells and construct and operate MNZ safely.

1.4.7 **Section 8 – NPS Compliance and Conclusion**

The Applicant has failed to meet the tests in NPS-EN1 and NPS EN-3 that the Project does not have residual impacts which present an unacceptable risk to, or interference with, human health and public safety, and that site selection and site design of a proposed offshore wind farm and offshore transmission has been made with a view to avoiding or minimising disruption or economic loss or any adverse effect on safety to other offshore industries.

Protective Provisions

1.5 The Applicant has consistently argued that the protective provisions it has drafted are sufficient to address Spirit's concerns. This is evidently not the case. Spirit has expended significant time and effort seeking to help the Applicant understand its concerns in order to be able to agree suitable protective provisions. Spirit had always intended to submit protective provisions, but sought to fully explore the issues between the parties first to ensure the protective provisions were suitable. In turn, the Applicant has sought to diminish Spirit's serious safety and operational concerns and refused to apply its understanding of the position that Spirit has set out. Since 2022, Spirit has been in dialogue with the Applicant and made clear that it would need a sufficient buffer for its operations, but the Applicant has never sought to accommodate this in its Project or protective provisions.

1.6 Spirit has provided draft protective provisions at Appendix 1 to its Response to ExQ3 3DCO3 at Deadline 5A [REP5a-076] (**Spirit's D5A ExQ3 Response**) that do protect the safety of Spirit's operations. Spirit has subsequently put together plans to support its draft protective provisions and modestly updated certain definitions in the draft protective provisions with reference to these plans. The updated protective provisions are provided at Appendix C, together with the new plans at Appendix D and a comparison against the protective provisions Spirit submitted at Deadline 5A in Appendix E to this submission.

Assertions by the Applicant regarding Spirit's case and approach to engagement

1.7 Spirit remains seriously concerned about the impact of the Project on the safety of its East Irish Sea operations.

1.8 The Applicant's Response to Spirit Energy's Deadline 4 Submission [REP5-062] (**Applicant's D5 Submission**) and its further Comments on Spirit Energy's Deadline 5

Submission [REP5a-061] (**Applicant's D5A Submission**) have extensively repeated its previous submissions with little progression of its position or attempt to recognise the entirely legitimate concerns raised by Spirit. The Applicant has in fact gone further than this and made a number of unsubstantiated and sweeping statements suggesting to the ExA that the Project gives rise to no safety issues, and that Spirit has an ulterior agenda derived from commercial interests. It has further suggested that Spirit is an "in-principle objector" (paragraph 64, Applicant's D5A Submission), implying that it does not consider Spirit's concerns legitimate. The Applicant has indicated that Spirit has not engaged with the examination process and been 'unshakeable' (paragraph 97, Applicant's D5 Submission) in its position. These submissions are baseless and are strongly refuted by Spirit which considers safety to be of the utmost importance to the way it operates.

1.9 Spirit has made available a number of its most senior personnel, instructed expert legal and technical advisors at significant cost, and participated in consultation and discussions with the Applicant prior to and during the examination, in addition to fully engaging in every step of the examination process, and has been clear throughout: the Project increases the risk to which its people would be exposed. As a duty holder, Spirit is legally bound to ensure the safety of its people and operations with individual director responsibilities. Spirit's directors are personally liable to prosecution should they fail to ensure the safety of Spirit's operations. This level of direct responsibility is not understood by the Applicant which is not subject to the same level of stringency in terms of health and safety regulation that is incumbent on the oil and gas sector. Had commercial matters been its motivation for engaging in the examination of the Project, then Spirit would already have pursued commercial compensation arrangements with the Applicant. Instead, it has expended significant resources and time to educate the Applicant on the nature of its operations and the lifecycle of its assets in the hope that it might recognise the severity of its concerns. Spirit has spent a significant amount on external and internal resources exclusively dedicated to this matter; a testament to the seriousness with which it treats matters of safety. It has been met with attempts to downplay the effects of the Project and suggestions that it has failed to engage with the Applicant. Nothing could be further from the truth; Spirit had made its concerns known during pre-application consultation and had expected the Applicant to take these seriously in its design process. It failed to do so, seeking to place turbines in positions unbearably close to Spirit's assets. The Applicant has been unwavering in its desire to limit the buffer around Spirit's assets to 1.5nm since it first shared its Oil and Gas Interaction Study on 1st March 2023 that included the 1.5nm buffer for Spirit's aviation operations. It now seeks to deflect attention away from these design flaws by alleging a lack of cooperation on the part of Spirit, when in reality all Spirit seeks is to maintain the safety of its operations.

1.10 The Applicant has also suggested that Spirit's concerns with the Project may be driven by cost pressures related to the future decommissioning of the Affected Assets that "can lead to pressure on safety" and "increased pressure on their operating model" (paragraphs 111 and 115, Applicant's Deadline 5 Submission). The Applicant offers absolutely no evidence or justification for these assertions. Spirit is concerned that with this narrative, the Applicant seeks to distract the ExA from the safety concerns raised by implying that they are existing constraints on Spirit's operations. This is entirely false and the ExA should afford no weight to these suggestions.

1.11 A significant focus in the Applicant's D5A Submission is on the provision of an aviation buffer up to a fixed decommissioning date of 1 January 2029 (see in particular paragraphs 12, 22-23, and 35). Contrary to the Applicant's claims, this is by no means a 'conservative' 'worst case' date for CoP or aligned with Spirit's submissions. Spirit has re-iterated on numerous occasions that CoP may not take place until the 2030s, and that the decision to decommission is driven by adherence to the OGA Strategy and MER, not the Applicant's preferences. This is not an extension of project life: it is the determination of an existing project's economic output. A fixed decommissioning date of 1 January 2029, after which the Project would be constructed within the aviation buffer required for the safety of Spirit's operations, would force Spirit into early CoP and significant increases in decommissioning costs, contrary to the policy requirements it must meet. It is noted by Spirit that the date of 1 January 2029 suits the Applicant's construction timeline, and is therefore not a meaningful mitigation proposal but a re-framing of the Applicant's obstinate position. Moreover, an aviation buffer of 3.76nm is required throughout the decommissioning process, not only up to CoP.

1.12 In relation to Spirit's operational, decommissioning and MNZ concerns, the Applicant has made a series of unfounded assertions purporting to explain Spirit's ulterior motives. To be clear, Spirit's concerns are with the safety of its operations. Spirit has considered the Project and evidenced its concerns with it based on current operative parameters. It is concerning to Spirit that the Applicant has devoted substantial time to speculating on Spirit's motivations, rather than responding to the real safety concerns that Spirit has been trying to help the Applicant understand throughout the examination.

1.13 Rather than the significant operational safety concerns that Spirit has spent considerable time and money analysing and evidencing in this examination, the Applicant has suggested that a 'mind the gap' philosophy is driving Spirit's position in relation to the Project and MNZ (paragraph 95, Applicant's D5 Submission). According to this philosophy, the Applicant purports that Spirit is inflating the impact of the Project on its current operations to protect MNZ. A 'mind the gap' philosophy may be relevant to the internal strategy of an energy transition company; however, transition projects have much wider economic benefits in terms of employment, minimisation of environmental impact and the cost-effectiveness of projects through utilisation of existing assets. However, it is not clear to Spirit on what basis the Applicant considers this to be the reason (over and above the safety of operations) that Spirit is concerned with the impact of the Project. The Project as currently proposed will adversely impact Spirit's operations, decommissioning, and future MNZ plans with serious cost and safety implications.

1.14 Spirit refers to and maintains the summary of its position detailed at Section 2 of Spirit's D5 Submission.

Understanding and Cooperation between Spirit and the Applicant

1.15 Spirit recognises and understands the direction given by the ExA at ISH3 on Wednesday 5th February for Spirit and the Applicant to bring together their technical experts to identify and work to resolve the differences in their analysis of the impacts of the Project. Spirit has provided the minutes and transcripts of the meetings that it and the Applicant have held since ISH3. Spirit did not have the facility to record and transcribe the most recent meetings on 26th March 2025 regarding decommissioning and MNZ, and the Applicant did not elect to, however Spirit took full minutes which it has provided for the ExA's benefit at Appendices A and B to the letter it submitted at Deadline 5A [REP5a-077]. The Applicant has stated that that Spirit 'postponed' meetings on MNZ and Decommissioning (paragraph 45, Applicant's D5 Submission). This is again an attempt by the Applicant to paint Spirit as somehow acting unreasonably. In fact, the minutes of the meetings held prior to Deadline 5 on 18th February 2025 (see Appendix A of Spirit's D5 Submission), show that Spirit did not postpone these meetings: Spirit was clear about the availability of its relevant teams and was committed to arranging the meetings to be as productive as possible with the right people in the room.

1.16 At the meetings held between Spirit and the Applicant after ISH3, the Applicant indicated that it understood Spirit's operations and accepted them for the purposes of the analysis. Yet the Applicant's D5 and D5A Submissions continue to speculate on Spirit's operations and propose mitigation solutions that Spirit has already explained would not meet their operational requirements. This inconsistency between the Applicant's conduct at meetings and submissions to the examination makes it very difficult to move the conversation forward constructively and reach common ground.

1.17 It will be clear to the ExA from the Applicant's submission at D5 that it has not sought to reconcile the differences between its position and that of Spirit. The Applicant has instead attempted to seek the preferment of its experts' evidence and implied that this should be afforded greater weight. Spirit considers that there is no basis to prefer the Applicant's evidence; in fact, it has been repeatedly demonstrated that it and its advisors are unwilling to understand Spirit's operations and thus have not been well placed to offer informed judgements on which the ExA may rely.

1.18 As such, the Applicant's statement in its D5 submission that "*the ExA can be satisfied that the Applicant has properly assessed and understood the impacts on the Affected Assets and secured an appropriate and robust co-existence mitigation solution*" is entirely misleading.

1.19 With respect to the letter from Spirit to the Applicant at Annex 1 to the Applicant's D5 Submission, this reflects Spirit's willingness to cooperate and find collaborative solutions, always seeking to engage with the energy industry as a whole. Spirit has no in-principle objection to the Project. Spirit was only able to identify the issues with the Project once sufficient information was shared. Spirit raised its concerns prior to the Applicant submitting the DCO application for the Project, but they were not reflected in the Project design or the draft DCO [APP-012]. Spirit still seeks solutions and has communicated with the Applicant directly, not purely via examination submissions as suggested by the Applicant (paragraph 47, Applicant's D5 submission). However, Spirit has had to prioritise submissions to the Examination as the conduct of the Applicant has demonstrated throughout the process that it will seek to ignore or diminish Spirit's concerns. The Applicant has not meaningfully engaged with Spirit's concerns or adjusted its position in response. In contrast, Spirit has taken on board feedback from the Applicant, adjusting calculations at various stages to reflect opportunities to reach agreement on the analysis of the operational safety impact on Spirit. Evidently, it is critical in Spirit's view that it submits its concerns to the ExA to ensure that it has sight of the serious safety concerns the Applicant has dismissed and that they are taken into account by the ExA and Secretary of State.

Risk, Proportionality and Compensation

1.20 The Applicant's approach to Spirit's concerns has been dismissive. It has proposed that Spirit deals with the proximity of the Project by undertaking significant changes to the way Spirit operates. In the first instance, Spirit considers that if proximity of the Project makes Spirit's operations unsafe, the Project is not appropriately sited or designed. The analysis purported by the Applicant of marginal impacts on aviation operations is inconsistent with the significant mitigations it has suggested Spirit implements. Spirit maintains that 30% overall (44% in Winter) of flights would be impacted, with a consequent impact on the safety of Spirit's operations. Moreover, the Applicant's overtures of willingly offered compensation are in stark contrast to the severely limited cost terms in their draft proposed protective provisions in favour of Spirit, on which Spirit has commented in its D5A Submission and against a tracked changes version in Appendix 1 to its Responses to the Examining Authority's Request for Further Information (Rule 17) (specifically R17.2.9) submitted at Deadline 6. This is perhaps to be understood given the Applicant's flawed assessment of the impacts of the Project as 'operational nuisance'. Spirit does not consider compensation by the Applicant a credible solution to the evidenced safety implications of its Project.

1.21 On compensation, the Applicant has stated that it has provided for any additional costs to Spirit resulting from the Project in the draft protective provisions and "*the parties are not far apart on what these costs might be – as a major project capable of powering half a million UK households, the Project is absolutely capable of mitigating its commercial impacts*" (paragraph 19, Applicant's D5 Submission). The Applicant has further suggested that a liability cap of £8 million is sufficient for "*any direct costs caused by the Project as a result of impaired aviation access on the safe operations and maintenance activities the Affected Assets, such as: direct flights, assigning an additional maintenance crew to "catch-up""* including NUI work, an additional helicopter charter during summer, a larger helicopter, contracting a flotel for campaign maintenance despite sufficient facilities at CPC, or finding vessels suitable for maintenance (i.e. walk to work access) (paragraph 59, Applicant's D5 Submission).

1.22 The proposal for a liability cap was not present in the original draft protective provisions [APP-012]. A placeholder was introduced by the Applicant at Deadline 2 (paragraph 8, Part 3, Schedule 3, Draft Development Consent Order (Tracked) [REP2-003]), with comment by the Applicant that it considered that such provision "*would not be included in final protective provisions on the assumption that the parties agree a side agreement*" (paragraph 86, Applicant's Response Spirit Energy Deadline 1 Submissions [REP2-030]); in other words a private cap on liability not subject to scrutiny by the ExA or the Secretary of State. A value has only appeared at Deadline 4 (paragraph 8, Part 3, Schedule 3, Draft Development Consent Order (Tracked) [REP5-003]), notwithstanding repeated attempts by Spirit to convey the magnitude of the issues that it will face and the difficulties in accurately predicting such costs in advance. Despite maintaining it's narrative around the Project only posing an 'operational nuisance', the Applicant has presumably begun to appreciate the very significant impacts and has no option but to seek to limit its exposure to the severe

detriment of Spirit. In light of these impacts, a cap is entirely inappropriate and would in any event need to be commensurate to the potentially very high costs that would be incurred by Spirit if the Applicant is granted its Application in the terms requested.

1.23 The Applicant has given Spirit no reassurance or evidence that it is capable of mitigating the cost impacts to Spirit of the Project. The Applicant highlights that decommissioning costs, increased operational costs and potential lost production can be easily covered within a cap of £8 million for the remaining life of the Morecambe operations. Spirit cannot foresee how the Applicant will be able to absorb even this significantly underestimated cost, let alone the true cost, of the financial undertaking that mitigating the impacts of the Project to ensure the safety of Spirit's operations will have. The Applicant has significantly underestimated this. This is wholly inadequate on the basis that the increase in decommissioning costs alone due to the flight impacts, which Spirit has estimated to be in well in excess of £10 million. However, if you include potential lost production and increased operational costs of some of the mitigations suggested by the Applicant, the figure is far higher than the Applicant has suggested to the ExA.

1.24 Spirit has noted in earlier submissions that the cost of decommissioning will be significantly impacted as a direct result of the wind farm being placed in close proximity to the existing infrastructure. The estimated impact on decommissioning activities as a direct result of cancelled flights will increase costs 11% (this figure reflects the cost impact mitigated as far as possible in the context of decommissioning operations). Without being able to determine which phases and activities would be impacted by flight restrictions (e.g. dates at which weather or other factors require IMC or night VMC flying and therefore cannot be flown due to a 1.5nm aviation buffer, thereby leading to a delay in schedule), Spirit has assessed the cost impact of flight restriction by applying the 11% loss to the unimpacted, industry standard decommissioning costs. Spirit has estimated that this could be as high as £40 million in the worst case and £10-20 million in a reasonable worst case. The reason the Xodus report underestimates this cost to such a significant extend is due to the gross underestimation of the duration that the decommissioning campaign will take due to the types of wells. This is explained in detail in section 6 of this submission. If the Xodus estimated rig and vessel rates are applied to the Spirit duration estimates (based on our experience of decommissioning the DP3 and DP4 wells and platforms), the cost is in fact £29.9 million. A number of example decommissioning activities with cost impacts based on 11% impact due to impacted flights is provided in Table 1 (Sample of decommissioning cost impacts).

Table 1: Sample of decommissioning cost impacts

Activity	Overall Duration	Cost per day (£)*	Additional days impact	Cost impact (£MM)
Well P&A with Slant Rig	Approx. 270 days, Autumn/Winter/Spring	750,000	30	22.3
Topsides & Jacket Prep with Barge	Approx. 100 days, Spring/Summer	200,000	11	2.2
Heavy lift Prep with CSV	Approx. 100 days, Spring/Summer	130,000	11	1.4
Heavy lift & barge transfer	Approx. 45 days, Spring/Summer	800,000	5	4
Total				**£29.9**

**Applying the publicly available rates provided in table 7.2 of the D5A Xodus Report [REP5A-055]*

Note: Barge, HLV, & CSV durations are made on assumptions based on previous experience; detailed engineering is not complete for these activities.

1.25 With regard to mitigation of operational impacts via Walk to Work or barge campaigns, based on current market rates, an ad-hoc summer maintenance campaign lasting 90 days with 40 personnel onboard, including transit time to and from the East Irish Sea, would incur costs exceeding £6 million for a Walk-to-Work (W2W) vessel and £8 million for a jack-

up barge each year. This figure is the minimum figure: there would be additional personnel and activity costs associated with the addition of campaigns on top.

1.26 The Applicant has noted that it has shared work with the ExA that it has undertaken using public domain Wood Mackenzie data (paragraph 97, Applicant's D5 Submission) which is significantly lower than Spirit's internal forecast, especially in the later years in question due to completion of projects targeted at maximising economic recovery and extending field life that will not yet be included in the Wood Mackenzie analysis.

1.27 Whilst it is appreciated that it may be challenging for this scale of offshore windfarm to compensate such additional costs, neither should it be for an existing operator to absorb in the face of a poorly designed and sited project. Even if the Project could tolerate such costs, it is far from clear how it might then meet government policy focused on reducing consumer energy costs detailed in the Applicant's D5 Submission (paragraph 110).

1.28 With regard to the costs provisions in the draft protective provisions, these terms are drafted extremely narrowly and would make it very difficult for Spirit to recover any of the additional costs which Spirit would have to endure. Spirit's comments on these provisions were set out in Spirit's D5A ExQ3 Response. Moreover, as highlighted above, Spirit considers that the Applicant has either deliberately or naively adopted costs estimates which bear no resemblance to reality. On this basis, the Applicant has provided no credible justification for the arbitrary £8 million cap. The obvious question that follows is; if the Applicant is confident in its ability to mitigate the cost to Spirit, why does it seek to limit its liability in the proposed protective provisions? It cannot submit that it is mitigating and compensating harm on the one hand, whilst placing severe risks and cost liability onto Spirit on the other.

Operational Constraints in the East Irish Sea

1.29 In addition to the cost, Spirit's East Irish Sea operations are distinct from those in the North Sea oil and gas or renewables sectors. Due to its isolated nature and the absence of multiple oil and gas or renewable operators, offshore service provision is very limited. Consequently, all service provisions, including marine, shore base, and aviation services, are bespoke with no market competition.

1.30 Spirit's aviation operations are exclusively conducted from Blackpool Airport, where Spirit has a specific services agreement with Blackpool City Council, permitting operational hours from 0700 to 2100, including out-of-hours operations. The sole operator servicing offshore is NHV, which was introduced by Spirit under a long-term agreement.

1.31 In a similar way, the marine environment in the East Irish Sea is different from the North Sea due to shallow waters (under 30m), strong tidal currents, high tidal ranges and, consequently, port limitations. As a result, the area cannot be serviced with semi-submersible drilling rigs and flotels, only jack-up units. Larger supply vessels cannot operate from Barrow and Heysham due to their draft and dimensions, and the Port of Liverpool also has operational restrictions such as locks. Spirit's marine operations are conducted from the Port of Heysham due to its geographical location and the service vessels Spirit specifically contracted against the port's limitations.

1.32 Consequently, service contracts between Spirit and suppliers are long-term commitments with limited ad-hoc support. Several aircraft were built under these contracts. For example, aviation services contracts have a minimum commitment of 3-5 years and the Blackpool airport lease arrangements last for over 5 years. The aviation contract type requires providing an aircraft against a monthly standing charge (MSC) model for the lease of the aircraft alone, regardless of usage. In addition, an established operating helicopter base including aircraft pilots, engineers and ground staff is required. In contrast, aviation bases like Aberdeen and Norwich have operators with helicopters available for ad-hoc support as they serve multiple clients.

Professional Judgement

1.33 The Applicant has indicated that it considers its advisors to be more qualified and experienced than those advising Spirit, implying that the ExA should prefer their analysis. With respect to the Applicant's team, this is entirely rejected.

1.34 Spirit has provided details of the extensive experience and credentials of its expert advisors at section 2 of its Written Representation [REP1-116] and Appendix D of its Deadline 5 Submission [REP5-089]. Spirit does not consider it a good use of the ExA's time to provide reems of credentials to further a debate on which party has the more experienced experts. Spirit is entirely content that the ExA will consider the evidence on its merits. Furthermore, where professional judgment has been used, this is fully explained in terms that will allow the reader to make an informed judgement. In addition to industry leading consultants with substantial in-field experience, Spirit's advisory team includes leaders within Spirit that are responsible for and manage its operations and safety and understand the operational constraints through experience as well as expertise. They are the individuals ultimately holding the legal and moral duty to ensure the safety of Spirit's personnel, with the organisation and individual directors at risk of prosecution for failing to fulfil that duty. Should the Applicants advisors view be preferred by the ExA, those advisors are protected by professional indemnity and Spirit would remain responsible for the consequences.

2. Aviation Buffer Distances

2.1 Spirit has been clear that it requires an aviation buffer that allows it to fly safely in IMC, VMC and night VMC in order to maintain the safety of its people and assets. Its buffer requirements are driven by the nature of its operations requiring flights to multiple assets in one day, each with different helideck heights and requirements, optimising the efficiency of its operations through maximising the payload of each flight, and applying the actual operational constraints of the aircraft used in its operations. The professional judgement of its expert aviation advisor, AviateQ, has been sought to ensure that not only minimum guidance requirements are met, but that the buffers requested meaningfully ensure the safety of its operations.

2.2 The Applicant, by contrast, has focused its efforts on diminishing the value of Spirit's understanding of its own operational needs. Rather than seeking to ensure Spirit's requirements can be accommodated, it has applied inaccurate and inappropriate assumptions that do not reflect the operational reality of offshore assets in the East Irish Sea. The Applicant has made sweeping statements seeking to discredit Spirit's aviation advisors and Spirit's concerns. These statements are inappropriate and indicate that the Applicant does not consider the safety of Spirit's people, assets and operations relevant to its ambitions with this Project, despite siting the Project directly next to the Morecambe Hub.

2.3 As outlined in all previous submissions, Spirit does not consider a buffer reflecting only VMC requirements viable due to the unacceptable impacts it would have on safety, maintenance, and operations. Spirit, advised by AviateQ, NHV, has provided safe distances for VMC and night VMC OEI take-off, VMC and night VMC landing, and IMC OEI take-off and IMC landing in its previous submissions to this Examination and summarised them at Appendix A to this submission. Spirit's aviation operator is in agreement with these buffer distances.

Assumptions

2.4 Throughout the examination process, Spirit has sought to accommodate the Applicant's comments on the assumptions informing its analysis and the calculation of aviation buffers and updated its position accordingly. In adapting its position as far as possible to the Applicant's comments, Spirit has considered its calculations and evaluated the factors that are absolutely critical. The Applicant, in contrast, has sought to diminish the value of the advice from Spirit's expert advisors and discredit its analysis rather than take account of Spirit's requests for an aviation buffer that protects the safety of its people and assets.

2.5 The Applicant has provided several calculations for aviation buffers in Appendix A to its D5 [REP5-063] (**D5 Anatec Report**). Spirit considers the assumptions informing these calculations in the following paragraphs. To best inform the ExA, a side-by-side summary of the buffer requirements and impact analysis presented by Spirit and the Applicant and their justifications are provided at Appendix A (Tables of Anatec and AviateQ Aviation Buffers) to this submission.

2.6 The difference in calculations is explained in each row of the calculation tables in Appendix A to this submission. Spirit has calculated its distances based on how the aviation operator currently operates and not on how the Applicant may prefer them to operate. It appears that the Applicant has steered its calculations to reduce the buffer distance required as much as possible, rather than taking the actual operational constraints and procedures into account. The distances it has applied do not account for real operational factors such as varying pilot experience or operational requirements.

Helicopter enhancements

2.7 In calculating aviation buffer distances in the D5 Anatec Report, the Applicant has relied on two enhancements to the AW169 aircraft used in Spirit's East Irish Sea operations, neither of which are applicable.

2.8 The first is a Helicopter Terrain Awareness Warning System (**HTAWS**). This enhancement includes a warning mode (Mode 7) together with Flights Data Monitoring (FMD). The HTAWS system is related to neither the aircraft performance nor the distance requirements. It is a warning system. The system is mandated by the CAA under a SPA.HOFO Specific Approval. However, an exemption applies under ORS4 No.1617 due to the aircraft manufacturers being unable to meet the CAA requirements. This exemption has already been extended from January 2025 to June 2025. All aircraft in the UK are operating under a dispensation and will continue to do so for the foreseeable future as there is no indication from industry that this upgrade will be available in the near future. Therefore, it is inappropriate to fix a buffer requirement based on an upgrade that is not yet available, and in any case purely provides a monitoring system and does not change the distance required to complete the relevant operations nor the type of operations.

2.9 The Applicant has further relied on an enhanced power upgrade to the AW169. It is important to clarify that this purported "*safety upgrade*" (paragraph 145, Applicant's D5 Submission) is not a safety upgrade but rather a power enhancement. Spirit has informed the Applicant in submissions to this examination and the shared understanding meetings outside of the examination that this type of upgrade is not applied to the AW169 aircraft used in Spirit's aviation operations (see page 18 of Minutes of Meeting between Spirit and the Applicant on 18th February 2025 at Appendix A to Spirit's D5 Submission). Currently the only operator that Spirit is aware of that has AW169s with the enhanced power upgrade is Unifly. This operator has acknowledged that the enhancement provides improved hover out of ground effect (HOGE) during helicopter hoisting operations. Spirit and NHV are not intending to install this performance upgrade as it is not required for the type of operations undertaken in the East Irish Sea.

2.10 In terms of the impact this has on the appropriate calculation of an aviation buffer, the performance graphs used by AviateQ have been supplied by NHV from their Rotorcraft Flight Manual (RFM) along with the Standard Operating Procedures of the operator (NHV). Despite the availability of the correct performance graphs in AviateQ's study at Appendix A to Spirit's Written Representation [REP1-116], Anatec and the Applicant continue to promote the use of incorrect aircraft performance graphs using non-applicable upgrades in calculating the buffers required for Spirit's aviation operations. On that basis, calculations by Anatec that rely on 'enhanced power' have been disregarded in this submission.

All flights: Payload

2.11 Spirit has also been clear that its payload is optimised at each stage of a flight plan, and therefore calculations must be assumed on the basis of a full payload of 4.8 tonnes (see paragraphs 5.15 to 5.19 of Spirit's Deadline 4 Submission [REP4-069] (**Spirit's D4 Submission**). The Applicant suggests that "*operations at 4800kg will be less common than stated*" (paragraph 76, D5 Anatec Report) on the basis of fuel burned on journeys to CPC.

2.12 In the first instance, the appropriate value must always be the maximum available, as calculations on a lesser value would render the 'less common' flights unsafe. More significantly, at CPC, the aircraft collects passengers and cargo. This onboarding is optimised and maximised in planning the flight up to the total available payload of 4.8 tonnes. Spirit has explained this to the Applicant in submissions and shared understanding meetings and notes the Applicant's insistence on ignoring this critical safety consideration when informing the ExA on the calculation of buffer distances.

Take Off: Altitude

2.13 As noted in the tables at Appendix A to this submission, the Applicant and Spirit are not aligned on the altitude height applicable to segments of the take-off procedure in VMC and IMC.

2.14 In paragraph 2 of the Applicant's D5A submission, the Applicant states that Spirit has changed their calculations and that Spirit's calculations regarding the minimum take-off distances required for day VMC do not follow the required flight profile in the Rotorcraft Flight Manual (RFM), with reference to Figure 14A of Spirit's Written Representation [REP1-116]. It also claims that Spirit has applied inconsistent calculations, which it asserts undermine the credibility of Spirit's figures. Spirit points out that Figure 14A was submitted in November 2024. Throughout the examination process, Spirit has adjusted its calculations to take on board the Applicant's comments wherever possible. In the Applicant's Response to Spirit Energy Deadline 1 Submissions Appendix A: The Applicant's Comments on Spirit Energy and Harbour Energy Aviation Access Study Report [REP2-031], the Applicant queried AviateQ's original calculations using Above Take-off Surface and recommended using heights above sea level for consistency (Comment ID 4.5iii)). Spirit agreed and updated their calculations accordingly in their Deadline 3 Submission (see paragraph 2.13, Spirit's Response to the Applicant's Deadline 2 Submissions [REP3-102]). This is what changed Spirit's original figure from 3.9nm to 3.76nm after consultation with NHV who confirmed that this is the measure applied in their operations. If Spirit was to change its calculation to use ATS, then Flightpath 1 would change from 0.02 to 0.16, resulting in the total figure changing back from 3.76nm to 3.9nm for IMC take off and 1.7nm back to 1.84nm for VMC take off (see VMC Take Off and IMC Take Off tables in Appendix A (Tables of Anatec and AviateQ Aviation Buffers) to this submission).

2.15 Both the Applicant and Spirit are aligned on Flightpath 2 requiring a climb to 500ft in VMC and 1000ft in IMC. However, the Applicant has now applied a Flightpath 1 climb to 200ft Above Take Off Surface (ATS) (i.e. 384ft at CPC), whereas Spirit have applied a climb to 200ft Above Mean Sea Level (AMSL). The Applicant's justification is understandable from a purely theoretical perspective in simple operations: it follows the Rotorcraft Flight Manual (RFM) guidance. However, Spirit's East Irish Sea aviation operator, NHV, along with OHS and Bristow have confirmed to AviateQ that they use AMSL for their OEI continued take-off profiles. Due to the large number of different facilities they operate to within one day or one flight, standardising the flightpaths against mean sea level, rather than variable take-off surface heights, best serves the safety of the operation as it avoids the need to adjust the profile for every take off within one multi-stop operation, which would inherently create risks of error and adds to pilot workload during a critical phase of flight. The height used needs to be consistent.

2.16 Spirit's aviation operator, NHV, along with the other North Sea operators, execute the Flightpath 1 profile using a consistent level of 200ft AMSL (Above Mean Sea Level) in accordance with the AW169 performance graphs. This is applied for the safety of the operations. The Applicant's calculations applying ATS for flightpath 1 are incorrect as it applies a fictitious, de-contextualised operational procedure that the Applicant knows is not applied in the East Irish Sea. All North Sea helicopter operators use Above Mean Sea Level (AMSL) as the base reference datum and this will not change. This is a safety consideration due to the vertical distance (height) of the obstructions (turbines in this case) based on the same datum. Whenever Spirit uses or plans to use an alternative helideck on support vessels for short seasonal campaigns, the distances required for the climb to 500ft / 1000ft would be even greater because the such helidecks on these vessels are normally not more than 50-100ft above AMSL.

Approach: Stabilised Approach Point

2.17 The Heli-Offshore Guidelines and CAP 764 requires a minimum of 0.5nm for the Stabilised Approach Point (SAP). This distance is already used in Spirit's calculations provided in AviateQ's report submitted at Appendix A to Spirit's Written Representation [REP1-116],

and in the tables at Appendix A in this submission. The Applicant has varyingly applied 0.5nm or 0.75nm for the SAP, and referred in its D5A Submission to the SAP used by various other operators, including 0.3nm by CHC (paragraph 5, Applicant's D5A Submission). No context is provided for the operations in which these SAPs are applied, and these aviation operators are not utilised by Spirit in UK. Spirit therefore cannot comment without any context. If 0.3nm was applied to the Oil & Gas operations, then the aviation operators listed would not be compliant with IOGP 690 and Heli-Offshore guidelines.

2.18 CAP 764 section 5.24 provides the following guidance on the distance leading up to the SAP in VMC conditions:

"When a helideck is within a windfarm there may be operational difficulties when manoeuvring for a stabilised approach. Obstacle clearance around a helideck within a windfarm should allow aircraft to achieve Final Approach Track (FAT) ***and*** *0.5 NM stabilised approach Visual Meteorological Conditions (VMC) gate." (emphasis added).*

2.19 All recommended practice requires that the aircraft is stable by the time it reaches the SAP, i.e. before 0.5nm. The Applicant's aviation advisors have neglected to provide for the FAT in their calculations and appear to rely instead on HTAWS, a non-applicable warning system as discussed above. The Flight Data Monitoring (FDM) system that forms part of the HTAWS assists with monitoring the Aviation Operator's Standard Operating Procedures (SOP) and flight standards. However, there is a distinction between monitoring flight standards and having an aircraft in a stable configured state by the 0.5 nm SAP point. The FDM system does not ensure that the aircraft will be stable. Anatec allows 0.43nm for a 180º turn (paragraph 42, D5 Anatec Report), and suggests that the aircraft can arrive stabilised at the SAP directly out of the turn. However, this is not practically achievable. In AviateQ's view, an aircraft cannot roll out of a 180º turn exactly at the 0.5 nm SAP point and still meet the SAP criteria.

2.20 Anatec has also stated that the SAP will be reached at a groundspeed of 60kts (on autopilot) (paragraph 50, D5 Anatec Report). This is incorrect. The current operator's requirement is that the stabilised approach speed must be no more than 80kts ground speed. This means that the majority of the FAT up to the SAP would usually be flown at 80kts and only when nearing the SAP would the pilot reduce their speed for the landing. This can vary from pilot to pilot within those parameters.

2.21 Autopilot does assist the pilots in remaining stable however it does not guarantee that the aircraft will meet all the stabilised approach criteria the instance the aircraft rolls out of the turn. There are still several criteria that need to be met that autopilot does not do 'automatically' such as checklists, briefings, adjusting rate of descent, and ensuring the aircraft is on the correct track for the approach. These all need to be adjusted in real time by the pilot.

2.22 Consequently, professional judgement is required to identify a suitable buffer distance to enable stabilisation out of a 180º turn. In the view of AviateQ, this is 1nm which allows 45 seconds at a speed of 80 knots for the pilot to ensure that:

2.22.1 All briefings for the approach and landing are completed.

2.22.2 All checklists for the approach and landing are completed.

2.22.3 Speed is no greater than 80kts ground speed.

2.22.4 Rate of decent is no greater than 400 ft/min.

2.22.5 Any adjustments in heading, power and pitch necessary to maintain the correct flight path are made.

2.23 Excluding an allowance for FAT and completing all necessary checks prior to reaching the SAP is unrealistic and does not allow any margin for conditions or contextual factors such as the pilot's level of experience. Later in the D5 Anatec Report, Anatec suggests, setting aside its earlier calculations and arguments, that the SAP point of 0.75nm it has applied in reaching a VMC approach distance of 1.26nm, can be replaced with a SAP point of 0.5nm instead to leave 0.49nm margin for approach (paragraph 47). No justification is given for why 0.75nm is no longer required, and it seems to Spirit that the Applicant is indiscriminately applying distances to its calculations to reach its desired conclusions.

IMC Approach

2.24 The Applicant states that a buffer of 3.76nm is insufficient for an IMC landing approach as a buffer distance of 9nm is required for an ARA (Airborne Radar Approach) approach in IMC conditions (paragraph 144, Applicant's D5 Submission). It should be noted that different operators require different distances for the ARA approach; NHV requires 7.5nm for the ARA and Spirit does not dispute this.

2.25 However, following the aircraft landing it must be able to take off in the opposite direction from the approach, which is where 3.76nm is required. Spirit's position is to maintain safe aviation operations in all environmental conditions (Day, Night, VMC and IMC). Changes to environmental conditions can result in scenarios where an aircraft lands in VMC and takes off in IMC. With a buffer of 3.76nm between the windfarm and the Affected Assets, Spirit's aviation operator can approach with a clear distance of 7.5nm leading up to the landing point (flying in the unobstructed space between to the north, east, and west of the helideck), and will require 3.76nm to subsequently take off.

2.26 In the Applicant's Deadline 5A Submission, the Applicant states that it "*could accommodate a 3.76nm buffer for an interim period*" but excludes Calder from this and requires that it would be able to lay foundations and cables within any interim buffer (sections 2.2.3-2.2.4, Applicant's D5A Submission). Calder, along with the other Affected Assets, requires uninterrupted 365 days access to perform the required safety, production and maintenance work-scopes. Omitting Calder NUI on the grounds that it has "*fewer flights when compared with CPP1*" (paragraph 38, Applicant's D5A Submission) is not sustainable. As the operator of Calder, Spirit performs regular maintenance visits to Calder as per the NUI 365 plan where the annual maintenance scopes are defined. Reducing access to the installation could result in making the installation non-compliant under its Safety Case. The number of annual visits to Calder in comparison with DP6 and DP8 NUIs can be seen in Table 5 and Table 6 of this submission.

2.27 With regard to construction activities within any interim buffer, NHV, Spirit's aviation operator, has advised Spirit that cable installation operations with a cable-lay vessel should not impact IMC operations subject to co-ordination of operations with Spirit. However, NHV and AviateQ have further advised that piling and foundation installation utilising a jack-up vessel would restrict helicopter IMC approaches to the Affected Assets from the wind farm array direction as the aviation operator is required to maintain 1nm horizontal clearance from any obstacle showing on the Airborne Radar Approach (ARA) on the approach path to the helidecks during IMC flights. It is a CAA legal obstacle clearance requirement that the aviation operator should maintain during IMC approaches and the installation of WTG foundations and jack-up installation vessels would conflict with this restriction.

IMC Take Off

2.28 The Applicant has provided several aviation buffer distances for IMC derived from inclusion or exclusion of certain payload masses and helicopter upgrades.

2.29 For the reasons set out above, Spirit considers only the Applicant's calculations on the actual aircraft capabilities ('Standard Power' in the Applicant's terminology) and maximum

available payload to be relevant. The buffer distance identified by the Applicant on these assumptions is 3.46nm (paragraph 75, D5 Anatec Report).

IMC ARC

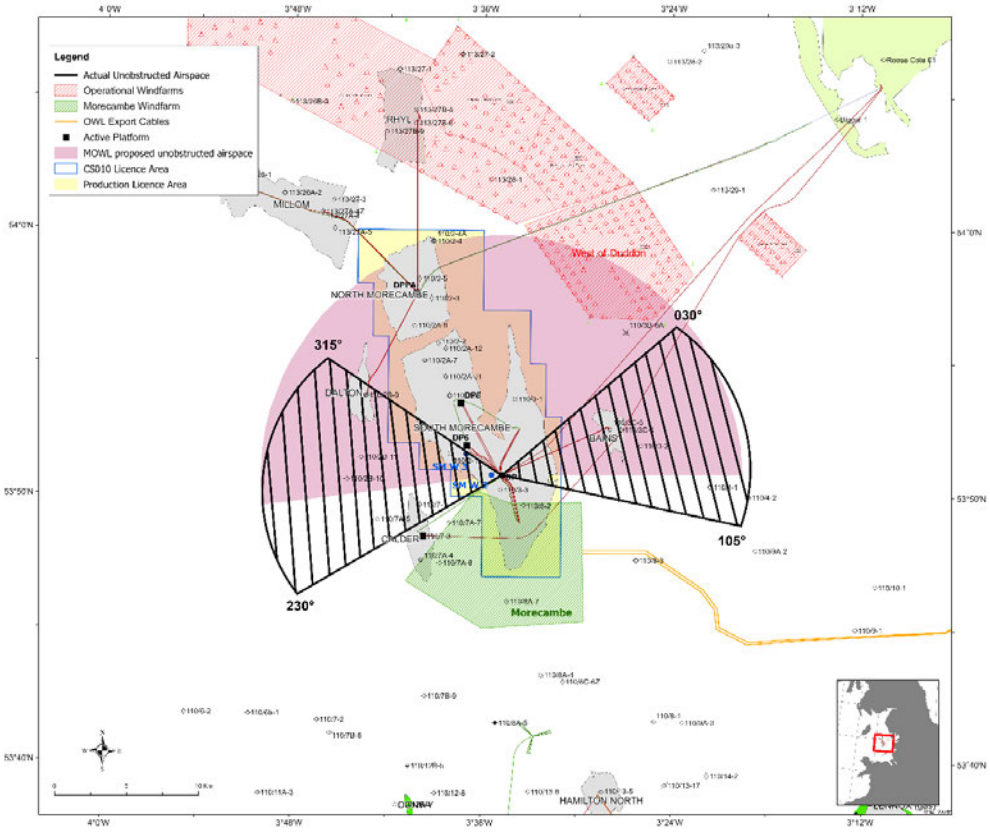
2.30 The Applicant has referred to an unobstructed airspace from 220 degrees clockwise to 90 degrees (proposed IMC corridor plus unobstructed ARC) (paragraph 113, D5 Anatec Report), which allows for an IMC approach with a buffer of 1.5nm in the opposite sector of 90 degrees to 220 degrees. However, this does not take account of wind restrictions within the 1.5nm buffer sector (90 – 220 degrees) and applicable wind restrictions for the AP1 and DP1 helidecks. Regardless of wind conditions, the aircraft cannot approach from the windfarm direction, thus limiting the 315 to 30 degrees sector for take-off. This also applies to aircraft approaching from the 315 to 30 degrees sector, as it will need to take off into the windfarm, which is not feasible under the proposed 1.5nm buffer. The wind restrictions for the AP1 / DP1 helidecks and the 1.5nm buffer will leave two narrow sectors (see Figure 1 (Sectors available for undertaking flights via CPC with 1.5nm buffer and IMC Corridor)) available for Spirit operations only under VMC conditions:

2.31 Sector 1: from 230 to 315 degrees in which Spirit can approach in VMC from the west with winds under 30 kts.

2.32 Sector 2: from 30 to 105 degrees in which Spirit can approach in VMC from the east with winds under 20 kts.

2.33 In addition to the above, Spirit reiterates its position that the proposed UK CAA regulation changes will restrict all IMC operations to O&G facilities in under 3nm distance from any wind farm array.

Figure 1: Sectors available for undertaking flights via CPC with 1.5nm buffer and IMC Corridor.



All flights: Professional Judgement

2.34 The Applicant has indicated that it considers its advisors to be more qualified and experienced than those advising Spirit, implying that the ExA should prefer their analysis. With due respect to the Applicant's team, this is entirely rejected.

2.35 In matters of safety, expert judgement and interpretation is critical. AviateQ is an industry leader, and Spirit's expert witness Nigel Blackstock has 40 years of experience as a pilot and aviation operations leadership. Aviation operations carry inherent risks and take place at pace. The interpretation of guidance and regulations in the real world, taking account of matters such as pilot workload, is a critical part of ensuring safe aviation operations. Spirit's analysis of the risks to which the project would give rise is informed by NHV, Spirit's aviation operator in the East Irish Sea as well as many years of helicopter flights to and from the affected assets. In this respect, Spirit submits that its evidence, supported by the actual operator of its flights, who is responsible for the safety of its pilots and the many employees of Spirit who need to access the platforms, is to be preferred over the theoretical analysis offered by the Applicant's experts.

2.36 As the duty holder of the Morecambe Hub under the Oil and Gas Authority United Kingdon petroleum production licences with references P.251 (6 July 1976), P.1483 (13 June 2007) and P.153 (10 July 1972), Spirit bears sole legal responsibility for the safety of its assets and personnel, both offshore and onshore. Neither the Applicant nor its industry experts or advisors hold any legal responsibility for the safety of Spirit's assets and personnel. Consequently, it is not the Applicant's but rather Spirit's and AviateQ's professional judgment that will be relevant to the regulatory bodies overseeing Spirit's operations.

2.37 Spirit, along with its aviation operator NHV, who is ultimately responsible for safely operating within the parameters of Spirit's Morecambe Hub aviation requirements, will

continue to operate safely based on the technical and expert support from AviateQ, a globally recognised aviation consultant within the industry. Spirit will not accept a demand from the Applicant to push its operators to undertake operations which it does not, using professional guidance, consider safe.

2.38 Spirit notes that the Applicant has requested to hold tripartite dialogues with Spirit and NHV (paragraph 56, Applicant's D5A Submission) and, for full context, this relates to seeking commercial terms for an additional helicopter to mitigate the aviation impact. Spirit has already set out why an additional helicopter would not be suitable mitigation as additional crews would be needed as this would not be viable for the short periods envisaged by the Applicant. However, Spirit has not prevented the Applicant from approaching NHV for a commercial proposal for future operations in East Irish Sea from Blackpool Airport, and to explore their fleet offerings together with aircraft limitations and performance. Spirit is not against such an approach and has never indicated otherwise.

3. Aviation Impact Analysis

3.1 With an aviation buffer of 1.5nm (as proposed by the Applicant), 30-44% of Spirit's NUI flights would be impacted resulting in a 22% loss of time available offshore to fulfil Spirit's obligations in maintaining the safety of its East Irish Sea assets. The Applicant has argued that the flight impact would be only 12-20% (Table 6.3, D5 Anatec Report) resulting in a 1.5-3% loss of time offshore (section 4.3.2.2, D5 Anatec Report). The Applicant's figures vary significantly from Spirit's because 1.5nm is insufficient to enable VMC flights in all wind conditions. Flights are restricted when the wind is coming from the direction of the wind farm and Spirit's data takes this into account.

3.2 The Applicant has applied assumptions on the working day that are inconsistent with the operational reality of Spirit's assets. The Applicant then argues that time lost due to impacted flights can be recovered, by extending days where possible and flying extra days. It has done this despite Spirit explaining its operations in multiple forums. Time lost due to impacted flights is not always recoverable: non-productive but safety-critical activities can take hours out of the offshore time available, and there are working conditions limitations that do not allow Spirit to infinitely extend the working day as the Applicant supposes. This would be yet more constrained if night VMC and IMC flying were restricted. A buffer of 1.5nm would have unacceptable and unsustainable impacts on Spirit's operations.

3.3 To assist the ExA, Spirit has consolidated the analyses submitted by the Applicant and Spirit over the course of the examination of the DCO for this Project in the following paragraphs. It has provided a summary comparison between the Applicant's and Spirit's positions, along with clarifications regarding the assumptions informing them.

3.4 It should be noted that Spirit has used flight data from 2018-2023. Spirit made all flight data from 2018-2024 available to the Applicant, but the Applicant has only used data from 2018-2022.

Impact on Flights to CPC and Morecambe Hub NUIs

3.5 In its D5 Anatec Report, the Applicant has provided a summary of the annual impact on NUI operations for flights limited to VMC.

3.6 In the first instance, Spirit reiterates, as per its previous submissions, that all aviation operations across the Morecambe Hub will be impacted by the Project. This impact is due to the nature of Spirit's shuttling operations via CPC.

3.7 With that in mind, it is unclear to Spirit why the Applicant elected to conduct an impact assessment against DP8 (see section 6.3 of the D5 Anatec Report). In paragraph 100 of the D5 Anatec Report, the Applicant notes that it did this because it considers DP8 to be "*an analogue for access to any other NUI in the local area*." This is clearly refuted by the Applicant's own analysis which identifies higher average impacts across 'all NUIs' than at DP8 (Table 6.3 of D5 Anatec Report). For this reason, Spirit considers the values identified by the Applicant for DP8 to be unhelpful and of limited benefit.

3.8 In assessing 'all NUIs' in the D5 Anatec Report, the Applicant has omitted DPPA. No reason for this is provided by the Applicant. As a result of omitting this NUI, the overall impact of lost time and flights offshore presented by the Applicant for 'all NUIs' (20.4% in winter) is an incomplete picture and presents a lower than actual impact. The Applicant also claims the winter impact is "*skewed by the higher number of night flights in 2018*" (paragraph 106, D5 Anatec Report). The data from the years 2018-2022 includes 2 years of normal operations (2018, 2019) and 3 years affected by the COVID-19 pandemic (2020, 2021, 2022), which does not reflect the current status of offshore helicopter operations for the Morecambe Hub. During the COVID-19 pandemic, all offshore operations were minimized according to UK Government regulations, and those years do not represent 'normal' offshore operations by Spirit in the East Irish Sea.

3.9 The Applicant has also commented that Spirit ceased flight operations to DP3 and DP4 NUI platforms in 2023, which will reduce NUI flight numbers going forward (section 7, D5 Anatec Report). If the Applicant had evaluated the provided Vantage data, rather than relying on internet press-release information, then it would be clear that all flights to DP4 ceased in July 2019 and flights to DP3 ceased in December 2019. Therefore, these flights have a limited impact on the flight impact analysis. The number of operational NUI platforms since the end of 2019 have not changed and Spirit will continue to operate the remaining 4 x NUI platforms (DP6, DP8, DPPA and Calder) until completion of decommissioning. Claims that "*the maintenance burden will have reduced significantly (up to 33%) with the decommissioning of two NUIs (DP3 & DP4) in 2023*" (paragraph 117 of the Applicant's D5 Submission) are not accurate.

3.10 The Applicant appears to be deliberately omitting certain parts of the operational information provided by Spirit, minimising the impact to support its claim that "*the loss of IMC and night access is an operational and logistical impact, and not a safety concern*". This presents a misleading view to the ExA.

3.11 Subject to the above comments, Table 2 (Average rate of flights impacted as a result of the proximity of the Project) presents the Applicant's assessment for 'all NUIs' with an aviation buffer of 1.5nm against Spirit's assessment for all NUIs that Spirit operates (DP6, DP8, DPPA, Calder) with an aviation buffer of 1.9nm, as deemed the minimum safe buffer distance by Spirit's aviation advisor AviateQ for VMC operations, and 1.5nm for comparison purposes against the Applicant's figures. Spirit has previously presented and provided the assumptions informing its analysis in the AviateQ report at Appendix A to its Written Representation [REP1-116] along with updates in its submissions since.

Table 2 Average rate of flights impacted as a result of the proximity of the Project

NUI Flights	Applicant	Spirit	Spirit
CPC Buffer	**1.5nm**	**1.9nm**	**1.5nm**
Annual Impact	12.2%	13%	30%
Winter Impact	20.4%	22%	44%

3.12 In both the Applicant's and Spirit's analysis presented in Table 2, it is assumed that only day VMC flying is possible with no consideration of an IMC Corridor.

3.13 Overall, the Applicant and Spirit's NUI flight impact results are very similar for the Applicant's analysis on 1.5nm and Spirit's analysis on 1.9nm. Spirit's position is that 1.9nm is required for safe VMC flight operations in all wind conditions, whereas the Applicant assumes 1.5nm. Spirit's analysis of 1.5nm results in significantly higher impacts on flights as Spirit applies the fact that flying will be restricted if there are obstacles within 1.5nm of the aircraft and the wind is coming from the direction of the obstacle. The aircraft must take off in the direction of the wind. Where an obstacle (i.e. the Project) is within 1.5nm of the helideck, Spirit will be unable to land or take off in that direction due to requiring 1.9nm minimum in VMC. Therefore, in its analysis of 1.5nm, Spirit has included flights in the direction of the Project (125 to 210) when the wind is in that direction as impacted.

Impact on Time Offshore

3.14 The Applicant has provided an impact analysis for the loss of offshore time due to the impact to flights in Table 4 (section 4.3.2.2) of Appendix B to their D5 Submission [REP5-065] (**D5 DNV Report**). In Table 3 (Average loss of offshore time as a result of aviation buffer restrictions), Spirit presents the Applicant's results against Spirit's analysis.

Table 3 Average loss of offshore time as a result of aviation buffer restrictions

Time Offshore	Applicant	Spirit >7 hours	Spirit >7 hours

CPC Buffer	1.5nm	1.9nm	1.5nm
Annual Impact	1.5 to 3%	6%	22%

3.15 In both the Applicant's and Spirit's analysis presented in Table 3, it is assumed that only day VMC flying is possible with no consideration of an IMC Corridor. Spirit again applies a wind restriction for its result at 1.5nm.

3.16 The methodology used by Spirit to calculate the impact on time offshore is comparable to the Applicant's. Both measure any potential delays or cancellations to flights and the resultant loss of time.

3.17 To provide greater parity for the ExA, Spirit has re-run its analysis using the Applicant's 4-hour metric as the threshold for working days lost offshore and presented the results in Table 4 (Average loss of offshore time as a result of aviation buffer restrictions (4 hour threshold)).

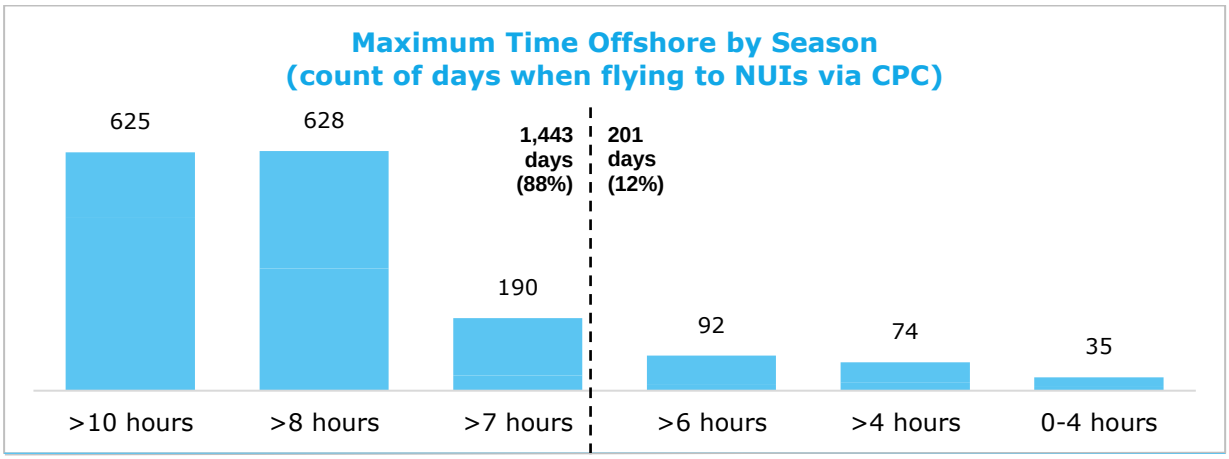
Table 4 Average loss of offshore time as a result of aviation buffer restrictions (4 hour threshold)

Time Offshore	Applicant	Spirit >4 hours	Spirit >4 hours
Distance to CPC	1.5nm	1.9nm	1.5nm
Reference	All NUIs	All NUIs	All NUIs
Annual Impact	1.5 to 3%	2.3%	16%

3.18 As with the impact to flights detailed in Table 2, the figures in Table 4 demonstrate that the results reached by each of Spirit and the Applicant when applying the same assumptions, except for the buffer being 1.9nm rather than 1.5nm, are comparable. This reveals that the threshold applied for loss of a working day offshore is significant, with Spirit's impact assessment falling from 6% to 2.3% at 1.9nm, and from 22% to 16% at 1.5nm on the 4-hour analysis.

3.19 However, Spirit maintains that the analysis should be based on a minimum of 7 hours' time offshore for a working day. As detailed in Figure 2, 88% of Spirit's offshore working days at NUIs are longer than 7 hours. Only 2% of Spirit's working days on NUIs are less than 4 hours. NUI maintenance activities have significant set up and close times (e.g. for toolbox talks etc – as detailed in paragraph 3.14 of Spirit's D5 submission). A working day of 4 hours would effectively mean that Spirit's NUI intervention teams would have very little time to undertake work. Trips allowing only 4 hours or less on the asset are usually for quick fixes and not part of the planned maintenance which must be undertaken in accordance with the permitted scope of work on the relevant date. For this reason, Spirit operates on the basis that 7 hours is the minimum time offshore available when planning its maintenance activities and considers this the appropriate threshold to assessing time offshore lost as a result of the Project.

Figure 2 Maximum time offshore by season



3.20 In either case, a key conclusion of the analysis is the bearing wind direction would have if the windfarm were situated within the minimum safe distance calculated by Spirit's technical experts (1.9nm). The number of working days lost due to the combination of the windfarm in closer proximity than 1.9nm and the wind restrictions applicable in those circumstances is untenable for Spirit to maintain its operations (22% based on 7 hour working days, and 16% based on 4 hour working days).

IMC Corridor

3.21 The IMC Corridor proposed by the Applicant does not mitigate the impact of the lost IMC flights unless the wind is from the direction of the corridor. It would only increase the available unobstructed space by 10 degrees and therefore not mitigate the restriction on IMC flights to the extent the Applicant suggests (see section 3.3, Applicant's D5A Submission). In addition, it does not take account of the restriction to VMC within 3nm of a windfarm proposed by the UK CAA, as confirmed in the CAA's response to EXQ1 1CAR7 [REP3-075] and EXQ2 2CAR1 [REP5-073]. Spirit has provided its position on the availability of an Altmoc for any new AMC at paragraphs 5.20 to 5.24 in its D4 Submission. Furthermore, in response to EXQ2 2CAR1, the UK CAA has reiterated that new regulations rather than an AMC, which would preclude any Altmoc, has not been ruled out and will be subject to consultation. Reliance on an Altmoc for a potential AMC which may in fact not be at all available if introduced as regulations, let alone viable if the rule change is introduced as an AMC, is therefore an untenable position. The recent CAA response to EXQ3 3CAR2 and 3CAR3 [REP5a-064] confirms that the IMC corridor does not provide sufficient clearance for departures with the wind direction from the windfarm, neither does it provide clearance for any wind direction in respect of approaches in IMC.

Days Flown per Year

3.22 Table 1 of the D5 DNV Report sets out the Applicant's summary of the average number of days per year that each NUI is visited. Spirit has also measured the average number of days flown to the NUIs per year, with the results compared below in Table 5 (Average Number of Days per Year Flown to NUIs).

Table 5 Average Number of Days per Year Flown to NUIs

Average Days Flown to NUIs per Year	CAL	DP6	DPPA	DP8
Applicant	95	74	161	124
Spirit	102	74	167	117

3.23 Note that the days flown to individual NUIs is broadly aligned between Spirit and the Applicant.

3.24 It should also be noted that the average days flown to the NUIs varies by year, with 2020 in particular being a low point due to the impact of COVID. Table 6 (Days flown to NUIs per year in 2018-2023) provides the number of days flown to each NUI in the years 2018 – 2023.

Table 6 Days flown to NUIs per year in 2018-2023

Days Flown to NUIs per Year	CAL	DP6	DPPA	DP8	Any NUIs
2018	93	35	180	86	**332**
2019	135	56	187	78	**335**
2020	129	60	129	76	**239**
2021	83	87	166	136	**316**
2022	60	112	211	145	**322**
2023	111	96	127	182	**315**
Average	**102**	**74**	**167**	**117**	**310**

3.25 As stated previously, a windfarm at 1.5nm from Spirit's assets would be inside the minimum distance calculated by Spirit's technical experts for flying in all wind conditions in VMC (which requires a buffer distance of 1.9nm).

3.26 Wind restrictions are a major constraint on Spirit's ability to fly, resulting in a 22% loss of time offshore (see Table 3). This is predominantly driven by a large number of days becoming unflyable due to the prevailing wind direction, but the time offshore loss shown in Table 3 is also influenced by the total number of hours available offshore in a day which varies. In terms of days, an average of 20% of previously flyable days would be lost as a combined result of the night, IMC, and wind restrictions (compared to a 5% loss of days (6% loss of offshore time) with a 1.9nm buffer).

3.27 Currently, without the Project in proximity to the Morecambe Hub, Spirit calculates that an average of 358 days are flyable each year (i.e. weather conditions allow for flying in IMC or VMC; unflyable would be weather conditions that cannot be flown in). The 20% loss of flyable days would mean only 286 days were available for NUI operations (with the worst year assessed only having 276 days available). This is significantly less than the 310 average number of days Spirit is currently flying to the NUIs (see Table 6), and therefore Spirit faces a deficit of 24 days between the number of days it needs to fly based on the historic total flying days shown in Table 6 and the number days it would be able to fly with the 1.5nm buffer.

3.28 Table 6 also indicates the anomalous number of flying days in 2020 (only 239). This was due to stringent restrictions during the Covid-19 pandemic. Excluding the anomaly, the average flying days per year is 324. Spirit would therefore be facing a shortfall of 38 flyable days with no flexibility whatsoever, regardless of the 'better planning' advocated by the Applicant.

Recoverable Time

3.29 Section 4.3.2. of the D5 DNV Report states that any impact to time offshore can be recovered by extending the number of hours onboard the NUIs where flying conditions permit it.

3.30 It is unclear if the Applicant intends that this solution only applies where a delay in the morning has occurred and conditions allow time to be made up by delaying the return flight

(within the maximum working hours per day of personnel), or universally regardless of the scopes of work permitted for that date. This distinction is important, because Spirit's ability to recover time is heavily dependent on the circumstances each day. For instance:

3.30.1 Work must be pre-planned with all necessary permits in place prior to the NUI visit. An extra 2 hours of flyable time may not be productive if the permitted scopes of work are completed within the original planned time.

3.30.2 NUI teams are on shift before check-in for their flight, with a maximum time of 12-hours allowed to be on shift. If the morning flight is delayed, it may not be possible to get the maximum 10-hour visit to the NUI assumed by the Applicant.

3.30.3 It takes time to check in, heli-brief, suit up and then travel to a NUI. When the teams get to site there are checks that need to be undertaken across the site before permission to work is issued. The same constrains apply before travelling back. The team onboard the NUI are also the helicopter landing officer (HLO) and helideck crew, so work must stop sufficiently in advance of the return flight to complete pre-departure activities and prepare for arrival of the aircraft.

3.31 In summary, while there may be some opportunities to extend the day in the event of flight delays in the morning, this will be highly dependent on the circumstances. The Applicant's assertion therefore that 10% of time could be recovered is viewed by Spirit as overly simplistic and unrealistic.

Safety and Aviation Impact

3.32 A final point to address as part of the flight analysis is the availability of helicopters to Spirit if down manning or another safety related evacuation is required.

3.33 Currently, Spirit has access to helicopters during all heliport opening hours, assuming suitable flying conditions. However, in the case that night flying and IMC flying are restricted by an aviation buffer of less than 3.76nm, 16% of previously good flying time will be lost (27% in Winter), rising to 26% of flying time lost if the wind direction is from the windfarm and therefore restricts flying in that direction (40% in Winter).

3.34 This materially increases the likelihood that Spirit will not have helicopters available in the event of a down manning or other form of evacuation is required.

4. Safety

4.1 The Project as currently proposed will have a material impact on the Safety Case for Spirit's operations in the East Irish Sea. It will compromise Spirit's evacuation capability and increase the risk to individuals by requiring more flights and less optimal means of operating and conducting maintenance across Morecambe Hub. The Applicant has described this impact as a 'nuisance' on multiple occasions, and yet suggested Spirit establishes significantly different ways of operating to mitigate the impact. The alternative means of operating suggested by the Applicant are not viable for the Morecambe Hub: Spirit already operates on an optimised safety and operational plan, as agreed in its Safety Case with the regulators. Spirit has discussed the Project with HSE who has confirmed that the impact of the Project (as currently proposed with 1.5nm buffer) and concomitant operational changes would constitute a material change to the Safety Case. A full Safety Case update would be required if the Project were granted consent, which may or may not be accepted by HSE.

4.2 Concerningly, the Applicant has stated that DNV has taken account of the evidence of both parties in its analysis and that as such the ExA need not make any particular findings on night and IMC aviation access (paragraph 18, Applicant's D5 Submission). This entirely ignores the fundamental disagreement between the parties on the approach to be taken in such assessments. This is particularly alarming in the context that the Applicant has persistently stated that it does not take Spirit's concerns for the safety of its people seriously. Rather, it considers them "*merely operational nuisance*" (paragraph 16, Applicant's D5 Submission).

4.3 The Applicant asserts that it does not believe there is a safety impact due to the aviation constraints that would be created by the Project as currently proposed on the basis that it believes maintenance will be reduced in the remaining productive operations of the Affected Assets, and that flights are only impacted by 1-3% (paragraphs 14-16 of the Applicant's D5 Submission). Spirit has demonstrated the categorical fallacy of this view in section 3 of this submission on Aviation Impact Analysis.

4.4 The following paragraphs respond to the Applicant's submissions at Deadline 5 and summarise Spirit's safety concerns. Additionally, Spirit has provided a comprehensive summary and analysis of the safety impacts of the Project on Spirit's people, operations and assets at Appendix B (Morecambe Offshore Windfarm Impact on Morecambe Hub Assets Safety and Regulatory Compliance) of this submission. This report demonstrates the significant impacts of the Project on Spirit's operations from a safety perspective, further evidencing the need for an aviation buffer of 3.76nm that ensures these impacts are avoided.

Experts and Evidence

4.5 To support its view that the safety risks imposed on Spirit by the Project are 'merely operational nuisance', the Applicant has commissioned and submitted three studies at Deadline 5. The original report by DNV submitted at Deadline 3 has been updated and included at Appendix B [REP5-065], and two 'peer reviews' by ERM at Appendix F [REP5-069] (**D5 ERM Report**) and CityPort Oil and Gas Services Limited (**CPOGS**) at Appendix G [REP5-069] (**D5 CPOGS Report**).

4.6 Spirit has noted, as will the ExA, a wide gap between the advice given and conclusions reached by Spirit and their advisors ORS in Appendix D of Spirit's Response to the Applicant's Deadline 4 Submissions [REP5-089] (**ORS Report**), and the advisors retained by the Applicant (DNV, ERM and CPOGS). This difference may be due to the Applicant's advisors having very limited operational experience, with most of their collective working lives spent in technical consultancy. Occasional visits to offshore installations cannot compensate for this lack of in-depth understanding.

4.7 For a consultant's expertise to be fully realised, they will typically rely on their client to provide the necessary operational information required to provide a solid foundation for

their assessment. The Applicant has proven itself lacking in its understanding of Spirit's operations, despite numerous attempts by Spirit to help it achieve a greater understanding. The Applicant seems unwilling to accept the insights offered by Spirit presumably because it does not suit their narrative or ideals in relation to the Project.

4.8 In contrast, Spirit's personnel and the consultants supporting Spirit's various submissions have in-depth knowledge of the Affected Assets, and extensive experience of managing operational risk and ensuring compliance with offshore safety regulations.

4.9 The Applicant has submitted a review by DNV of the ORS Report at Appendix A of its D5A submission (**DNV ORS Review**) [REP5a-062], with a summary at paragraphs 58 – 63 of the Applicant's D5A Submission. In the DNV ORS Review, DNV appear to take issue with ORS accepting as valid input analysis carried out by other expert advisors (section 2). Both the Applicant and Spirit have engaged advisors with aviation expertise to carry out their aviation impact analysis. DNV has accepted the aviation analysis carried out by Anatec as a key input to their assessment, and ORS has similarly accepted the aviation analysis by AviateQ. DNV's objection therefore seems not to be in the use of input analysis carried out by other advisers, but specifically for the maintenance analysis. To understand the impact of the Project on maintenance, Spirit sought to use those with the most direct expertise to carry out this analysis i.e. Spirit personnel with a deep understanding of how maintenance is executed across the Affected Assets, and knowledge of the context of the raw flight data contained in the Vantage data. Spirit did not see any value in engaging ORS to duplicate this analysis but instead engaged them to provide an independent assessment of how the maintenance impacts identified by Spirit would affect the accepted Safety Case and risks to personnel since that is where their expertise lies. In contrast, the Applicant engaged DNV personnel whose expertise lies in safety assessment, to not only assess the impact of the proposed development on safety, but also to carry out the maintenance impact analysis required as an input to the safety assessment. As explained in paragraph 4.7, for a consultant's expertise to be fully realised, they will typically rely on their client to provide the necessary operational information for their assessment. Neither DNV nor the Applicant possess this operational depth of understanding to be able to deliver a robust maintenance analysis, despite many attempts by Spirit to explain and share information.

4.10 The Applicant has sought to justify its lack of understanding of Spirit's operations by reference to documents that Spirit has not provided (paragraph 48, Applicant's D5 Submission and paragraph 54, Applicant's D5A submission). In relation to the Morecambe Hub Safety Case, Spirit has made it clear to the Applicant that it is not appropriate to share the full safety case. This information is not in the public domain (this is standard in the industry), and it contains sensitive information on how Spirit operates its assets and manages risk. In any case is not necessary: Spirit has explained the nuance of its Safety Case in submissions to this examination and shared understanding meetings between the Applicant and Spirit. With regard to maintenance performance standards for the Affected Assets, Spirit has informed MOWL that it is not appropriate to share the Performance Standard documents in their entirety. As with the Safety Case, there is no reason that justifies sharing these sensitive documents with the Applicant. In any case, obtaining this information is not necessary as Spirit has informed the Applicant which SECE systems apply to each asset. The performance requirements and associated assurance activities for SECEs are generally well aligned across industry and should be well understood by any competent consultant. In all cases, Spirit has offered to respond to any specific requests for information, but the Applicant has not made any or identified the information it needs from the Safety Case, the performance standards or PFEER studies. As indicated to the Applicant on multiple occasions, Spirit would have been willing to provide targeted information such as maintenance hours at each NUI if requested by the Applicant for a reasonable purpose – such information has been provided in various meetings and communications where the information request was clearly stated. With regard to providing aviation calculations, see Appendix A to this submission.

4.11 With specific reference to the documents requested in paragraph 54 of the Applicant's D5A Submission, Spirit has been clear that the Applicant should specify the elements of any documents that it requires in order for Spirit to consider and best assist within the limits of information it may make public or available to a third party. With reference to the

evacuation scenarios and NUI restrictions requested by the Applicant, Spirit has provided this information within its submissions and in meetings with the Applicant over the last 2 years and is unsure of what further information the Applicant requires to fully understand the impact to Spirit's operations over and above this. Regarding a reduction in payload to 4400kg, Spirit has already stated that this is not a reasonable assumption to apply to aviation operations as the capacity of the aircraft is 4800kg. A decrease of 400kg is equivalent to losing three persons per flight, resulting in the need for additional flights for both crew change and NUI flights. This would lead to increased downtime on assets and amplify any safety-critical and maintenance backlog. The increase of flying and landings will result in an additional maintenance burden on the aircraft and financial implications for the additional flying time and maintenance downtime for Spirit. The use of a lower payload would also result in delays to evacuation.

Maintenance

4.12 Despite Spirit's efforts to advise the Applicant on the operational realities of maintenance of the Morecambe Hub, the Applicant and its advisors demonstrate a poor understanding of offshore operations and a reluctance to take on board the insights shared by Spirit.

4.13 Spirit fundamentally disagrees with the Applicant's analysis of helicopter access impacts and hence their view of how easily this could be recovered. Spirit has explained in previous submissions and 'shared understanding' meetings (see the Minutes of Meeting between Spirit and the Applicant on 18th February 2025 at Appendix A and transcript at Appendix C of Spirit's D5 Submission, paragraph 5.21 of Spirit's Relevant Representation [RR-077] and paragraph 2.32 of Spirit's Written Representation [REP1-116]) how the flight restrictions due to the Project would lead to an inability for Spirit to fully execute the maintenance plan, and that these restrictions would quickly exhaust any spare capacity, leading to an irrecoverable growing backlog of maintenance. Spirit has been very clear that their concern is not with individual 'one-off' delayed flights, but the overall impact of flight restrictions compressing the productive working time available (this has been acknowledged by CPOGS in the peer review submitted by the Applicant at section 2.1.3, CPOGS Report), thereby requiring more interventions and impacting Individual Risk Per Annum (**IRPA**) and the Morecambe Hub Safety Case (the **Safety Case**). It should also be noted that Spirit's analysis is based on the actual (fully optimised) forward maintenance plan.

4.14 The Applicant has presented a misleading and inconsistent analysis of the impact of the Project on maintenance in its Deadline 5 Submission and associated appendices. The Applicant has suggested that Spirit flies more to meet its maintenance budget, but the maintenance team should fly less so that there is no IRPA issue (paragraph 225, Applicant's D5 Submission). Moreover, the Applicant has indicated that it considers there is only a 1-3% loss of total working hours without IMC and night access but nonetheless Spirit should materialise a second maintenance team and helicopter, along with flotels and walk to work (paragraph 17, Applicant's D5 Submission). Spirit has explained in section 1 above why these 'solutions' are not operationally feasible. They also introduce additional risks and therefore would not mitigate the increased transportation risks to individuals involved in an un-optimised access plan for completion of maintenance by either more flights or alternative modes of transport, in either case increasing the number of trips required.

4.15 Introducing W2W and flotel vessels for the execution of routine maintenance would require a material change to the Safety Case, taking into account the increased ship collision risk introduced by regular journeys W2W vessels. The Applicant has also suggested that Spirit can simply sidestep any impact to the Safety Case "*if there were to be an alternative helicopter and alternative maintenance crew during the summer months*" (paragraph 17, bullet 2, Applicant's D5 Submission). This is an absurd suggestion: that the Project will have a negligible impact in the Applicant's view, but significant enough to justify resourcing an entire extra team and aircraft to mitigate that impact. In any case, the Applicant's statement that the Safety Case is not impacted by operations outside the 500m safety zone is false: helicopter crash is recognised as a major accident under the Offshore Installations (Offshore Safety Directive) (Safety Case etc.) Regulations 2015 (SCR 2015) and as such

the risk of helicopter transportation must be quantified and reported within the safety case. Any significant change to this transportation risk has the potential to constitute a material impact on the Safety Case. With regard to the need to update the Safety Case, the Applicant has referred to the draft CAP 764 document (paragraphs 5, 38, and 49 of Applicant's D5 Submission). Both the current CAP 764 rev.6 and draft CAP 764 rev.7 states that "*Wind turbine developments (including anemometer masts) within a 9 NM radius of an offshore helicopter installation could introduce obstructions that would have an impact on the ability to safely conduct essential instrument flight procedures to such facilities in low visibility conditions. Consequently, any such restrictions have the potential to affect not only normal helicopter operations but could also threaten the integrity of offshore installation safety cases where emergency procedures are predicated on the use of helicopters to evacuate the installation."* As per CAP 764 above, Spirit has clearly outlined that there is a real threat to its offshore operations and installation Safety Case.

4.16 Spirit can only assume that the unfounded and inconsistent statements by the Applicant in section 1.4 of its D5 Submission either result from a lack of knowledge and experience or intentionally seek to downplay to the ExA the significance of the safety concerns raised by Spirit. In its critique of Spirit's ORS Report, DNV have restated their position that the Project will not materially impact the accepted Safety Case for the Affected Assets (section 2). It has dismissed the assessment presented by Spirit in previous submissions, and the independent assessment by ORS that the impacts are clearly material. DNV has claimed that ORS (and by implication Spirit personnel) do not understand material change. The Applicant notes that one of the DNV report authors chaired the workgroup that compiled the industry guidance on what constitutes a material change to a safety case (paragraph 60, Applicant's D5A Submission) presumably in an attempt to persuade the ExA that the DNV position should carry more weight. However, a technical consultancy background and participation in industry workgroups cannot compensate for lack of practical experience when it comes to understanding and interpreting regulatory requirements in an operational environment, or bearing ultimate responsibility for peoples safety. The truth of this is evidenced by the confirmation from the HSE (as described in Appendix B and paragraphs 4.18 and 4.24) that there are indeed multiple material impacts to the Safety Case.

4.17 DNV's critique of Spirit's ORS Report further relies on the view that the impact of the Project constitutes an operational nuisance only and could not materially impact risk or credibly precipitate asset shut down to manage this risk exposure. In the Applicant's view, *"all such aspects to consideration of maintaining, sustaining and updating a safety case are part of business as usual"* (paragraph 60, Applicant's D5A Submission). Spirit considers the wide-ranging and significant impacts on the safety of its operations to be anything but business as usual. Spirit's ORS Report verifies that the Project (as currently proposed) would increase risk associated with helicopter operations, the impacts of the turbine wake will introduce much more challenging flying conditions, increasing pilot workload and potential for pilot error, and a narrow buffer will limit the ability of pilots to respond to helicopter equipment failures (Issue 3, ORS Report). DNV is dismissive of these risks (page 6, DNV ORS Review) and has failed to consider how pilots may need to respond to reasonably foreseeable fault conditions that could take them within turbine wake and exacerbate an already demanding workload on the pilot. As discussed at length in Spirit's submissions, the Project would limit helicopter operations to visual flight rules only, increase the risk of regulatory enforcement action and require a material change submission of the Safety Case for the Affected Assets. The materiality of the impact on the Safety Case (and hence risk impact) has been demonstrated. To demonstrate within any material change submission that risks have been reduced to ALARP, Spirit would need to identify and implement suitable and sufficient mitigations. For many of the impacts, there is no clear path at this stage to how the additional risks can be assessed, let alone effectively mitigated. For example, with regard to restricting Spirit's access to its preferred means of evacuation, Spirit are firmly of the opinion that the Project will increase risks to personnel on the Affected Assets. With no credible way of mitigating these risks at this stage, Spirit would be in the position of attempting an ALARP demonstration that it does not believe to be credible. Furthermore, DNV have completely misunderstood and misrepresented the applicability of offshore installations regulations to helicopter operations (section 4, DNV, ORS Review). The

legislative framework in which the safety impact sits is comprehensively covered in section 4 of the Morecambe Offshore Windfarm Impact on Morecambe Hub Assets Safety and Regulatory Compliance provided at Appendix B of this submission.

4.18 For the benefit of the ExA, Spirit has engaged with the HSE (offshore regulator) to settle this difference of opinion. On 31st March 2025, Spirit's Technical Safety Technical Authority met with the HM Principal Inspector of Health and Safety and the HSE Topic Specialist for Evacuation, Escape and Rescue to discuss the impact of the Project on the safety of Spirit's operations. Spirit's conclusions and the outcome of discussion with the HSE are covered in more detail within section 4.4.8 of Appendix B to this submission. In summary, the HSE confirmed that in their view the impact to Spirit's aviation operations alone in limiting access to visual flight rules only, and limiting access to the preferred means of evacuation represented material impacts to Spirit's Safety Case (these impacts to Spirit's operations are not disputed by the Applicant).

IRPA

4.19 The Applicant's position on this matter once again reveals a poor understanding on its part in regard to offshore installations safety planning, and how it appears not to have been appropriately guided by their advisors (most notably CPOGS), despite Spirit explaining the process repeatedly and at length in previous submissions and 'shared understanding' meetings.

4.20 The flight restrictions that would be imposed as a result of the Project being within 3.76nm proximity of the Affected Assets will lead to increased Individual Risk Per Annum (IRPA) for the NUI interventions team. This will require an update to the Safety Case, which is subject to regulator acceptance under regulation 24 of SCR 2015. Spirit would be required to undertake a quantitative risk assessment (QRA), review and update the safety case for all assets and seek to demonstrate ALARP to the regulator. Spirit cannot change its operations unless and until the regulator accepts the updated safety case. Spirit has set this out in previous submissions and in shared understanding meetings with the Applicant, but the Applicant's D5 Submission and the D5 DNV and D5 CPOGS Reports demonstrate that this has not been understood.

4.21 The following paragraphs reiterate and summarise the quantification of impacts on IRPA due to the Project for the benefit of the Applicant, its advisors, and the ExA. The Morecambe Offshore Windfarm Impact on Morecambe Hub Assets Safety and Regulatory Compliance at Appendix B to this submission provides a comprehensive explanation and quantification of how the flight restrictions because of the proposed development would lead to increased IRPA to the NUI interventions team, and how this results in a material impact on the Safety Case.

4.22 In summary, flight restrictions will compress the productive working day on the NUIs, requiring the NUI intervention team to increase the overall number of visits and hence flights required to execute the required maintenance. Spirit's analysis is based on the actual (fully optimised) forward maintenance plan. Spirit has been very clear that it is concerned with the overall impact of additional flight requirements on the current NUI interventions team and not individual delayed flights. With this increase in flights required by each member of the NUI interventions team comes an increase in the IRPA contribution from in-field shuttling – this has been confirmed by the peer review by ERM submitted by the Applicant (section 4.1, D5 ERM Report). To directly address ERM's counterpoint that "*spending time on an operational asset and conducting maintenance activities also carries risk; reduction in time on asset would reduce the individual risk*" (section 4.1, D5 ERM Report) it should be noted that the NUI interventions team are based on CPC, and any time not spent on a NUI is spent on CPC i.e. they would be exposed to equivalent risks on CPC. This has been explained to the Applicant by Spirit, and it is not clear why it is not accounted for in the Applicant's analysis.

4.23 Spirit is baffled by the Applicant's continued reliance on DNV's claim that it is "*impossible for any additional flights to make the individual risk intolerable*" (paragraph 221, Applicant's D5 Submission and section 3.5.4.1 of D5 DNV Report), presumably in the hope that this will persuade the ExA that since the risk impact would not breach the absolute tolerability

threshold it must therefore be acceptable. This is not true. The Applicant's own peer review reports have pointed to the correct view of tolerability of risk, but this has not been accounted for by the Applicant. ERM has confirmed that Spirit's position is correct i.e. "*risks that fall below the tolerability criteria of 1x10-3 are not automatically tolerable, and must be subjected to a demonstration that the risks are managed to a level that is as low as reasonably practicable*" (page 17, D5 ERM Report).

HSE Confirmation of Spirit's Position

4.24 On 31st March 2025, Spirit's Technical Safety Technical Authority met with the HM Principal Inspector of Health and Safety and HSE Topic Specialist for Evacuation, Escape and Rescue to discuss the impact of the Project on the safety of Spirit's operations. Notwithstanding that a full Safety Case update would be required, during the discussion it was confirmed that the predicted 15% increase in IRPA to the NUI interventions team would constitute a material impact on the safety case. In their view, the impact to Spirit's operations alone represented a material impact to Spirit's safety case: increased flying would amount to an increase in risk of helicopter crashes, and increased IRPA for NUI interventions teams. A more detailed explanation of the material impacts on the Safety Case is provided in sections 4.4.6 to 4.4.9 of Appendix B of this submission.

4.25 For the avoidance of doubt, Spirit has been very clear throughout its submissions that it is concerned with the overall impact of the Project on IRPA to individual personnel within specific populations (groups) of people such as the NUI interventions team. Contrary to the point the Applicant and their advisor (CPOGS) are attempting to make (see paragraph 225. Applicants D5 Submission), at no point has it referred to population risk (potential loss of life to a group of people).

Evacuation

4.26 Spirit has explained in previous submissions how the design of CPC significantly increases the likelihood of successful helicopter evacuation in the event of a major emergency. It was intentionally designed as a bridge-linked asset in the years following the Piper Alpha disaster. Spirit has met with the Applicant post-ISH3 to explain this (again) and includes at Appendix B to this submission a comprehensive summary to fully explain the arrangements in place to comply with PFEER and increase the likelihood of successful helicopter evacuation from CPC (see Appendix B: Morecambe Offshore Windfarm Impact on Morecambe Hub Assets Safety and Regulatory Compliance). For the avoidance of doubt, it is noted once more that Spirit has at its disposal multiple means of evacuation (including provision to call on 3 helicopters), as described in the report at Appendix B to this submission. Spirit estimates that a helicopter evacuation of CPC could be completed within approximately 2 hours for the normal operating POB.

4.27 Although the DNV ORS Review criticises the conclusion verified by ORS that helicopters currently provide a viable and credible means of evacuation for the majority of major accident scenarios and the Project would seriously compromise this capability (page 6, DNV ORS Review) and purports that if lifeboats were used instead there would be "*no change to emergency evacuation as CAT helicopter cannot be relied on for this*" (page 2, DNV ORS Review), the Applicant's peer review by ERM supports Spirit's position that helicopter evacuation provides the preferred and primary means of evacuation (paragraph 2, section 5.2, D5 ERM Report). ERM also agreed with Spirit that the examples provided by DNV to support their conclusions were "*highly selective and not a demonstration that helicopter evacuation is not valuable*" (section 6.2, D5 ERM Report). ERM also indicated that there are many other examples where helicopter evacuation was executed successfully, and that "*inability to use helicopters when needed may increase the risk to personnel in the event of a major accident*" (section 5.2, D5 ERM Report). Furthermore, the D5 ERM Report specifically recognises that helicopters are the "*means of primary evacuation and should be treated as such*" and that helicopter evacuation in a major emergency "*provides the fastest means of personnel reaching aid in the event of an emergency*" and "*could dramatically increase the chance of survival*" for some emergency scenarios (section 5.2, D5 ERM Report). See section 3 of Appendix B of this submission for further analysis of the credibility of helicopter evacuation.

4.28 It is a fact evidenced by both the Applicant and Spirit's impact analysis that the Project will reduce Spirit's access to their preferred means of evacuation, increasing reliance on higher-risk lifeboat evacuation. The severity of the potential consequences of this is recognised by ERM in their peer review (if not by the Applicant itself as it seems to have largely ignored the peer review by ERM with respect to emergency evacuation). The Applicant's refusal to accept this simple truth is not due to lack of understanding but unwillingness to accept anything that does not suit their narrative or goals.

4.29 The Applicant's position on the matter of evacuation for medical emergencies reveals a poor understanding on their part, and by their primary safety advisors DNV. The fact that CPOGS have focussed only on non-emergency scenarios under precautionary down-manning is particularly concerning. Across the industry, CAT helicopters are the normal and most frequently used means of transporting patients ashore for acute medical treatment. Spirit cannot plan its emergency response on a service outside of its control (i.e. SAR) that may have other critical taskings.

4.30 Spirit would also take this opportunity to address the position offered by CPOGS who appear to be imagining some kind of mini hospital onboard CPC (paragraph 2.1.2, D5 CPOGS Report). Although it is true that there are minimum industry standards for the medical facilities and medics on board, these cannot hope to fully mitigate the risks to patients due to delays in accessing more comprehensive medical support onshore. The situation is even more acute for personnel who are injured or fall ill on a NUI with access to first aid only. There are established protocols in place for assessing a patient's fitness to travel by CAT helicopter, and these are straightforward and well-practiced. For most medical evacuations no special 'kitting out' or equipment is required, and the established protocols include suspension of normal helicopter transportation rules (with clear mitigations in place) for patients unable to wear a survival suit / lifejacket, or unable to self-egress in the event of helicopter ditching. Examples known to have been successfully transported ashore by CAT helicopter include medical conditions such as a heart condition, COVID, high blood pressure and injuries such as eye injury, head injury (including suspected concussion), burns, pulled muscles, dislocations, broken bones, and lacerations.

4.31 Spirit's position outlined above has been endorsed by the MCL Medics Medical Director and medical advisor to SAR in a meeting with Spirit's Technical Safety Technical Authority on 31st March 2025. In summary, CAT helicopters currently provide established and demonstrably effective emergency support to offshore O&G operators for medical evacuation. Restrictions on Spirit's access to CAT for medical evacuation will have a direct impact on patient care for those requiring acute specialist onshore medical treatment.

Non-emergency down-manning

4.32 Across the industry, CAT helicopters are used for non-emergency down-manning of personnel. For a multi-personnel down-man event Spirit would not and could not rely on SAR – SAR is for 'life and limb' emergency only and cannot be called upon for non-emergency down-manning. For the avoidance of any doubt, such a non-emergency down-man scenario could not be carried out by lifeboat.

4.33 Spirit notes that the Applicant's advisor (CPOGS) has presented a misinformed view with respect to loss of utilities and the need to down-man quickly (page 13, D5 CPOGS Report). The functioning of PFEER systems is safeguarded by provision of battery-backed power, but this will not power anything other than SECEs. Loss of welfare systems such as heating and hot water are not mitigated by the battery-backed supplies. The onboard maintenance crew will work diligently to restore lost services as expediently as possible, but depending on the complexity of the issue, the outage could be significant.

4.34 In short, Spirit cannot call upon SAR to support down-manning, so flight restrictions will absolutely impact the health and welfare of personnel on board if the CAT service is grounded.

Precedence

4.35 Throughout the Meetings, the Applicant has relied on examples of other offshore infrastructure where an aviation buffer of under 1.5nm has been agreed. These examples do not reflect the structure and nature of Spirit's Affected Assets, the aircraft type, or its operational requirements, payload, and rate of access required to CPC and NUIs. The comparable examples provided by the Applicant in its D5 Submission and D5A Submission are for single installations, whereas the Morecambe Hub involves 5 installations or subsea templates. In essence, simply because it has been applied elsewhere does not make it safe in the context of Spirit's operations and the Proposed Development, and the Applicant has not demonstrated that 1.5nm is safe for Morecambe Hub operations.

4.36 Spirit has provided its position on the precedents of other DCO processes in the sections 5.7, 5.8 and 5.21 of Spirit's D4 Submission.

5. Shipping and Navigation

5.1 Spirit's shipping and navigation concerns relate to the increased collision risk caused by the situating of the Project impacting and altering shipping patterns. These impacts require detailed assessment to understand the frequency and severity of collision risks and the contribution to individual risk from such collisions. This risk is compounded by the constraints on aviation access and evacuation resulting from the Project as currently proposed. Until an updated VCRA and risk quantification is available that could demonstrate otherwise, it must be assumed that the proposed development may increase ship collision risks to personnel on the Affected Assets by increasing the likelihood of a ship collision, and by degrading Spirit's ability to detect and respond appropriately to threats within the affected area.

REWS

5.2 Spirit has responded to ExQ3 3SN1 on Radar Early Warning Systems (REWS) with reference to the Applicant's updated ES Appendix 17.2 'Radar Early Warning System Technical Report' [REP3-034], explaining that if a modified REWS is in place before construction of the windfarm, it will help Spirit identify and track vessels that may be on a collision course with Spirit's EIS assets. However, REWS is a warning system. It does not reduce or mitigate the increased risk of collision.

Vessel Collision Risk Assessment (VCRA)

5.3 The Nash Maritime Technical Note on the Coexistence of Spirit Energy with Morecambe OWF - Shipping and Navigation provided in Appendix E to the Applicant's D5 Submission [REP5-067] (**D5 Nash Report**) provides a first step towards enabling Spirit to understand the impact of the Project on ship collision risks to personnel on the Affected Assets. However, the assessment does not provide enough information for Spirit to assess the impact on IRPA since the categorisation of vessels has been based on a coarse qualitative classification compared to the Spirit VCRA which classifies vessels in bands according to their quantified potential impact energy. Vessel collision frequencies are reported but without any insight into the impact energy that could be generated. As a result, it is not possible to determine the fraction of these collisions that could result in minor, major or catastrophic consequences to personnel on the Affected Assets, and hence Spirit is unable to quantify the impact on IRPA which materially impacts the assessments of major accident risk carried out in compliance with regulation 5, PFEER and regulation 16, SCR 2015 for the Affected Assets.

5.4 Another significant area of uncertainty is the difference between the collision frequency for CPC in the current Spirit VCRA and the Applicant's reported collision frequency for CPC, which is several orders of magnitude higher. This has the potential to result in a very significant increase in IRPA depending on the vessels that make up this increase and their impact energy. There is no explanation offered for this which leaves Spirit unclear on whether this is a calculation or reporting error or represents a real increase in collision frequency and risk to its personnel and assets.

5.5 Given the uncertainties in the Applicant's reported data and the increase in collision frequency for CPC, Spirit are currently unable to accurately assess the impact on IRPA. Spirit maintains its position that a detailed Vessel Collision Risk Assessment with accurate data suitable for use as input to the QRA is required to improve the level of understanding of the frequency of collisions by vessel type based on their potential impact energy as per Spirit's current VCRA. Further analysis of this issue is set out in section 3.3 of Appendix B (Morecambe Offshore Windfarm Impact on Morecambe Hub Assets Safety and Regulatory Compliance) of this submission.

5.6 In summary, Spirit is unable to fully evaluate the impact of the Project on IRPA and its operations from a navigational safety perspective without this information. Spirit has requested this data multiple times, and the failure of the Applicant to provide leaves a further unknown impact on Spirit's operations, Safety Case, and the IRPA of its people.

6. Decommissioning

6.1 The date of decommissioning for the Morecambe Hub has not yet been determined. The date of Cessation of Production (CoP) is determined by Spirit, accounting for a number of factors but primarily driven by the statutory principal objective to Maximise Economic Recovery of petroleum assets (section 9A, Petroleum Act 1998). As there are a number of platforms in the Morecambe Hub, CoP will be primarily defined by cessation of production at CPC. Spirit's decommissioning strategy for the hub is that once CPC has ceased production, decommissioning of the NUIs will be undertaken within a similar timeframe, and although some activities may occur on the NUIs earlier, this will be a matter of weeks or months beforehand. Spirit has no plans to decommission any of the NUIs in a separate decommissioning programme. Spirit anticipated that Morecambe Hub CoP may be within +/- 2 years of 2027. However, current economic conditions justify extending this date to the 2030s. Once CoP is reached for the Morecambe Hub, the decommissioning process takes around 3.5 – 5 years. At present, decommissioning of the Affected Assets is not expected to be completed until at least 2035. Helicopter access in all flyable conditions (VMC, night VMC and IMC) will be required throughout the decommissioning process, including to the vessels positioned at the installations after down-manning CPC, to ensure emergency access is not compromised and prevent cost escalations due to schedule delays, particularly in relation to offshore workers, vessel hire periods, and specialist vendors.

6.2 In accordance with the NSTA's Stewardship Expectations, particularly Expectation 10: Cost effective decommissioning, Spirit has a strong track record on delivering excellent, efficient decommissioning and is meticulously preparing for its decommissioning programme for the Morecambe Hub in accordance with that Expectation. However, the details of the programme will not be ready until a date for CoP is identified in accordance with the legislatively mandated principle of maximising economic recovery of petroleum assets.

6.3 The Applicant has asserted that "*there is very little potential for overlap*" (paragraph 96, Applicant's D5 Submission) between the Affected Assets and the Project. As far as Spirit is aware, this is not accurate. The anticipated construction period for the Project is to commence in 2028 with completion by 2030. Decommissioning of the Affected Assets is not expected to be completed until at least 2035. However, if Spirit's understanding of the Project is not accurate, and the Applicant stands by this statement, Spirit would welcome confirmation that the Applicant is content to commence development after completion of decommissioning of the Affected Assets. Spirit has provided drafting to this effect in its response to ExQ3 3DCO3.

6.4 The Applicant has asserted that the decommissioning date should be the point at which hydrocarbon hazards have been removed, as it is a material milestone where removal of the need for IMC and Night VMC access to CPC is possible due to the reduction in need to evacuate personnel (paragraphs 19-25, Applicant's D5A Submission). However, this fails to consider the whole decommissioning programme when vessels are alongside the Affected Asset platforms for significant periods of time. These vessels will be undertaking well P&A, preparation for removal, topsides and jacket removal requiring the need for helicopters to transfer personnel and more fundamentally evacuate them if needed. Moreover, contrary to the Applicant's position, aviation access in IMC and at night will continue to be required for evacuation (ship collision risk remains). Spirit is clear that the 3.76nm aviation buffer is required until the jackets and topsides are removed. Spirit reiterates that the 3.76nm aviation buffer is required until the jackets and topsides are removed. Further details are described in paragraph 6.15.

Xodus Decommissioning Report

6.5 The Applicant has submitted a report prepared by Xodus on decommissioning of the Morecambe Hub at Appendix D to the Applicant's D5 Submission [REP5-072] (the **Xodus Decommissioning Report**). The original report fundamentally underestimated the time required for decommissioning the Morecambe Hub, and a revised report has since been submitted [REP5a- 055] (**D5A Xodus Report**). However, the report still underestimates the extent to which the Project will impact the Hub in the form of additional cost to the decommissioning programme.

6.6 At the outset, Spirit wishes to correct an error in the Xodus Decommissioning Report and D5A Xodus Report (see section 7.3 of the D5A Xodus Report). The report refers to Spirit's assets as CPC (covering AP1, CPP1 and DP1) and NUIs DP5, DP6 and DP8. The report has omitted DPPA, and DP5 does not exist. The correct NUIs are DP6, DP8 and DPPA. The number of NUI wells quoted in this section is also incorrect, the correct number is 26 wells, not 6.

6.7 Spirit is not the contracted operator for decommissioning of Calder, and therefore does not comment on statements in the D5A Xodus Report in relation to Calder.

6.8 Spirit disagrees with the statement in the executive summary of the D5A Xodus Report that flights to NUIs will no longer be required once the platforms enter Lighthouse Mode. Given the early stage of decommissioning planning, engineering has yet to be undertaken therefore the ability to fly to the area (to either the helideck of CPC or any of the vessels directly) needs to be retained. Further details are provided in paragraph 6.15 of this submission.

Decommissioning Schedule

6.9 The D5A Xodus Report states at section 3.2.1 that "*There is a very strong driver for the operator to minimise the time between COP and Disembarkation as there is ongoing Operational Expenditure (OPEX) incurred with no financial income from gas production, and continued asset degradation could pose a risk to onboarding personnel during preparations for removal."* This is true. However, a typical contract for a heavy lift vessel required for decommissioning is provides a window of 2-4 years (for commercially sensitive reasons, Spirit cannot advise the window for Spirit's East Irish Seas assets). Therefore, it is not possible to 'speed-up' the process: it is subject to the discretion of the vessel contractor.

6.10 The assumptions Xodus used in their original Xodus Decommissioning Report were fundamentally flawed and incorrect, and Spirit note in the revised D5A Xodus Report some of these have been amended. However well P&A durations remain under-estimated, Spirit comments are as follows:

6.10.1 5-6 months for plugging and abandoning (P&A) for large complex platforms such as CPC (see Table 4-3, D5A Xodus Report). CPC has 8 wells at DP1 on a complex platform. Last year, the NSTA published the UKCS Decommissioning Benchmarking Report 2024 informed by industry's performance on decommissioning (the **NSTA Benchmark**). The NSTA quote a P50 (i.e. mid-range of the average benchmark) duration of 22 days per well for conventional vertical platform wells (plugged to full abandonment). Spirit has previously abandoned 14 slant wells at DP3 and DP4 which are more complex than vertical wells quoted in the Benchmarking report. Due to the special characteristics of the wells, the abandonment time ranged between 21 and 46 days. As 7 of 8 CPC wells are slant wells it is reasonable to assume that all 8 wells will take approximately 21 - 46 days per well to fully abandon, totalling around 168 - 368 days, i.e. potentially more than 12 months. The D5A Xodus Report further states that CPC is likely to be hydrocarbon free within 3-6 months of CoP (paragraph 4.2.3). Factoring in this 12 months for P&A alongside which the activities to clean the topsides and pipelines may be carried out simultaneously, it is therefore more likely to take at least 12 months from CoP to reach hydrocarbon free for CPC (aligning with completion of the P&A campaign).

6.10.2 The D5A Xodus Report asserts in the following sections: section 7.5 "*Delays in the cleaning, flushing activities on NUIs will have no overall impact as these will not be schedule critical*" and section 8 "*Decommissioning project work on the NUI could be delayed if it is not possible to fly to the NUI on a planned day; however NUI on platform work will not be schedule critical*". This is incorrect as the cleaning and flushing will be undertaken from the rig concurrently with the P&A campaign, therefore will be schedule critical, and subject to project delays where there is an impact on flying caused by the Project.

6.10.3 In terms of NUIs (DP6 and DP8), Xodus has proposed 3-4 months for a single NUI P&A (Table 4-2, D5A Xodus Report). Using DP6 as an example, there are 6

slant wells and 1 vertical well which, as noted above, can be reasonably assumed to require 21-46 days to fully abandon based upon previous experience. This results in a range of 147 to 322 days. For DP8 (6 slant wells and 3 vertical wells), the estimate would be 189 to 414 days. DPPA has 10 slant wells, totalling 210-460 days. Altogether, this requires approximately 18 - 30 months to reach disembarkation of all NUIs. The P&A campaign would run sequentially using one rig which would move from platform to platform. The sequence/ order has not yet been fully engineered; however, the most practical sequence would likely be to complete P&A on DP6 and DP8 first, then CPC (DP1), and finally DPPA. The ability to fly to CPC or to the rig would be required throughout this period.

6.10.4 Approximately 20 months total decommissioning time (section 5, D5A Xodus Report). As per the clarification above on the duration of P&A noted above, it will in fact take approximately 30-42 months to reach hydrocarbon free status/ lighthouse mode on CPC. After that, there are 6 topside and jacket lifts which are likely to necessitate removal over multiple seasons. There are also bridges and the flare tower to be removed adding to the complexity and number of lifts. This complexity has not been accounted for in the D5A Xodus Report. Following P&A and ahead of removal using a heavy lift vessel, there would be a requirement for a barge alongside each platform to re-man and carry out activities to prepare the platforms for the heavy lift vessel (activities such as cutting operations, installation of lifting points, sea-fastening). This may take up to one year across the CPC and NUIs which is significantly longer than the 3 months quoted in the D5A Xodus Report. The ability to fly to either the platforms or the vessels would be required throughout this period up to the point the platforms are removed.

6.10.5 Xodus asserts that removal of the platforms using a heavy lift vessel will commence shortly after disembarkation with a buffer period of 1-3 months assured by "*sensible project scheduling*" (section 7.5, D5A Xodus Report). Firstly, if there are significant delays due to flight restrictions resulting from the Project that effect decommissioning activities at the commencement of lighthouse mode, a scheduled gap between this and the removals campaign could be quickly depleted, out with Spirit's control. The D5A Xodus Report states in section 8: "*There will be a schedule break between on completion of on platform activities and final removal, so lift vessel costs are not at risk from extensions to the on platform schedule*", however these delays resulting from restricted flights may impact this gap which has not been considered in the D5A Xodus Report.

6.10.6 Furthermore, as noted above, a typical contract for a heavy lift vessel contains a call-off window of 2-4 years (for commercially sensitive reasons, Spirit cannot advise the window for Spirit's East Irish Seas assets). It is market standard and leaves commencement of this phase of decommissioning outside of Spirit's control. Therefore, decommissioning may not start until up to 4 years after commencement of lighthouse mode and take up to 4 consecutive years after that (depending on the number of lifts that can be made in one season).

6.10.7 Spirit disagrees with the view presented in the D5A Xodus Report that "*It is not foreseeable that the presence of the windfarm will cause any significant delays to well P&A and the topsides and jacket removal schedule*" (section 6.2.4). Delays caused by flight cancellations and delays due to flight restrictions resulting from the Project will be consequential in themselves and have knock on effects. These are described fully below.

Decommissioning Operations

6.11 Xodus takes the view throughout its report that the windfarm is another factor, amongst many, for Spirit's decommissioning project management team to address. Whilst it is correct that cancelled flights are an occurrence that projects must deal with, the issue here is additional cancelled flights due to the restrictions on flying caused by the Project. The impact on decommissioning is based upon historic flights modelled to be cancelled each year during decommissioning due to additional flight restrictions imposed by the Project.

Each cancelled flight has a knock-on effect on the duration of the decommissioning programme, leading to costs of extending contracts, re-mobilising specialist vendors, vessel daily hire charges and more. An increase to the costs relative to 11% impact is significant, not minor.

6.12 At the point of developing a decommissioning programme, campaigns are planned in detail. Work cannot be quickly shuffled around. Spirit agrees with the statement in the D5A Xodus Report that "*Delivery of any offshore project is subject to a number of variables that can impact on the programme; including, weather, specialist vendor availability, bed availability, equipment delays, regulatory approvals etc*." (section 5.3). Spirit meticulously plans and builds in contingency to accommodate these potential delays at huge cost to the programme. It is for precisely that reason that further constraints and risks of delay resulting from restricted flights cannot be accepted. Spirit completely disagrees that such delays would be a "*minor factor*" to manage and that "*the presence of the windfarm will not create any significant issues that are not typical for offshore project implementation*" (section 6.2, D5A Xodus Report). Rather, it would create significant additional cost and puts the entire decommissioning programme and cost analysis (approved by the regulator in accordance with the legislative requirement to maximise economic recovery) at risk, thereby putting Spirit's submissions to the regulators on the balance of CoP and MER in jeopardy.

6.13 Xodus has presented an over-simplified view of the consequences of the Project on aviation and therefore Spirit's decommissioning programme by suggesting the impact can be dealt with by "*proper planning*" (section 6.2.1). As described above, Spirit undertakes extensive, detailed planning of its decommissioning programme, including consideration of any necessary contingencies to ensure that project management can keep the programme on track. Increasing the need for contingency by a risk of 11% of flights being cancelled or delayed would dramatically change the reliability of Spirit's decommissioning programme, generate significant additional costs, and thereby put Spirit at risk of failing to meet the regulators requirements to decommission in accordance with MER and the OGA strategy pursuant to section 9A of the Petroleum Act 1998.

6.14 One key assumption which misinforms the D5A Xodus Report is a reliance on DNV's impact analysis that 1.5nm aviation buffer is sufficient to maintain aviation operations. This is not agreed and is strongly contested by Spirit, as further discussed in section 2 of this submission. Setting this aside, Spirit agrees with Xodus that until CPC is hydrocarbon free (completion of P&A), Spirit will continue to experience the impacts of the Project as during the productive operation of the assets (section 6.2.1, D5A Xodus Report). This period is expected to last for the duration of the P&A campaign assuming P&A commences as the platform enters CoP, i.e. 30 – 42 months.

6.15 Spirit further agrees that once the NUIs reach CoP there will be a decrease in the number of flights via CPC to the NUIs (section 6.2.4, D5A Xodus Report). However, while the number of flights may decrease, the need to access the assets in all conditions remains for the safety of Spirit's people and to avoid costly delays. Xodus incorrectly assesses that the windfarm will have no impact on well P&A and HLV activities at DP6, DP8 and DPPA (section 7.5, D5A Xodus Report). All flights to these NUIs are via CPC and will therefore be impacted to the same extent as CPC by the Project. Note that engineering has not yet been completed and the ability to fly direct to CPC needs to be retained until this understood. Following removal of the ability to fly to CPC, flights will be to the vessels carrying out decommissioning activities and will be impacted by the same restrictions. It is envisaged that prior to removal by the HLV, the preparation for removal phase of work (using a jack-up barge or a similar vessel) will be required for a duration of up to one year. Therefore, in addition to the estimated periods described above, access to the platforms by helicopter is required up to the point at which the platforms are safely removed by the heavy lift vessel. For the reasons detailed in Spirit's many submissions explaining the safety-driven need for access in IMC and night VMC conditions, this will require the 3.76nm buffer to be maintained throughout this period until all NUIs and CPC are removed. This provides the further requirement to ensure safe access to the platforms during lighthouse mode in the event of an emergency, for example if a failure of navigational aids occurs or for any critical maintenance activities. On the assumption that Spirit reaches CoP in 2030 (notwithstanding that CoP may be later than 2030), this would mean that the 3.76nm buffer will be required to the same extent as the operational phase until approximately 2035 (30-42 months to

complete P&A followed by the removal of the platforms). It should be noted that this is prior to acceptance of the close out report by OPRED which is acknowledged as a separate activity taking a number of years following platform removal.

6.16 In terms of the impacts of the project on decommissioning operationally, the D5A Xodus Report considers that delayed (or cancelled) crew flights would not "*directly correspond*" to an overall decommissioning delay as the platform "c*an continue to work, only with an overtime impact*" (section 6.2.1). Xodus makes this point in relation to CPC based on the accommodation on AP1, and with regard to the NUIs claims on the basis that there is no reason to fly via CPC and crew can stay on the jack-up vessel (section 5). It states that crews offshore can continue with the work until they are replaced, so crew change flights will not have an impact.

6.17 This analysis of crew change impacts is not well-informed. In the case that a planned flight is delayed, at least two consequences result: the work is delayed, and resourcing impacts. Crews may work on a 21-day rotation. In the case that a crew change flight is delayed, Spirit cannot demand that they continue to work. At the end of a 21-day rotation, if crew change is not possible Spirit may request that the existing crew continues to work, but cannot force them and, if they agree to continue work, Spirit is required to undertake a fitness for work assessment. A worker who has been offshore for 21 days may not be allowed to return to work in line with the Working Time Regulations 1998, so they may be confined to accommodation quarters which means lost productive time and increased schedule, until their replacement mobilises. In the meantime, crews check in for flights in the morning. Checked in personnel shall not return to work during this delay window due to the short duration of the flight from shore to CPC, so they need to be ready and in their survival suits in case the aircraft finds a safe weather window to fly. Crews may be required to wait 4 hours for the TAF forecast from the base, which are usually issued before 7am then at 9am and then 12pm (flight check in is 8am). If a flight is cancelled on the day due to visibility (assuming a restriction to VMC due to the Project), productive time offshore will already have been lost by the crew waiting up to 4 hours for confirmation of flight cancellation. This poses significant delay to the critical path schedule. As discussed above, Spirit is already required to contend with this possibility, but the increased occurrence and likelihood due to the proximity of the Project creates additional risk.

6.18 Crews are changed on a daily basis due to the size of crew operating at the Morecambe Hub (over 100 personnel). Approximately 10-20 crew members may change in a day. The rotation is complex, and certain crew members are required for critical path activities. Where they are on critical path activities, that activity may be delayed until they can be replaced. In specific decommissioning campaigns with narrow scope and specialised personnel, helicopters are only contracted to be available for certain days per week meaning that, if unable to fly due to the restrictions imposed by the proximity of the Project, a missed helicopter availability window could lead to a week long delay or more.

6.19 In terms of crew change by barge, Xodus have surmised that "*Jack-up rigs, heavy lift vessels and barges will have unrestricted access from the north of CPC1… providing an opportunity to under[take] crew change and decommissioning activities with no impact from the windfarm*" (Executive Summary, D5A Xodus Report). Firstly, the jack-up vessel cannot be positioned to the north of CPC. This is due to the major fixed subsea and topsides obstruction of the flare to the north. The suggestion here then appears to be that a barge or jack-up would temporarily leave the CPC site to travel north to facilitate crew change, which is not credible as a mitigation. While some crew changes could potentially take place to the north of CPC, Spirit disputes that these crew changes would not significantly impact the decommissioning schedule and costs. The requirement to disengage from CPC and transit north from the vicinity of wind farm essentially ensures no work can be undertaken on CPC during that time. Moreover, jack-up rigs and barges cannot simply depart from their location for a crew change, whether they are self-propelled or non-propelled. A simple move of few miles may take days (or even weeks) due to requirements for benign environmental conditions, jacking up and jacking down time, and de-ballasting and pre-loading requirements, and transit of anchor handling Tugs (usually 3 vessels) to the East Irish Sea from the North Sea before the unit would be capable of accepting helicopter flights. In addition, for the safety reasons any jack-up rig / barge moves are performed with minimal marine crew rather than with full project personnel onboard. Rather than decreasing the

risk of schedule impact this mitigative measure actually guarantees increased scheduling for high ticket items such as barge or rig and associated day rates.

6.20 The D5A Xodus Report states that "*Crew change for the CPC1 heavy lift vessels will be undertaken when the HLV is in its stand-off position to the north unimpeded by the windfarm*" (section 5.3). For removal, Spirit can't dictate which direction the HLV approaches from as the existing contract includes a requirement to provide 1.5nm unrestricted access. Due to the single lift nature of operations and preceding platform preparations this access is required from all orientations of the platform. Free unrestricted access to the worksite is a contractual obligation Spirit have with the removal contractor.

6.21 Regarding specialist vendors and the significant cost and delay to the decommissioning programme where they cannot reach the assets, Xodus agrees that these delays to vendor access will incur costs but again suggests that Spirit deals with this by "*proper planning*" (section 7.5). As stated in Spirit's previous submission (paragraph 3.5, Spirit's D5 Submission), specialist vendors are highly in demand and booked months and years in advance; if they are unable to access the asset it may be months until they are available again to undertake the work, which can bottleneck the decommissioning programme by the same period where their work is a critical path. In addition, Spirit cannot plan for possible failure of equipment which may require the mobilisation of specialist vendors to carry out the appropriate fixes. Spirit could theoretically book a vendor for an extended period of time to mitigate the risk of failing to access the asset, however this would be speculative at best and generate significant additional costs.

6.22 Section 5.3 of the D5A Xodus Report states that "*DP6 / DP8 / DPPA removal will not be impacted by the windfarm as crew change flights can be direct to the HLV*." Although project personnel will be flown directly to jack-ups, heavy lift vessels, CSV's, etc. from shore it is highly likely that periodic maintenance or survey visits will be required directly to the NUI's. The delay of the visits could highly impact the length of the decommissioning process. Having restricted flight access, to either the vessel or directly to the NUIs, can be further impacted by the Project and the availability of specialised contractors would delay the entire process. The delays would in turn lead to unnecessary significant financial loss.

Safety

6.23 The Applicant has suggested that the D5A Xodus Report provides evidence that the Project would not impact the safety of Spirit's decommissioning activities (section 6.6). However, there is no basis for this in the D5A Xodus Report. Rather, Xodus refers to the D5 DNV Report. Spirit has already set out the reasons that the DNV report is not reliable. The contents of the DNV Report are not agreed, and a safety risk remains for the reasons listed in section 4 of this submission.

6.24 Spirit has already comprehensively responded to the DNV Report and set out in this submission and all previous submissions the consequences for the safety of its people and assets that will result from a buffer of less than 3.76nm. As the DNV analysis is based on a 1.5nm buffer, which Spirit has already set out is not sufficient, it is irrelevant to safety considerations in terms of aviation operations during decommissioning.

6.25 In terms of decommissioning specifically, the DNV Report relied on by Xodus is concerningly misinformed. Xodus has referred to the DNV analysis in stating that "*During an emergency the jack-up vessel can stand-off to the North of CPC1 and evacuation of the jack-up would be undertaken per the arrangements for CPC1 evacuation discussed in the DNV report; which concluded that: there will be no impact on emergency evacuation and escape from CPC1*" (section 6.2.2). The jack up drilling rig has no propulsion. Moving the rig requires mobilising 3 anchor handling tugs (AHTS) stationed around the UK from the North Sea. As the rig is not a self-propelled cantilever jack-up, but fixed, emergency standoff is not possible. These specifics apply to the well P&A rig and to the accommodation support for platform removal preparations. Spirit would respectfully challenge the Xodus assumption that a jack up rig with no propulsion could stand off in an emergency if that is the Applicant's intended suggestion.

6.26 Spirit disagrees with the Applicant's conclusion that flights to NUIs will no longer be required once the platforms enter 'Lighthouse mode' (paragraph 246, Applicant's D5 Submission).

Given the current (early) stage of decommissioning planning, very little detail is known of the scope and timing of decommissioning activities so at this point the assumption needs to be that the helideck is required to remain operational until topsides and jacket removal is complete. The SECE Verification Scheme will require to remain live until the asset is removed – SECEs can only be removed from this scheme once the Safety Case demonstrates that the major accident hazards they are designed to manage have been removed.

Costs

6.27 The D5A Xodus Report presents the view that the costs impact of the Project on Spirit's East Irish Sea decommissioning activities are exaggerated because they can be mitigated by 'planning' and acting in accordance with Xodus' bullet point plan for cost mitigation (section 7.5, D5A Xodus Report). It seems that the position taken by Xodus is that costs can be mitigated if Spirit completely alters its decommissioning operations to accommodate for the constraints of the Project and in a way that is entirely inappropriate and unmanageable in the East Irish Sea context. Spirit has already set out at above why the 'better planning' proposals from Xodus are ineffective. Despite these speculative, decontextualised and highly onerous proposals, Xodus has stated that the cost impacts of the Project on decommissioning are "*not remotely close*" to Spirit's estimates of approximately £10 million, but it has not provided a cost estimate or breakdown.

6.28 Nonetheless, the D5A Xodus Report does acknowledge that "*Any delay to the schedule up until disembarkation will directly extend OPEX and project management costs*" (section 5.3). The reason for any distance between Xodus' view on costs and Spirit's is Xodus' underestimation of the scale of the decommissioning programme required for the Morecambe Hub. Spirit has already acknowledged that it has to manage delays and consequent costs as part of the decommissioning programme. The costs caused by the Project will be over and above these contingencies.

6.29 The costs likely to be incurred as a consequence of the proximity of the Project leading to delayed and cancelled flights are as follows:

- Significant onshore standby and accommodation fees for vendors and workers, plus standby wage payment to individuals onshore and stationed at CPC for NUI work who were not able to mobilise.
- Helicopters and heliport charges are also charged to Spirit provided the helicopter is available to fly.
- Day rates for barges, jack ups, HLV, construction support vessels and driving support vessels as a result of delayed project schedule due to lost productive time.
- Day rates for offshore supply vessels and Emergency Rescue and Response Vessels (ERRVs), as a result of delayed project schedule.
- Onshore overheads for the delayed programme, such as extending the employment of staff on for onshore logistics support.
- Ongoing facility running costs, predominantly for offshore crew and power generation.

6.30 Xodus have acknowledged many of these costs (section 7.5, D5A Xodus Report) but treated them as not-windfarm driven due to delays occurring as part of the normal process of decommissioning. This is categorically false: the windfarm will increase these costs by an estimated 11%.

6.31 Xodus have identified that delays to vendors will generate costs (section 7.5) but declined to estimate them on its market based assumptions, as it has for assessing overall costs, on the basis that it considers delays to vendors not to be a cost risk related to the Project. This

seems markedly inconsistent to Spirit. It also does not account for all scenarios, for example additional vessel days and the associated day rate.

6.32 Xodus has however presented an estimated total cost for decommissioning Spirit's EIS assets of £503.3 million (section 7.4, D5A Xodus Report). Spirit anticipates an impact to decommissioning activities of 11%. By way of a crude estimate, this would equate to over £40.2 million of Xodus estimated total cost – far higher than the conservative estimate of £10 million presented by Spirit.

Decommissioning and the draft DCO

6.33 The protective provisions drafted by the Applicant in relation to the Affected Assets have been drafted with decommissioning dates chosen to suit the Applicant. As previously set out at Appendix A of Spirit's Deadline 4 submission, CoP is driven by the OGA Strategy and the MER, not the date that suits the Applicant to have the area clear for its purposes.

6.34 Spirit has provided draft protective provisions and comments on the Applicant's draft protective provisions at Appendix A of its response to the ExA's further written questions (the decommissioning provisions of the protective provisions submitted by Spirit at Appendix A of its response to ExQ3 3DCO3 are unaffected by the modest updates in the updated version of Spirit's proposed protective provisions provided at Appendix C to this submission). Within these comments, Spirit has explained that it is not appropriate for the Applicant to seek to place a longstop date of 1st January 2029 on the decommissioning of the Affected Assets. Contrary to the Applicant's claims, a fixed decommissioning date of 1 January 2029 is by no means a 'conservative' or 'worst case' date for CoP or aligned with Spirit's submissions (paragraphs 12 and 22, Applicant's D5A Submission). Spirit has re-iterated on numerous occasions that CoP may not take place until the 2030s, and that the decision to decommission is driven by adherence to the OGA Strategy and MER, not the Applicant's preferences. This is not an extension of project life: it is the determination of an existing project's economic output. The D5A Xodus Report asserts at section 3.4 that production may be extended in discussion with the regulator but may come with potential implications. Spirit as a prudent operator have undertaken proactive and regular engagement with NSTA and OPRED regarding life of field planning, upcoming work programmes and decommissioning plans. Spirit is therefore of the opinion that the points made by Xodus can be managed through this engagement and are not seen to have any material consequence. For example, updates to Environmental Impact Assessments are part of day to day to business when preparing decommissioning programmes; life extension projects are planned and managed as part of Spirit's overall business strategy; and justification for extension of production would be communicated and discussed as part of regular stewardship discussions with NSTA, to ensure these aligned with the government's strategy for net zero.

6.35 A fixed decommissioning date of 1 January 2029, after which the Project would be constructed within the aviation buffer required by Spirit, would force Spirit into early CoP, contrary to the policy requirements it must meet. It is noted by Spirit that the date of 1 January 2029 suits the Applicant's construction timeline, and is therefore not a meaningful protection for Spirit's Affected Assets but a re-framing of the Applicant's obstinate position. Moreover, an aviation buffer of 3.76nm is required throughout the decommissioning process, not only up to CoP, as explained above.

7. Morecambe Net Zero (MNZ)

7.1 MNZ is critical to national net zero targets: as opposed to the 36 million tonnes of CO_2 that would be displaced over the life of the proposed windfarm, the CO_2 storage capacity of the South Morecambe asset is 850 million tonnes. The CO_2 emissions from the major industries in the Peak Cluster served by MNZ inherently generate carbon emissions and there is no credible alternative to MNZ to reduce carbon from these industries. It is therefore vitally important that the Project, which is important to national targets but capable of being sited elsewhere, does not prevent the development of this carbon capture project that is critical to achieving net zero. By no means is the Project a 'bird in the hand' as the Applicant suggests (paragraph 80, Applicant's D5A Submission): the Project is rightly subject to this examination and consenting process, and suffers significant siting and design flaws in its current form. Spirit accepts that MNZ will need to co-exist with the Project (if it is granted consent) and has already gone to significant lengths to do so in the design of MNZ. However, it is hoped that the Applicant would not be so driven by its own commercial aims to risk the achievement of net zero by preventing the capture and storage through MNZ of 850 million tonnes of CO_2.

Status Update

7.2 At Deadline 5, Spirit provided details on the status of Morecambe Net Zero (MNZ) and the impact of the windfarm on this critical development with significant implications for achieving Net Zero emissions. This built on the background set out at pages 19-23 of Spirit's Deadline 3 submission (Response to the Applicant's Deadline 2 Submissions) [REP3-102]. Spirit and the Applicant have since met to hold a shared understanding meeting on MNZ.

7.3 By way of update, Spirit's carbon storage licence for MNZ CS010 (**CSL**) has been effective since 2023 and is currently halfway through the licence term. Spirit will complete site characterisation and the Appraise phase of the licence in the second half of 2025, at which point the Assess phase begins. During the Appraise phase, Spirit has undertaken pre-FEED studies on various MNZ development concepts and is in the process of selecting the FEED concept, that will then be progressed during the Assess licence phase. FEED will be completed at the end of 2026, when the CSL will move into the Define phase. Spirit has successfully demonstrated technical feasibility to the regulator at each licence milestone it has passed thus far.

7.4 The Applicant has misinterpreted how the CSL is managed by the NSTA in the footnote on page 13 of the Applicant's D5A Submission. The CSL remains in force and Spirit progress through the milestones to permit application with the NSTA. The Appraisal Term will run for 4.5 years and will naturally progress into the Operational term in 2028. Within the CSL Appraisal Term, Spirit will also apply in parallel to The Crown Estate (TCE) for the Storage Exploration and Appraisal Agreement (SEAA) and then the Agreement for Lease.

7.5 The Applicant has also incorrectly stated how the Agreement for Lease is being managed by TCE for carbon storage leases as this differs from their wind farm agreement for lease process that it will be familiar with. Spirit currently does not hold an agreement for lease with TCE as it is not yet time in the process to apply for one. TCE has implemented a new process in 2024 that differs from the process that manages leasing for wind farm developments. TCE process commences with a new agreement called the SEAA and this agreement is a pre-cursor for the agreement for lease which will be applied for in 2027 in line with the standard process requirements for carbon storage projects. Spirit does not require to sign the SEAA with TCE until it is undertaking surveys in the area which are planned for late 2025. The SEAA term is only for 12 months; therefore it has been agreed with TCE that it is not required to be signed until prior to commencing activity in order to maximise the 12 month term of agreement. These agreements will be a new industry standard agreement that TCE has drafted with a targeted group of industry consultees of which Spirit was a key contributor and it has further been rolled out for further industry consultation to ensure a standard SEAA document for all projects. Both Spirit and TCE are in full dialogue regarding the best time to include the Spirit specific information and sign the SEAA. Spirit has shared this with the Applicant, yet there still seems to be a misunderstanding suggesting that our project timeline does not fit in with TCE process, which is not true.

7.6 The Applicant notes in paragraph 75 of their D5A Submission document that Spirit has only included one offshore injection facility on the map when public domain data suggests that there will be 3. This is true; however Spirit didn't note them on the map as they will all be further north due to the location of the proposed wind farm. The development will be phased with the first phase of injection only requiring 1 injection platform, based on the expected initial CO2 volumes that will be delivered through Peak Cluster (3-4MTPA). However, facilities will need to be increased as Spirit ramps up injection during the 2030s; to reach 25MTPA by 2040 it will need 3 offshore injection facilities in total.

7.7 Further details on the current status of MNZ in the Minutes of the Shared Understanding Meeting between Spirit and the Applicant on MNZ at Appendix B of the letter dated 8 April 2025 submitted by Spirit at Deadline 5A.

Cooperation

7.8 Although the Applicant has chosen to locate the Project over and around Spirit's assets, Spirit has sought to develop MNZ with respect to the Project in mind. The well locations have been planned with surface locations as far north as possible to remain outside the Project boundary. Spirit had originally planned for an injection facility location at DP3 and made a considerable concession to the Project in removing it as it would be within the windfarm area, instead focussing on locating the injection facility further north.

7.9 Spirit has already completed a seismic survey of the MNZ area, at a cost of more than twice the estimate of $5-7 million by Xodus at section 3.1.2 of Appendix C to the Applicant's D5 Submission [REP5-066] (**Xodus MNZ Report**)). Spirit undertook the seismic survey in 2024 in order to complete it in advance of construction of the Project.

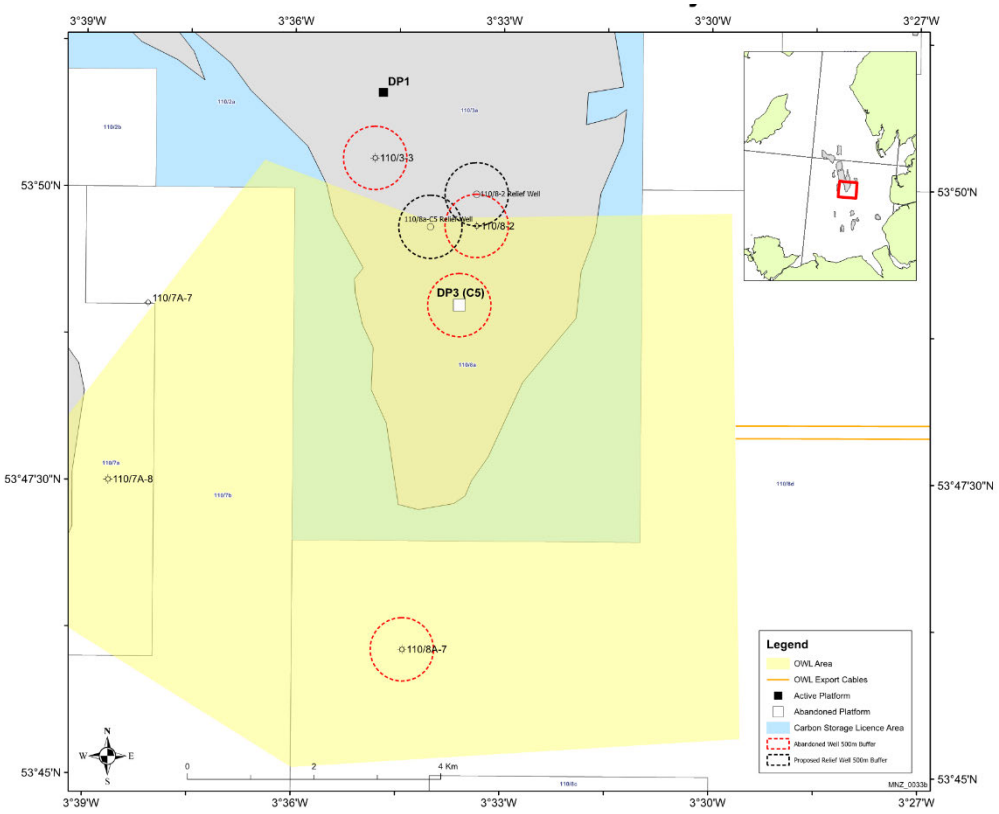
7.10 Nonetheless, there are certain constraints driven by NSTA requirements that MNZ must comply with. The following paragraphs detail these remaining issues.

Monitoring

7.11 Spirit is required for the award of the carbon storage permit under the MNZ Carbon Storage Licence to monitor wells in and around the carbon storage area. While a carbon leak is not anticipated, the NSTA requires that Spirit monitors the wells to detect any potential leak and executes corrective measures if one is identified. Monitoring and corrective measures are agreed with the NSTA and formalised as the Monitoring Plan (MP) and Corrective Measures Plan (CMP).

7.12 The NSTA requires Spirit to undertake a well integrity assessment during the Appraise phase of the MNZ Carbon Storage Licence to update the containment risk assessment and inform the Monitoring Plan and Corrective Measures Plan. The NSTA requires that 65 wells in total are included in the assessment, including seven legacy wells that are offset from South Morecambe, including 110/8A-7 (approximately 2.5 km offset from the storage site), 110/3C-5 (approximately 5km offset from the storage site), 110/3B-6A (approximately 8km from the storage site) and 113/29a-3 (more than 25km from the storage site) (see Figure 3 MNZ Wells for the location of the legacy wells within the MOWL area). Following the well integrity assessment, Spirit will receive guidance from the NSTA on the wells that will need to be monitored (in a Monitoring Plan, MP) during the carbon storage project. Spirit will also need to demonstrate remediation plans in a Corrective Measures Plan (CMP) for those wells. The wells 110/8A-7, 110/8-2 and the wells drilled from DP3 are abandoned as per OEUK guidelines. However, as the NSTA requires Spirit to review these wells in the well integrity assessment, the assumption at this time is that they will be subject to monitoring and provision in the CMP until otherwise determined by the NSTA. In relation to well 110/8A-7 and Xodus' analysis of the likelihood of CO2 reaching this well (section 3.2, Xodus MNZ Report), Spirit must remind the Applicant that it is the NSTA that will ultimately approve the monitoring and corrective measures requirements that are established in relation to this well. The only available corrective measure for 110/8A-7 is using a rig, hence the need for protective provisions enabling rig access, as further described below.

Figure 3 MNZ Wells



7.13 In terms of use of the monitoring methods available to Spirit, Xodus has indicated that Spirit has discounted seismic surveying as a method of monitoring (paragraph 268, Xodus MNZ Report). This is only correct for conformance monitoring within the storage site, as Spirit will not be able to detect any seismic difference between CO_2 and methane in the gas field area. However, if CO_2 leaks outside of the storage site, seismic will be an effective tool for containment monitoring as the seismic response would be considerably different (CO_2 displacing brine). If, as operator of the carbon store, Spirit had evidence that CO_2 may be leaking (e.g. well monitoring showed pressures that were lower than expected), towed streamer seismic or OBN could be a tool that would allow Spirit to confirm this and map the leak, and therefore it is likely to be a suitable monitoring technology and is still in consideration for the MNZ Monitoring Plan. However, Spirit recognises that 3D seismic within the Project would be impossible and OBN would be extremely expensive, and so has already conceded that these would not be available within the Project area (but may still be a monitoring technology across the rest of the storage site). With regard to the assertion that an "*obvious solution*" for the placement of seabed concrete pads for 4D surveying would be the midpoint between turbine locations (section 3.1.2, Xodus MNZ Report), this has not yet been determined. The optimal placement will depend on the density and spatial configuration required to monitor the gravity changes, but also on seabed conditions (avoiding shifting sands for example). The work to establish the configuration on the layout of concrete pads still ongoing. Additionally, time lapse S DAS (seabed distributed acoustic sensing) is a form of seismic which has a receiver that may need to be deployed on the seafloor. This is also a technology that is under consideration for Spirit's Monitoring Plan.

7.14 Xodus has presented a number of measurement, monitoring and verification (MMV) technologies which it considers are available to Spirit and assist with resolving the overlap between MNZ and the Project. Xodus has presented MMV technologies for the Endurance CCS project which has different characteristics (it is a saline aquifer) to the MNZ project (section 3.1, Xodus MNZ Report). Xodus further commends the use of multiple technologies to ensure a robust MMV plan. To confirm, Spirit is looking at a full range of technologies and conclusions will only be reached at the point of agreeing the Monitoring Plan with the NSTA, which is currently anticipated 2027 to 2028. Spirit has already conceded the use of certain technologies in the case that the Project is in place.

Safety exclusion zones

7.15 Xodus suggests that the minimum buffer distance required around legacy, exploration and appraisal wells is 100m (paragraph 257, Xodus MNZ Report). This is correct only for installing monitoring equipment around the legacy well heads. However, Spirit also requires a 500m safety exclusion zone around legacy wellheads in accordance with HSE Operations Notice 54 under section 21 of the Petroleum Act 1987, including a 200m well cable buffer zone around the wellhead, and a 1nm vessel corridor to pull a rig with anchor handling vessels to the legacy wells with a 1nm buffer around the legacy wells to execute the Corrective Measures Plan (CMP) if an issue is identified through the Monitoring Plan. In the case that leakage was detected through the Monitoring Plan, Spirit would need to bring a rig onto the wellhead location and re-enter the well using the drilling rig. Both of these (CMP and MP) are requirements under the MNZ Carbon Storage Licence. While the 500m safety exclusion zone is required only in the incident of undertaking corrective measures, this would not be possible if a wind turbine is placed within 500m of the wellhead.

7.16 The Applicant has proposed a protective provision for 100m to be kept clear around legacy well heads (paragraph 6, Part 3, Schedule 3, MOWF dDCO [REP5-002]). It has also stated that a 500m safety zone will be provided 'if' a rig is on location (paragraph 274, Applicant's D5 Submission). The 500m zone can only be achieved if fixed to the turbine layout by protective provision. If access to this well is required to execute the CMP, it will be required urgently and there would not be time to negotiate the rearrangement of obstacles in the area and in any case the turbines cannot be moved 'if' a rig is required on location and they are closer than 500m.

7.17 The Applicant states that there would be room to manoeuvre a vessel over the legacy wellhead 110/8A-7, despite refusing the need for a 1nm access corridor (paragraph 27, Applicant's D5 Submission). Spirit has stated that 1nm is required to pull a rig with anchor handling vessels. The Applicant provides no justification or explanation for how the rig with anchor handling vessels would be able to access the wellhead without a 1nm corridor or specification of an alternative access corridor. It appears that the Applicant has also conflated jack up rigs with semi-submersible rigs. To be clear, for re-entry into any of the legacy wells within the East Irish Sea, Spirit will have to use a jack-up drilling rig. There are two types of drilling rigs available for offshore operations: semi-submersible and jack-up. The use of either type is determined by the available water depth. Due to the shallow depths in the East Irish Sea (circa 30 metres), only the jack-up type of drilling unit is able to operate. Jack-up drilling rigs are typically non-propelled and are not equipped with a dynamic positioning (DP) system. Jack up drilling rigs require tugs for towing operations and anchors for precise positioning on location. A typical jack-up rig will have a width of circa 80+ metres and will be towed by a spread of 2-3 anchor handlers or tugs which will require space to manoeuvre. The applicant has referred to the Project vessels of a similar nature (Wind Turbine Installation Vessel (WTIV)) which are used for wind farm installation and maintenance works. However, such vessels are typically self-propelled dynamically positioned vessels which cannot be compared with the non-propelled jack-up drilling rigs due to completely different designs. There are no self-propelled dynamically positioned jack-up drilling rigs available in the North Sea market, let alone the East Irish Sea.

7.18 On the basis of the analysis above and the submission made at section 4 of Spirit's Deadline 5 Submission [REP5-089], Spirit considers that any DCO granted for the project should include protective provisions for the MNZ project. Draft provisions have been submitted in response to ExQ3 at deadline 5A.

7.19 ***Request for reports***

7.20 Xodus have noted that further reports are available as part of its wider study addressing other aspects of the interaction between these projects (section 1.2, Xodus MNZ Report). Spirit requests that such information is shared with it if it is relevant to the impact of the Project on MNZ.

8. NPS compliance and conclusion

8.1 As has been previously noted, Spirit strongly supports the principle of new low carbon development, including offshore wind farms. It has no issue in principle with the Proposed Development (other than its location and design) and it strongly supports the principle of co-existence. However, as currently proposed, the Project is simply too near to Spirit's Affected Assets for these projects to coexist and avoid intolerable impacts on the safety. If the Project is to proceed, the mitigation proposed by Spirit must be secured in the DCO.

8.2 Spirit notes the Applicant's comments in section 3 of the Applicant's D5 Submission with regard to the Oil and Gas Clause of the Applicant's Agreement for Lease in relation to the Project. This clause and related policy are not relevant to the Application before the ExA nor the current examination. It relates to matters associated with provisions in the Project's Crown Estate Lease. To be clear, Spirit has made no assertion that these provisions give Spirit some right to object to the scheme and Spirit absolutely appreciates that the ExA and Secretary of State must determine the application in accordance with the considerations identified in Section 104 of the Planning Act 2008.

8.3 Spirit has set out its position on policy matters and site selection at section 3 of its Deadline 4 Submission [REP4-069] and section 7 of its Deadline 3 Submission [REP3-102] and refers the ExA to these submissions, which it maintains.

8.4 Spirit recognises that the Proposed Development is 'critical national priority' infrastructure that is subject to a presumption in favour of development consent being granted. However, that presumption is not without qualification, and it does not apply to residual impacts which present an unacceptable risk to, or interference with, human health and public safety in accordance with paragraph 4.1.7 of NPS-EN1.

8.5 The Applicant has continued to suggest that Spirit's objection to the Proposed Development represents a failure to co-exist. It should be noted that the Applicant's consents manager publicly stated in a public forum in October 2024 that "*an important factor in the windfarm site's selection was the potential for the project to be the first windfarm to fully co-exist with oil and gas operations*". However, site selection was never done with co-existence in mind. The Applicant failed to undertake meaningful, actioned consultation with the oil and gas operation (Spirit's East Irish Sea operations) that it wished to co-exist with. Rather, the Applicant has sought to impose a narrative of consultation while remaining steadfastly fixed to an unviable 1.5nm buffer between its Project and Spirit's assets, regardless of the weighty and significant safety consequences that it would inflict. The evidence identified in this, as well as Spirit's previous submissions, indicates that it is in fact the Applicant that has been inflexible and seemingly willing to manipulate the technical analysis to fit the answers it requires to justify a flawed site selection and scheme design. To be clear, the Proposed Development (without the protections sought by Spirit) threatens the safety of its existing operations, the Affected Assets and its employees and contractors. Spirit would be required to make significant changes to the way it operates, which would not resolve its safety concerns and would lead to material increases in cost. It would also compromise the ability of Spirit to decommission safely and without significant increases in costs (the full extent of which the Applicant appears unwilling to compensate), and the Applicant's suggestion of fixing decommissioning to a date as early as 1 January 2029 would require Spirit to accelerate CoP of its assets contrary to MER and the OGA Strategy. It would also hamper Spirit in bringing forward its MNZ project (which is already subject to a licence and could store a gigaton of CO_2) potentially severely limiting its options for its injection platform location, and therefore curtailing its utilisation of the largest of its stores, as well as preventing access to legacy wells associated with the regulator required monitoring and corrective measures plan. Paragraphs 2.8.341- 2.8.348 of NPS EN3 state that:

"*Other offshore infrastructure and activities*

2.8.341 There are statutory requirements concerning automatic establishment of navigational safety zones relating to offshore petroleum developments.

2.8.342 Where a proposed offshore wind farm potentially affects other offshore infrastructure or activity, a pragmatic approach should be employed by the Secretary of State.

2.8.343 Much of this infrastructure is important to other offshore industries as is its contribution to the UK economy.

2.8.344 In such circumstances, the Secretary of State should expect the applicant to work with the impacted sector to minimise negative impacts and reduce risks to as low as reasonably practicable.

2.8.345 As such, the Secretary of State should be satisfied that the site selection and site design of a proposed offshore wind farm and offshore transmission has been made with a view to avoiding or minimising disruption or economic loss or any adverse effect on safety to other offshore industries. Applicants will be required to demonstrate that risks to safety will be reduced to as low as reasonably practicable.

2.8.346 The Secretary of State should not consent applications which pose intolerable risks to safety after mitigation measures have been considered.

2.8.347 Where a proposed development is likely to affect the future viability or safety of an existing or approved/licensed offshore infrastructure or activity, the Secretary of State should give these adverse effects substantial weight in its decision-making.

2.8.348 Providing proposed schemes have been carefully designed, and that the necessary consultation with relevant bodies and stakeholders has been undertaken at an early stage, mitigation measures may be possible to negate or reduce effects on other offshore infrastructure or operations to a level sufficient to enable the Secretary of State to grant consent."

8.6 For the reasons thoroughly explored in this as well as previous submissions to the ExA, Spirit considers that the Applicant has not meaningfully worked with Spirit to minimise the negative impacts of the Proposed Development nor reduced risks to as low as reasonably practicable. Furthermore, the Secretary of State should not be satisfied that the Applicant has demonstrated that the site selection and site design of the Proposed Development has been made with a view to avoiding or minimising disruption or economic loss or any adverse effect on Spirits operations. Quite the opposite.

8.7 The Proposed Development would give rise to intolerable risks to safety and, in the absence of the mitigations suggested by Spirit, and in line with paragraph 2.8.346 of NPS EN3, should not be granted development consent.

8.8 Even if the Secretary of State did not agree with Spirit's view on safety, it is clear that the Applicant's proposal fails to minimise disruption and economic loss and that the proposed protective provisions are entirely inadequate in this regard, both in terms of the protections which it offers as well as the limited and capped compensation arrangements, which would inevitably leave Spirit to absorb very significant unplanned and additional costs.

8.9 Finally, there is then the additional negative impact that the Proposed Development may have on the licenced MNZ proposals, which would make a vast contribution to the UK Government's Net Zero strategy. With respect to the Proposed Development, its capacity to reduce GHG emissions is dwarfed by that of MNZ. Any determinantal effects on the MNZ project, must therefore weigh heavily against the Proposed Development, since they represent an unacceptable risk to the achievement of net zero.

8.10 These matters should be given substantial weight in the Secretary of State's decision-making. No doubt the Applicant will cite the force of NPS policy in relation to Critical National Priority (CNP) Infrastructure. But paragraph 4.1.7 of NPS EN1 recognises that the presumption in favour of granting development consent for CNP Infrastructure does not apply to residual impacts which present an unacceptable risk to, or interference with, human health and public safety, defence, irreplaceable habitats or unacceptable risk to the achievement of net zero.

8.11 Spirit respectfully requests that the protections which it has requested are included in any DCO that may be granted or that the application for development consent should be refused.

APPENDIX A: TABLES OF ANATEC AND AVIATEQ AVIATION BUFFERS

Tables of Anatec and AviateQ Aviation Buffers

The tables in this appendix compare the aviation buffer calculations provided by the Applicant's aviation advisor Anatec in the Applicant's Response to Spirit Energy's Deadline 4 Submission Appendix A: Helicopter Access [REP5-063] against Spirit's aviation advisor AviateQ. The tables apply standard power calculations for the aircraft and 4.8 tonnes payload.

VMC Comparison Tables

VMC - Take Off - Day and Night			
Flight segment	**Anatec**	**AviateQ**	**Comment**
Dropdown	9 ft	9 ft	Applying the standard performance graph for AW169 (Graph S4T-D15).
Continued take off	0.19	0.19	Fixed distance of 350m (Sect 4D - Performance Data).
Flightpath 1: climb to 200ft	0.15	0.02	Anatec have calculated flightpath 1 based on a climb to 200ft Above Take-off Surface (ATS) (384ft) without including the drag factor for the fixed undercarriage. Anatec assume that the drag factor for undercarriage is already included in the graph. The aviation operator for Spirit's East Irish Sea assets (NHV) requires that, in the interest of safety through standardisation for flights between multiple platforms of different heights, they climb to 200ft Above Mean Sea Level (AMSL) in their Standard Operating Procedures (SOP) so that there is a consistent procedure for all helidecks. AviateQ have included two drag factors, one for the lifeboat and one for the extended sponsons for flightpath 1 as the RFM does not state that it is already included in the flightpath 1 graph (Graphs - S4-6, S4-7 and S4-22).
Level acceleration to 75kts (Vtoss to Vy)	0.36	0.36	This value is Anatec's 'no wind benefit' figure, which excludes the headwind component of 15 kts to this distance. AviateQ does not accept Anatec's alternative value of 0.29 for this segment with 'wind benefit' at 15kts as the relevant graph does not allow for a headwind factor. The graphs that do allow for the application of the headwind factor, such as the drop down, flightpath 1 and flightpath 2 graphs, all have sections in the graph for this application. The level acceleration graph does not have this headwind component section (Graph- S4-32).
Flightpath 2: climb to 500ft	0.26	0.68	Both climbs are to 500ft AMSL. Anatec's distance begins from their flightpath 1 climb to 384ft (200ft ATS) thus only requiring further climb of 116ft to reach the 500ft AMSL (VFR) turn height. AviateQ's climb starts at 200ft AMSL as per the Aviation Operator's Standard Operating Procedures (SOP) with further climb of 300ft to reach 500ft AMSL turn height (Graphs- S4-9, S4-43).
Rate One Turn (RoT)	0.40	0.35	Unknown source for the Anatec figure as this figure is different from the RoT calculation mentioned for approach, however elsewhere Anatec has applied Anatec calculated its figure on the basis of Radius of turn for a Rate 1 turn (3 deg/sec) at 75kt so it is assumed that is the case here.

			AviateQ's number is based on a speed of 80kts as it is assumed the aircraft will start to accelerate in the level turn (Graph 9-49 from AW169 RFM).
Apex	0	0.02	Displacement at the apex of the turn (calculated by the Pythagoras' theorem).
VMC buffer	0.08	0.08	Legal obstacle 500ft clearance
Total	**1.44**	**1.7**	

VMC – Landing - Day			
Flight segment	**Anatec**	**AviateQ**	**Comment**
VMC buffer	0.08	0.08	Legal obstacle 500ft clearance.
Rate One Turn	0.43	0.35	Anatec has calculated 0.43nm. AviateQ's number is based on a speed of 80kts.
Final Approach Track	0	1	AviateQ applies 1nm to allow the pilots 45 seconds to establish the stabilised approach criteria prior to reaching the SAP.
SAP point	0.75	0.5	As per Heli-Offshore Flight Path Management Recommended Practice for Offshore Helicopter Operations (December 2024).
Total	**1.26**	**1.93**	

VMC - Landing - Night and Degraded Visual Environment (DVE)			
Flight segment	**Anatec**	**AviateQ**	**Comment**
VMC buffer	0.08	0.08	Legal obstacle 500ft clearance.
Rate One Turn	0.43	0.35	Anatec has calculated 0.43nm. AviateQ's number is based on a speed of 80kts as it is assumed the aircraft will start to accelerate in the level turn (Graph 9-49 from AW169 RFM).
Final Approach Sector	0	1	AviateQ applies 1nm to allow the pilots 45 seconds to establish the stabilised approach criteria prior to reaching the SAP.
SAP point	1.5	1	Anatec refers to needing an additional 1nm Final Approach Track per the draft CAP764. AviateQ reads this guidance ("*a second stabilised approach gate is introduced at 1 NM*") as 1nm from the landing point, rather than an additional 1nm. Spirit's aviation operator, NHV, applies 1nm.
Total	**2.01**	**2.43**	

IMC Comparison Tables

IMC - Take Off (Standard Graphs)			
	Anatec	**AviateQ**	**Comment**
Dropdown	9 ft	9 ft	Applying the standard performance graph for AW169 (Graph S4T-D15).
Continued take off	0.19	0.19	Fixed distance of 350m (Sect 4D - Performance Data).
Flightpath 1: climb to 200ft	0.15	0.02	Anatec have calculated flightpath 1 based on a climb to 200ft Above Take-off Surface (ATS) (384ft) without including the drag factor for the fixed undercarriage. Anatec assume that the drag factor for undercarriage is already included in the graph. The aviation operator for Spirit's East Irish Sea

			assets (NHV) and other operators in the North Sea require that, in the interest of safety through standardisation for flights between multiple platforms of different heights, they climb to 200ft Above Mean Sea Level (AMSL) in their Standard Operating Procedures (SOP) so that there is a consistent procedure for all helidecks. AviateQ have included two drag factors, one for the lifeboat and one for the extended sponsons for flightpath 1 as the RFM does not state that it is already included in the flightpath 1 graph (Graphs - S4-6, S4-7 and S4-22).
Level acceleration to 75kts (Vtoss to Vy)	0.36	0.36	This value is Anatec's 'no wind benefit' figure, which excludes the headwind component of 15 kts to this distance. AviateQ does not accept Anatec's alternative value of 0.29 for this segment with 'wind benefit' at 15kts as the relevant graph does not allow for a headwind factor. The graphs that do allow for the application of the headwind factor, such as the drop down, flightpath 1 and flightpath 2 graphs, all have sections in the graph for this application. The level acceleration graph does not have this headwind component section (Graph-S4-32).
Flightpath 2: climb to 500ft	1.37	1.8	Both climbs are to 1000ft AMSL. Anatec's distance begins from their flightpath 1 climb to 384ft (200ft ATS) thus only requiring further climb of 616ft to reach the 1000ft AMSL (VFR) turn height. AviateQ have calculated the flightpath 2 climb to start at the 200ft AMSL as per the Aviation Operator's Standard Operating Procedures (SOP) with further climb of 800ft to reach 1000ft AMSL turn height (Graphs- S4-9, S4-43).
Rate One Turn	0.4	0.35	Anatec calculated its figure on the basis of Radius of turn for a Rate 1 turn (3 deg/sec) at 75kt. AviateQ's number is based on a speed of 80kts as it is assumed the aircraft will start to accelerate in the level turn (Graph 9-49 from AW169 RFM).
Apex	0	0.02	Pythagoras Theory due to apex of turn being displaced.
IMC buffer	1	1	Legal IFR obstacle 1nm clearance requirement
Total	**3.46**	**3.76**	

IMC - Landing - ARA Approach			
	Anatec	**AviateQ**	**Comment**
ARA approach	9	7.5	Different operators require different distances for the ARA approach based on which profile they use. Spirit's aviation operator in the East Irish Sea, NHV, requires 7.5nm for the approach. Anatec has assumed 9nm. See further comments at paragraphs **Error! Reference source not found.**-**Error! Reference source not found.** of Spirit's Deadline 6 submission.
Total	**9**	**7.5**	

APPENDIX B: MORECAMBE OFFSHORE WINDFARM IMPACT ON MORECAMBE HUB ASSETS SAFETY AND REGULATORY COMPLIANCE

Docusign Envelope ID: CC174338-12A0-4580-A96D-BC1B4EF8C0FF

Morecambe Offshore Windfarm Impact on MH Assets Safety and Regulatory Compliance

SPIRIT ENERGY

Docusign Envelope ID: CC174338-12A0-4580-A96D-BC1B4EF8C0FF

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ABBREVIATIONS

Abbreviation	Definition
1974 Act	*Health and Safety at Work Act 1974*
ALARP	*As Low As Reasonably Practicable*
AP1	*Accommodation Platform 1*
CAA	*Civil Aviation Authority*
CAT	*Commercial Air Transport*
CMAPP	*Corporate Major Accident Prevention Policy*
COVID	*COVID-19, coronavirus disease of 2019*
CPC	*Central Processing Complex*
CPP	*Central Processing Platform*
DP1	*Drilling Platform 1*
DP6	*Drilling Platform 6*
DP8	*Drilling Platform 8*
DPPA	*Drilling and Production Platform Alpha*
ERRV	*Emergency Response and Rescue Vessel*
HLO	*Helideck Landing Officer*
HSE	*Health and Safety Executive*
IRPA	*Individual Risk per Annum*
MAR	*Offshore Installations and Pipeline Works (Management and Administration) Regulations 1995*
MH	*Morecambe Hub*
MHSWR	*Management of Health and Safety at Work Regulations 1999*
MOME	*Management of Major Emergencies*
MOWL	*Morecambe Offshore Windfarm Limited*
ms-1	*Meters per second*
nm	*Nautical Mile*
NUI	*Normally Unattended Installation*
OWF	*Offshore Wind Farm*
PFEER	*Offshore Installations (Prevention of Fire and Explosion, and Emergency Response) Regulations 1995*
POB	*Personnel on Board*
PSR	*Pipeline Safety Regulations 1996*
RADD	*Risk Assessment Data Directory*
REWS	*Radar Early Warning System*

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Abbreviation	Definition
SAR	*Search and Rescue*
SCR15	*Offshore Installations (Offshore Safety Directive)(Safety Case etc) Regulations 2015*
SECE	*Safety and Environmental Critical Element*
SEMS	*Safety and environmental management system*
TR	*Temporary Refuge*
VCRA	*Vessel Collision Risk Assessment*
VFR	*Visual Flight Rules*

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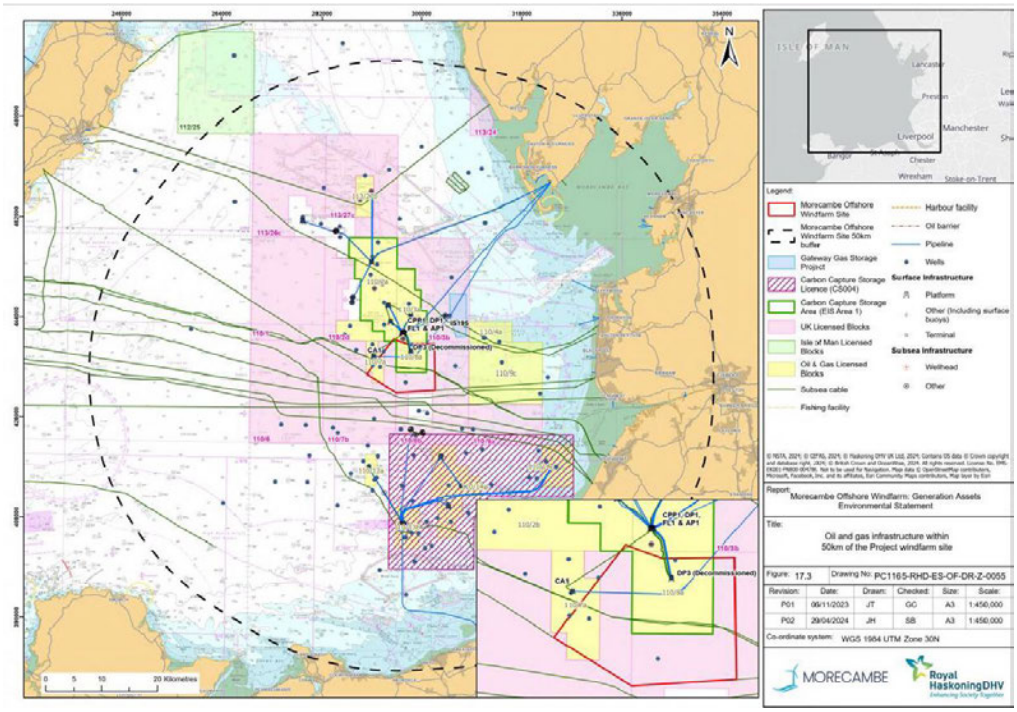
1.0 PURPOSE

Morecambe Offshore Windfarm Ltd (the Applicant) has raised a Development Consent Order application for a windfarm (the proposed development) to be located adjacent to the Spirit Energy (Spirit) MH offshore assets CPC, DP6, DP8, DPPA and Calder (the affected assets) with the location shown in Figure 1.

Figure 1 Location of Proposed Development in Relation to MH Offshore Assets



This document assesses the operational safety and regulatory compliance impacts on the affected assets against the MH offshore Safety Case [REF 1] and associated supporting studies (referenced throughout the assessment). It is supported by an independent study carried out by ORS Consulting [REF 2].

1.1 SIGNATURE MATRIX

Prepared by:	*Name*	*Signature*	*Date*
Technical Safety Technical Authority	[redacted]		8/4/2025
Reviewed by:			*Date*
Technical Safety Engineering Authority			8/4/2025
Approved by:			*Date*
Operations Manager (Dutyholder)			8/4/2025

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1.2 REFERENCES

REF 1. Morecambe Hub Offshore Safety Case, DOC-HSE-MHA-001

REF 2. Review of Impacts from Morecambe Offshore Windfarm to Spirit Energy, ORS Consulting, 120.202_TN1-A02

REF 3. Morecambe Hub Central Processing Complex Smoke and Gas Ingress TR Impairment Analysis, ESR/SRM4221000/001/Rev 1, 2020

REF 4. Meeting 31-Mar-2025, attended by [redacted], Spirit's Technical Safety Technical Authority, [redacted] HM Principal Inspector of Health and Safety and [redacted], HSE Topic Specialist for Evacuation, Escape and Rescue

REF 5. IOGP Risk Assessment Data Directory Report 434-19 Escape, Evacuation, and Rescue

REF 6. Good practice and pitfalls in risk assessment, Research Report 151, HSE 2003

REF 7. E-mail, [redacted] to [redacted] 31-Mar-2025, following meeting attended by [redacted], Spirit's Technical Safety Technical Authority and [redacted] MCL Medics Medical Director and medical advisor to SAR

REF 8. Vessel Collision Risk Assessment East Irish Sea Installations, Anatec, A4498-SPE-CR-1

REF 9. Technical Note on the Coexistence of Spirit Energy with Morecambe OWF – Shipping and Navigation, NASH Maritime, Examination Document 9.59.4

REF 10. IOGP Risk Assessment Data Directory Report 434-11 Aviation Transport Accident Statistics

REF 11. Morecambe Offshore Windfarm, AviateQ International

REF 12. Determining a safe-distance guideline for helicopters near a wind turbine and wind park, Netherland Aerospace Centre, NLR-TP-2019-083, February 2019

2.0 SUMMARY OF IMPACT ON OPERATIONS

The Applicant has proposed a 1.5 nautical mile (nm) buffer zone between the nearest helidecks on Calder and CPC and the windfarm boundary. The proposed 1.5nm buffer zone will restrict Spirit's CAT helicopters to operating under Visual Flight Rules (VFR) only and would be unable to operate on instruments i.e. Spirit would therefore be unable to access the affected assets by helicopter at night or in weather conditions that reduce visibility.

The proposed development will also displace marine traffic from their current shipping routes with the potential for some traffic to be diverted closer to the affected assets, and some further away.

The detail is in the following sections but overall, the assessment concluded:

1. Helicopters currently provide a viable and credible means of evacuation in the event of a major emergency involving most major accident scenarios associated with fire / explosion or ship collision
2. The proposed development will significantly compromise this evacuation capability for the affected assets, thereby significantly increasing the risks to personnel during an evacuation

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3. The proposed development will require a Material Change submission to the Safety Case based on an ALARP argument for reduced emergency evacuation capability that Spirit consider to be reverse-ALARP, do not support and would struggle to demonstrate or defend against regulatory scrutiny
4. CAT helicopters currently provide an established and demonstrably effective ambulance-type service to support evacuation in the event of a medical emergency
5. The proposed development will significantly compromise this evacuation capability for the affected assets, and will thereby have a significant impact on patient care for those requiring acute specialist onshore medical treatment
6. Given the uncertainties in the reported ship collision data [REF 9], Spirit is currently unable to accurately assess the impact on IRPA for the affected assets
7. A detailed Vessel Collision Risk Assessment is required to improve the level of understanding of the frequency of collisions by vessel type based on their potential impact energy as per the current VCRA
8. Pending completion of an updated VCRA and risk quantification that could demonstrate otherwise, it must be assumed that the proposed development may increase ship collision risks to personnel on the affected assets by increasing the likelihood of a ship collision, and by degrading Spirit's ability to detect and respond appropriately to threats within the affected area
9. The predicted increase in IRPA contribution from helicopter flights by the NUI interventions team will require a Material Change submission of the Safety Case to the competent authority
10. The wind turbine array will create a region of turbulence and velocity deficit downwind of the windfarm, resulting in chaotic changes in magnitude and direction of the wind speed components – pilot workload will increase significantly and aircraft handling around the affected assets will become much more challenging
11. The additional challenges for pilots will significantly increase the potential for a helicopter crash event, putting Spirit in the position of trying to build an ALARP demonstration in support of a material change submission for risks that cannot easily be quantified and for which there are no obvious mitigations
12. An increasing backlog of maintenance is predicted which will expose personnel on affected assets to increased safety risk
13. Without significant changes to the way maintenance is delivered Spirit would be unable to demonstrate compliance with SCR15 Reg.9 and PFEER Reg.19, exposing them to the risk of regulatory enforcement action for failure to keep SECEs in good repair and condition
14. If suitable mitigations could be found these are likely to be sufficiently significant as to require a material change to the Safety Case
15. The proposed development would materially impact the information in the current Safety Case and require a material change submission in accordance with SCR15 Reg.24
16. Flight restrictions imposed by the proposed development would significantly compromise Spirit's ability to manage major accident risks in accordance with the SEMS, CMAPP and Safety Case, and in compliance with MAR, SCR15, PFEER and PSR
17. There is currently no clear path to build a credible ALARP demonstration in support of a material change submission of the Safety Case to address the identified impacts

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3.0 IMPACT ON MAJOR ACCIDENT RISK

3.1 EMERGENCY EVACUATION – MAJOR EMERGENCY

3.1.1 Current Safety Case

PFEER Reg.5 requires Spirit to assess the fire and explosion, and other major accident events which may require evacuation, and to identify appropriate arrangements for dealing with them. The Morecambe Hub Safety Case [REF 1] summarises the PFEER Reg.5 assessment for the affected assets and contains details of how Spirit ensures compliance with the PFEER regulations for means of evacuation, and how these means of evacuation are protected from the effects of the major accident event through the measures specified under PFEER Reg.13 Mitigation of fire and explosion, and PFEER Reg.14 Muster areas etc.

CPC is currently exposed to fire and explosion major accident hazards that could cause significant harm from an initial event, and with the potential to escalate to much larger events with more widescale impacts and higher potential for catastrophic effects. The design of CPC includes some important features that enable personnel to escape from the immediate effects of a fire / explosion event and protect the means of evacuation.

CPC has been designed across three separate bridge-linked jackets:

- AP1 containing the Temporary Refuge (TR) where personnel muster in the event of an emergency, and the primary helideck
- CPP containing the main hydrocarbon processing plant and import / export pipeline connections
- DP1 containing hydrocarbon production wells and alternative muster and evacuation facilities, including a secondary helideck

This platform design serves to protect the TR and helideck from the effects of fire / explosion by placing them some distance from the process plant, making them much less likely to become impaired. The TR has been designed with a minimum endurance of 1hr against identified loss of containment events and has been demonstrated to have a TR Impairment Frequency of less than 5.1E-06 per year [REF 3]. i.e. the PFEER Reg.5 assessment for CPC has confirmed that there is a very low likelihood for an event to impair the helideck.

The orientation of the platform ensures that prevailing wind direction is from AP1 to DP1. This significantly reduces the likelihood that the TR or AP1 helideck will be impaired by a fire event on CPP. However unlikely, it is possible for this helideck to be impaired and unable to support helicopter evacuation e.g., in the event of an unfavourable wind direction, but the likelihood of this is low and, in this scenario, a controlled helicopter evacuation may still be possible from the secondary helideck on DP1.

The PFEER Reg.5 assessment has comprehensively demonstrated that there are very few initial events that could very quickly impair the TR and means of evacuation from AP1. It may therefore be concluded that the platform design is effective in protecting the TR and helideck from impairment long enough to secure the crew time to complete a controlled evacuation.

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Helideck operations are supported by a Helideck Landing Officer (HLO) and managed in accordance with established procedures to secure the safety of crew and passengers. The helideck is also equipped with wave-off lights to warn approaching helicopters of the presence of gas.

The Safety Case for the affected assets has been accepted on the basis that the preferred means of evacuation is by helicopter, with lifeboats providing an alternative means of evacuation in case the preferred means are unavailable due to the nature of the event or weather conditions (in compliance with PFEER Reg.15).

Spirit has at its disposal up to 3 Commercial Air Transport (CAT) helicopters at Blackpool that can be mobilised in response to a major event as per the current emergency response plan. Spirit's commercial aviation provider NHV has confirmed that they would attend to support evacuation of personnel for as long as a fire event was contained to CPP and there was no impairment of the helideck.

Emergency response plans are in place and based on a precautionary approach that is also a key feature of industry training on the Management of Major Emergencies (MOME) – an on-scene commander would not wait *'until the last moment'* to initiate evacuation procedures. The on-scene commander will base their decision to evacuate and the timing of this evacuation, on their understanding of the event, its escalation potential and their MOME training.

For ship collision impact threats, to ensure a good prospect of controlled evacuation from the affected assets a common industry approach has been adopted whereby a detailed emergency response plan is in place documenting alert and action levels of emergency response activity in the event of a ship collision threat being detected. Early recognition of the threat through the systems in place and appropriate timely emergency response action are key features of successful controlled evacuation by helicopter.

It is worth noting that empirical evidence from many examples across industry support the conclusion that helicopter evacuation provides an effective emergency response to fire and explosion events on manned assets, particularly from assets designed in a similar manner to CPC where process hazards are remote from the TR and helideck. This evidence also supports the same conclusion for detected ship collision threats, including for NUIs.

Overall, this assessment concludes that helicopters currently provide a viable and credible means of evacuation in the event of a major emergency involving most major accident scenarios associated with fire / explosion or ship collision.

3.1.2 Impact of the Proposed Development

Spirit currently enjoys access to multiple means of evacuation. Flight restrictions because of the proposed development will seriously limit access to helicopters as the preferred means of evacuation, significantly increasing reliance on Coastguard Search and Rescue (SAR) helicopters and the alternative means of evacuation on board by lifeboat. This will limit the options available to the on-scene commander in a major emergency, seriously curtailing their ability to complete the most timely and safest evacuation. This has been discussed with the HSE [REF 4] who have confirmed Spirit's position that this would constitute a material impact on the Safety Case, requiring a Material Change submission under SCR15 Reg.24 (see Section 5.4.8).

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The nearest SAR service is based in Wales and mobilisation to CPC would take approximately 1.25 hr, but in any case, may not be immediately available if they have already been called out to an unrelated critical tasking. A comparative analysis of helicopter evacuation times has been carried out (see Appendix 1) and has demonstrated that helicopter evacuation utilising CAT helicopters from Blackpool could be carried out in just over 2 hrs for the normal operating POB, compared to almost 4 hr by SAR.

It is recognised that at any point during an evacuation the on-scene commander may decide to initiate lifeboat evacuation for any remaining personnel due to the manner in which the event is escalating. For the avoidance of doubt, Spirit considers that every group successfully evacuated by helicopter is a group of people exposed to much less risk during the evacuation; the fact that some events have the potential to escalate before the full POB can be evacuated by helicopter would not be considered a reasonable justification for significantly restricting Spirit's access to CAT for emergency evacuation in conditions where it would otherwise provide an effective service.

The limited capacity and mobilisation time for SAR will increase the reliance on lifeboats as a means of evacuation, particularly given the fact that SAR cannot be relied upon to be available when needed.

Lifeboats provide a more immediately available and reliable option but evacuation by lifeboat exposes personnel to significantly higher risks of fatality during the evacuation than evacuation by helicopter from an unimpaired helideck. Loading individuals onto a lifeboat, lowering the craft into the sea, manoeuvring the craft away from the platform and then recovering everyone to a place of safety is a significant undertaking which has associated risks of its own. It is not a common event, but when it has happened, there have been instances of injuries and fatalities to personnel [REF 5]. The complexity of a lifeboat evacuation and its inherent risks is the reason why most emergency evacuations are completed by helicopter.

The increased reliance on lifeboats will in turn increase the potential for the on-scene commander having to resort to means of escape to sea by life rafts in the event of a lifeboat failure to launch, further increasing risks to personnel. The risks associated with escape to sea by life raft are particularly sensitive to sea state and are critically reliant on the success of rescue by the Emergency Response and Rescue Vessel (ERRV) which can be very challenging depending on the sea state and lighting levels.

For the avoidance of doubt, any decrease in Spirit's ability to evacuate by helicopter in the event of a major emergency increases the risk to personnel during the evacuation. The Material Change to the Safety Case must be supported by an ALARP demonstration. However, with reduced emergency evacuation capability increasing risks to personnel, based on guidance provided by the HSE [REF 6] this would require a reverse-ALARP argument that Spirit does not support and would struggle to demonstrate or defend against regulatory scrutiny.

It is a fact that the proposed development will reduce Spirit's access to their preferred means of evacuation, increasing reliance on higher-risk lifeboat evacuation.

3.1.3 Overall Conclusions

1. **Helicopters currently provide a viable and credible means of evacuation in the event of a major emergency involving most major accident scenarios associated with fire / explosion or ship collision**

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2. **The proposed development will significantly compromise this evacuation capability for the affected assets, thereby significantly increasing the risks to personnel during an evacuation**
3. **The proposed development will require a Material Change submission to the Safety Case based on an ALARP argument for reduced emergency evacuation capability that Spirit consider to be reverse-ALARP, do not support and would struggle to demonstrate or defend against regulatory scrutiny**

3.2 EMERGENCY EVACUATION – MEDICAL EMERGENCY

3.2.1 Current Operations

Across industry CAT helicopters are the normal and most frequently used means of transporting patients ashore for acute medical treatment. Spirit have established detailed emergency response plans for medical emergencies, and these have been developed in consultation with MCL Medics and the CAT provider NHV. Spirit cannot plan its emergency response on a service outside of its control (i.e. SAR) that may have other critical taskings.

Spirit has provided medical facilities and trained medics on board CPC in compliance with industry standards to provide immediate first aid and patient stabilisation. There are no equivalent facilities on the NUI installations, although NUI interventions crew require to include someone with training in advanced first aid. For the avoidance of doubt, offshore facilities do not provide hospital-standard treatment and care facilities.

There are established protocols in place for assessing a patient's fitness to travel by CAT helicopter, and these are straightforward and well-practiced. For most medical evacuations no special *'kitting out'* or equipment is required, and the established protocols include suspension of normal helicopter transportation rules (with clear mitigations in place) for patients unable to wear a survival suit / lifejacket, or unable to self-egress in the event of helicopter ditching.

Examples known to have been successfully transported ashore by CAT helicopter include:

- Medical conditions e.g. heart condition, COVID, high blood pressure
- Injuries e.g., eye injury, head injury (incl. suspected concussion), burns, pulled muscles, dislocations, broken bones, lacerations

The Coastguard Search and Rescue (SAR) service can be called upon to support a medical evacuation. However, it should be noted that the nearest SAR is based in Wales and flight time to CPC would be at least 1 hour compared with 12 minutes for CAT flying from Blackpool, but in any case, may not be immediately available if they have already been called out to an unrelated critical tasking.

It is recognised that SAR helicopters do have some advantages over CAT i.e. they can fly in weather conditions outside of CAT limits, have stretcher access and trained paramedics on board. However, only a fraction of medical emergencies requiring medical evacuation require paramedic supervision or the patient to be on a stretcher. The fact that SAR helicopters have a greater operational range, can transport patients on a stretcher or accompanied by a paramedic should not be considered reasonable justification for significantly restricting Spirit's access to CAT for medical evacuation in conditions where it would otherwise provide an effective service.

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Spirit's position outlined above has been endorsed by the MCL Medics Medical Director who also acts as the medical advisor to SAR [REF 7].

In summary, CAT helicopters currently provide an established and demonstrably effective ambulance-type support to Spirit for medical evacuation.

3.2.2 Impact of the Proposed Development

Flight restrictions imposed by the proposed development would significantly impact patient safety by increasing reliance on limited SAR resources based some distance from the affected assets. In many cases time is critical to improve the prognosis for the patient and any delay awaiting the arrival of limited SAR resources that may be engaged on another critical tasking could significantly increase risks to the patient.

This would be felt much more acutely on the NUIs with access to first aid only.

Spirit's position outlined above has been endorsed by the MCL Medics Medical Director who also acts as the medical advisor to SAR [REF 7].

3.2.3 Overall Conclusions

4. **CAT helicopters currently provide an established and demonstrably effective ambulance-type service to support evacuation in the event of a medical emergency**
5. **The proposed development will significantly compromise this evacuation capability for the affected assets, and will thereby have a significant impact on patient care for those requiring acute specialist onshore medical treatment**

3.3 SHIP COLLISION

3.3.1 Current Safety Case

The affected assets are currently exposed to ship collision hazards that could cause significant structural damage with major accident potential. The Safety Case has been accepted based on:

- currently documented shipping hazards and corresponding likelihood of impacting affected assets
- predicted risk to personnel from these hazards
- SECEs and management systems in place to effectively manage these hazards and reduce risks to ALARP

Individual risk because of ship collision impacts to the affected assets has been calculated and presented within the Safety Case. The risk presentation includes contributions from the following ship collision event scenarios:

- Passing Vessels – Powered
- Passing Vessels – Drifting
- Fishing Vessels

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- Infield Vessels e.g., supply vessels, ERRV

The calculation of risks associated with these ship impacts has the following primary components:

- The frequency and severity (impact energy) of collisions

  Data was sourced from an independent Vessel Collision Risk Assessment (VCRA) [REF 8] which provided data by vessel type divided into appropriate impact energy bands based on the range of results for each collision scenario

  The VCRA data is based on real shipping movements analysed by models cited as industry-leading best-practice by the IOGP Risk Assessment Data Directory Report IOGP 434-16 Ship / Installation Collisions

- The structural response of the impacted platform following collision i.e. damage potential where:

  Minor damage is assumed to result in no significant impact on the platform

  Major damage is assumed to result in the structural integrity of the platform being significantly compromised

- The direct and indirect fatalities which could result from the collision

The contribution to individual risk from ship collision events is calculated using the ship collision impact frequency and fatality fraction for the given impact energy of each collision. The current average contribution to IRPA from ship collision is 2.11E-05 and contributes on average 32% of overall IRPA.

3.3.2 Impact of the Proposed Development

The proposed development will displace shipping traffic from their current routes with some of these moving into closer proximity to the affected assets and others potentially further away. It will also introduce an additional volume of shipping traffic required to service the needs of the proposed development.

An increase in shipping traffic in the proximity of the affected assets would increase the likelihood of a ship collision event. Since risks to personnel from any given ship collision event are dependent on the impact energy, even where collision frequencies are largely unchanged or even showing a decrease, the risks to personnel could still be significantly impacted if the type (size and speed) of traffic significantly differs from the previous assessment i.e. faster, heavier vessels have greater impact energy and damage potential.

The Applicant has carried out an assessment of changes to shipping traffic because of the proposed development [REF 9] and has modelled collision frequency with the results presented in Table 1.

Table 1 Ship Collision Frequency Predicted by Applicant

Scenario	Base Case	Future Case	Difference
CPC	7.06E-05	7.04E-05	2.06E-07*(sic)* Lower

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Scenario	Base Case	Future Case	Difference
DP6	1.85E-05	1.86E-05	4.99E-08*(sic)* Higher
DP8	2.35E-05	5.70E-05	3.35E-05 Higher
DPPA	1.26E-04	6.61E-05	5.95E-05*(sic)* Lower
Calder	5.38E-05	1.86E-05	3.52E-05 Lower

This assessment provides insufficient insight into ship collision threats to enable Spirit to understand the impact of the proposed development on ship collision risks to personnel on the affected assets since the categorisation of vessels has been based on a coarse qualitative classification compared to the current Spirit VCRA which classifies vessels in bands according to their quantified potential impact energy.

Vessel collision frequencies are reported but without any insight into the impact energy that could be generated, it is not possible to determine the fraction of these collisions that could result in harmful consequences to personnel on the affected assets, and hence Spirit are unable to quantify the impact on IRPA. Although the increase in vessel collision risk reported in this study may seem very small, it should be noted that this has the potential to translate into a significant increase in IRPA.

Another significant area of uncertainty is the difference between the collision frequency for CPC in the current Spirit VCRA 4.1E-08 [REF 8] and the Applicant's reported collision frequency for CPC 7.04E-05 [REF 9] which is several orders of magnitude higher. This has the potential to result in a very significant increase in IRPA depending on what vessels make up this increase and their impact energy. There is no explanation offered for this and leaves Spirit unclear on whether this is a calculation / reporting error or indicates a real increase in collision frequency with a corresponding increase in collision risk to personnel.

Any change in collision frequency can therefore translate into a significant increase in individual risk to an already highly exposed workforce. The ship collision avoidance SECEs and management systems put in place by Spirit would be unable to entirely mitigate this impact – the proposed development would therefore increase the overall risks to personnel on the affected assets.

The affected assets are served by a REWS supported by management systems arrangements to monitor nearby shipping traffic, detect a potential ship collision threat and deploy effective emergency response, including evacuation by helicopter. There are many examples across industry where helicopter evacuation has proved an effective emergency response to detected ship collision threats. The proposed development will degrade the current Ship Collision avoidance and response capability of the Morecambe Hub and will increase the likelihood that an errant vessel on a collision course with one of the affected assets will not be identified in sufficient time to take effective evasive action or make a controlled evacuation by helicopter. Any undue delay in the detection of an approaching threat increases risks to personnel – this degradation of Spirit's emergency response capability would therefore increase risks to personnel in a ship collision event.

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PFEER Reg.10 requires Spirit to take appropriate measures to detect emergencies for the full range of reasonably foreseeable events which require emergency response, and that these systems should provide sufficient levels of availability and reliability to meet the demands placed on them. The degradation of Spirit's emergency response capability that would be caused by the proposed development would therefore challenge the ability to comply with PFEER Reg.10.

3.3.3 Overall Conclusions

6. **Given the uncertainties in the reported ship collision data [REF 9], Spirit is currently unable to accurately assess the impact on IRPA for the affected assets**
7. **A detailed Vessel Collision Risk Assessment is required to improve the level of understanding of the frequency of collisions by vessel type based on their potential impact energy as per the current VCRA**
8. **Pending completion of an updated VCRA and risk quantification that could demonstrate otherwise, it must be assumed that the proposed development may increase ship collision risks to personnel on the affected assets by increasing the likelihood of a ship collision, and by degrading Spirit's ability to detect and respond appropriately to threats within the affected area**

3.4 HELICOPTER TRANSPORTATION

3.4.1 Current Safety Case

All personnel who work on the affected assets are subject to transport risks associated with travel to and from the field. The NUI interventions crew based on CPC are subject to additional transportation risk associated with shuttling between CPC and the NUIs. Risk quantification has been based on industry standard norms set out in the OGP Risk Assessment Data Directory [REF 10].

The current IRPA contribution to the NUI interventions team from transportation is 4.07E-05 and their overall IRPA is 1.34E-04.

3.4.2 Impact of the Proposed Development

Additional Flights by NUI Intervention Team

Flight restrictions that restrict CAT helicopters from flying at night or in reduced visibility will require a later departure of the NUI team from CPC in the morning and earlier return in the afternoon to ensure that the CAT helicopter approach to CPC in the morning, and departure at the end of the day can be completed in daylight. Flight restrictions will therefore compress the productive working day on the NUIs, requiring the NUI intervention team to increase the overall number of visits and hence flights required to execute the required maintenance – Spirit's analysis is based on the actual (fully optimised) forward maintenance plan and has concluded that an additional 22 interventions would be required for each intervention team member. Each intervention contributes an average 9.2E-07 (based on industry norms). The current IRPA contribution for the NUI interventions team is therefore predicted to rise to 6.1E-05 (49% increase), which represents a 15% increase in overall IRPA.

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The HSE has confirmed [REF 4] that they would consider an increase of this magnitude to materially impact the Safety Case.

Spirit has been very clear that it is concerned with the overall impact of additional flight requirements on the current NUI interventions team and not individual delayed flights. With this increase in flights required by each member of the NUI interventions team comes a significant increase in the IRPA contribution from in-field shuttling.

Conduct of Safe Helicopter Operations

Independent aviation advice [REF 11] has identified that a minimum buffer zone of 3.76nm is required to maintain safe helicopter operations.

The presence of a wind turbine array at sea disrupts the air downwind of the array creating a wake. This wake creates a velocity deficit, with lower wind conditions, and turbulence which is chaotic in nature with horizontal and vertical in wind speed and direction. This has been studied by several authors, including [REF 12].

Documentation provided in CAP437 acknowledges that disruption to air continues for some distance downwind of turbines. The CAA has received informal reports that wind turbine effects cause turbulence but the extent of this is not clear and acknowledges that the topic requires further study as a hazard remains.

Work completed in the Netherlands [REF 12] shows that a 6 knot wind deficit is still present at six (6) Rotor Diameters downwind (circa. 0.9nm) and that turbulence intensity may breach CAP 437 limit on the standard deviation of the vertical airflow velocity (1.75 ms-1) at the helideck at higher wind speeds of 20 ms-1. With a separation distance of only 1.5nm between the nearest turbine and helideck on the affected assets, there would therefore be very little time for a pilot to recover control of the aircraft following a fault condition before entering these very demanding conditions. The practical impact is the increased stress this will create on pilots as the aircraft becomes harder to handle with randomly fluctuating power requirements.

The Netherlands study [REF 12] notes that *'it is expected that the chaotic changes in magnitude and direction of wind speed components in the flow, has significant effects on the helicopter handling and workload of the pilot'* and also that *'the reduction in wind speed will increase the required power of the helicopter, especially in the low speed flight envelope of the helicopter (i.e. landing and take-off). This increased power requirement will have to be met by the engine and gearbox performance characteristics and will also affect pilot workload'*.

With a separation distance of only 1.5nm between the nearest turbine and helideck on the affected assets, it is inevitable that pilots could experience extremely challenging flying conditions. The effect on pilot workload as a result of using the airspace between the platform and the windfarm is estimated in [REF 12] as significant leading to an increase in human error and a higher risk to all on-board.

Risk quantification reflected in the current Safety Case is based on industry standard *'norms'* as described in Section 3.4.1. The assessment above strongly suggests that the proximity of the proposed development effectively invalidates the OGP data [REF 10] for helicopter operations for the affected assets i.e. helicopter transportation risk from a helicopter crash event has the potential to be much higher than application of current OGP data would suggest.

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3.4.3 Overall Conclusions

9. **The predicted increase in IRPA contribution from helicopter flights by the NUI interventions team will require a Material Change submission of the Safety Case to the competent authority**
10. **The wind turbine array will create a region of turbulence and velocity deficit downwind of the windfarm, resulting in chaotic changes in magnitude and direction of the wind speed components – pilot workload will increase significantly and aircraft handling around the affected assets will become much more challenging**
11. **The additional challenges for pilots will significantly increase the potential for a helicopter crash event, putting Spirit in the position of trying to build an ALARP demonstration in support of a material change submission for risks that cannot easily be quantified and for which there are no obvious mitigations**

3.5 SECE SUITABILITY

3.5.1 Current Safety Case

Spirit has a duty under SCR15 Reg.9 and Reg.10, and PFEER Reg.19 to ensure that SECEs remain in good repair and condition (see Sections 5.4.3 and 5.5.3). The arrangements in place to demonstrate compliance with SCR15 and PFEER are described in the Safety Case and centre around:

- Performance Standards to define functionality, availability, reliability and survivability requirements for SECEs, and the assurance activities (maintenance) required to demonstrate that they will work when they are needed
- Verification Scheme to define the activities required by an independent verifier to confirm that assurance activities are being carried out and SECEs remain in good condition and repair

Spirit has implemented many management system arrangements for the management of major accident hazards, and reduction of associated risk to ALARP. These arrangements are detailed within the Safety Case for the affected assets and include SECE maintenance, inspection, and testing. SECEs require regular maintenance and inspection to ensure that they will function on demand when needed and to detect any hidden/unrevealed failures. The maintenance plan covers a range of activities:

- Maintenance involving activities designed to repair or preserve condition / function
- Inspection to confirm acceptable condition and monitor any deterioration in condition
- Testing to confirm acceptable functioning and monitor any deterioration in performance

A NUI interventions team is based on CPC and they fly to the NUIs to carry out the maintenance plan that includes the SECE assurance activities. The maintenance plan is fully optimised and deliverable by the NUI interventions team, with enough spare capacity to cope with break-ins to the plan or logistical delays.

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3.5.2 Impact of the Proposed Development

Flight restrictions imposed by the proposed development significantly reduce the available operational windows to access NUIs; this seriously compromises Spirit's ability to maintain SECEs in accordance with their Performance Standards and hence compliance with PFEER Reg.19 and SCR15 Reg.9 and Reg.10, and will lead to increased risks to personnel and increased risk of regulatory enforcement action for the organisation as described below.

There are very few SECEs with built in redundancy and most SECEs do not fail safe – failure can happen at any time i.e., when people are present performing routine maintenance activities. Inspection and testing have a critical role in the management of major accident risk. Without appropriate inspection and testing at the correct intervals, Spirit would be unable to effectively monitor and address any deterioration in SECE condition or performance that could compromise its ability to function when needed. This would increase the likelihood of failure of systems designed to prevent a major accident from occurring (PFEER Reg. 9), and systems designed to mitigate the impacts (PFEER Reg. 10, 12, 13) or provide emergency response / lifesaving facilities (PFEER Reg. 11, 14, 15, 16, 18).

SECE degradation can therefore have a very real impact on risk and in the absence of regular inspection and testing, Spirit would be unable to prevent these from adding to the cumulative risk on the asset. An analysis carried out by Spirit has predicted a significant backlog of maintenance that will grow each year throughout the remaining field life since the necessity to operate in daylight hours only (with good visibility) means that there are fewer hours available on any given day to complete the installation maintenance. A reduction in working hours means that there will be a reduction in maintenance able to be completed on each visit. Additional flights will be required to execute the backlog and deal with operational interruptions.

Flight restrictions that compromise the ability to execute SECE maintenance therefore have the potential to expose personnel on the affected assets to increased safety risk. Multiple interrelated impairments or unknown SECE condition can present a very unpredictable and complex risk to assess and manage, with the potential to introduce an ever-widening cumulative risk gap that could ultimately become intolerable and necessitate a much more extensive intervention to rectify.

Flight restrictions also create concerns with the ability to schedule specialist vendors to complete specialised tasks as these vendors require to be scheduled some time in advance of work. This issue will introduce an imposed difficulty for Spirit to maintain plant in an efficient state, in efficient working order and in good repair as mandated by SCR15 Reg.9 and PFEER Reg.19.

The regulatory compliance aspect of these challenges is described in detail within Section 5 but is likely to expose Spirit to regulatory enforcement action under these regulations.

Verification also plays a critical role within the SEMS audit and assurance framework to increase confidence in SECE availability and reliability, and ongoing suitability; many verification activities require the verifier to be physically present on the asset; the flight restrictions will therefore also compromise Spirit's ability to support execution of the verification scheme by the independent verifier. Spirit would be unable to demonstrate compliance with SCR15 Reg.9 and Reg.10.

It is worthy of note that the impact of the flight restrictions would not be a short-term effect but would endure throughout the remaining operational life of the affected assets, accumulating with each year that passes.

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3.5.3 Overall Conclusions

12. **An increasing backlog of maintenance is predicted which will expose personnel on affected assets to increased safety risk**
13. **Without significant changes to the way maintenance is delivered Spirit would be unable to demonstrate compliance with PFEER Reg.19, exposing them to the risk of regulatory enforcement action for failure to keep SECEs in good repair and condition**
14. **If suitable mitigations could be found these are likely to be sufficiently significant as to require a material change to the Safety Case**

4.0 REGULATORY COMPLIANCE IMPACT

4.1 INTRODUCTION

This review assessed the impact of the proposed development on compliance with the following legal requirements:

- The Health and Safety at Work Act 1974 (1974 Act)

  (incl. Management of Health and Safety at Work Regulations 1999 (MHSWR))
- Offshore Installations and Pipeline Works (Management and Administration) Regulations 1995 (MAR), L70 Guidance on Regulations
- The Offshore Installations (Offshore Safety Directive)(Safety Case etc) Regulations 2015 (SCR15), L154 Guidance on Regulations
- Offshore Installations (Prevention of Fire and Explosion, and Emergency Response) Regulations 1995 (PFEER), L65 Approved Code of Practice and guidance
- Pipeline Safety Regulations 1996 (PSR), L82 A guide to the Pipelines Safety Regulations 1996

The detail is in the following sections but overall, the assessment concluded:

15. **The proposed development would materially impact the information in the current Safety Case and require a material change submission in accordance with SCR15 Reg.24**
16. **Flight restrictions imposed by the proposed development would significantly compromise Spirit's ability to manage major accident risks in accordance with the SEMS, CMAPP and Safety Case, and in compliance with MAR, SCR15, PFEER and PSR**
17. **There is currently no clear path to build a credible ALARP demonstration in support of a material change submission of the Safety Case to address the identified impacts**

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4.2 THE HEALTH AND SAFETY AT WORK ACT 1974

a. Legal Requirement

The 1974 Act places general duties on employers that apply to both Spirit and to MOWL. It requires Spirit to ensure the safety of its employees *'so far as is reasonably practicable'*. It also requires *'every employer to conduct his undertaking in such a way as to ensure, so far as is reasonably practicable, that persons not in his employment who may be affected thereby are not thereby exposed to risks to their health or safety'*.

It is noted that the Management of Health and Safety at Work Regulations 1999 reinforce these general duties.

b. Analysis of Impact

The 1974 Act requires Spirit to ensure *'so far as is reasonably practicable'* that activities to be carried out, workplaces and means of access to and egress from them are safe and without risk to the safety of personnel. As summarised throughout Section 4, the impacts of the proposed development on operations associated with the Affected Assets introduce increased risks to Spirit personnel and would significantly compromise their ability to operate in compliance with the 1974 Act, for example:

- risks to personnel during an evacuation in the event of a major emergency (Section 3.1)
- risks to personnel during an evacuation in the event of a medical emergency (Section 3.2)
- helicopter transportation risks due to increased flights (Section 3.4)
- helicopter transportation risks due to impact of air turbulence on the potential for pilot error (Section 3.4)
- ship collision risks from displaced shipping traffic (Section 3.3)
- risks to personnel from failure to maintain SECEs in *'good repair and condition'* (Section 3.5)

The 1974 Act requires MOWL to ensure *'so far as is reasonably practicable'* that they do not expose Spirit Energy personnel to risks to their safety. The Applicant has not yet demonstrated that that they have taken all reasonably practicable measures to protect Spirit Energy personnel from risks to which they will be exposed because of the proximity of the proposed development to the Affected Assets.

4.3 OFFSHORE INSTALLATIONS AND PIPELINE WORKS (MANAGEMENT AND ADMINISTRATION) REGULATIONS 1995 (MAR)

4.3.1 Reg.13 Helicopters

a. Legal Requirement

MAR Reg.13 Requires Spirit to establish helicopter operations procedures that will ensure, *so far as is reasonably practicable*, helideck operations (including landing and take-off) are without risks to health and safety.

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b. Analysis of Impact

As explained in the Relevant Representation (Para. 5.7 and 5.8) and the Written Representation (Section 2), the physical separation of 1.5nm between the proposed development and the affected assets is inadequate for the safe conduct of helicopter operations at Calder and CPC.

An independent review carried out by ORS Consulting [REF 2] also identified hazards relating to turbulent wind effects down-wind of turbines that will increase the potential for pilot error thereby increasing the likelihood of a helicopter crash event.

There are no operational mitigations that Spirit Energy can take to manage the major accident risk from a helicopter crash event caused by the proximity of the turbine array. Without physical mitigation by MOWL i.e. increasing the distance between the turbines and the affected assets, Spirit will be unable to demonstrate compliance with MAR Reg.13.

4.4 OFFSHORE INSTALLATIONS (OFFSHORE SAFETY DIRECTIVE)(SAFETY CASE ETC) REGULATIONS 2015 (SCR15)

4.4.1 Reg.7 Corporate major accident prevention policy (CMAPP)

a. Legal Requirement

This regulation requires Spirit to establish and implement a CMAPP throughout their offshore oil and gas operations.

b. Analysis of Impact

The Spirit CMAPP provides a high-level overview of the arrangements in place for ensuring all hazards with the potential to cause a major accident have been identified, major accident risks have been assessed and suitable control measures put in place.

As described in Section 4.4.5 (SCR15 Reg.16), flight restrictions imposed by the proposed development significantly compromises Spirit's ability to manage major accident risks in accordance with our current CMAPP and Safety Case. With these restrictions in place Spirit would be unable to demonstrate compliance with SCR15 Reg.7.

4.4.2 Reg.8 Safety and environmental management system (SEMS)

a. Legal Requirement

This regulation requires Spirit to document and implement a SEMS to implement the CMAPP and effectively control major hazards.

b. Analysis of Impact

The arrangements within the SEMS are designed to manage and control risks associated with major accident hazards, including those specified under PFEER and other regulations.

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As described in Section 4.4.5 (SCR15 Reg.16), flight restrictions imposed by the proposed development significantly compromises Spirit's ability to manage major accident risks in accordance with the SEMS, CMAPP and Safety Case.

4.4.3 Reg.9 Establishment of verification scheme, and SCR15 Reg.10 Other provisions as to verification schemes

a. Legal Requirement

This regulation requires Spirit to:

- ensure that safety and environmental critical elements (SECE) *'remain in good repair and condition'*
- establish, put into effect and maintain a verification scheme for execution by an independent verifier

b. Analysis of Impact

Flight restrictions imposed by the proposed development seriously compromises Spirit's ability to maintain SECEs in accordance with their Performance Standards. An increasing backlog of maintenance is predicted which will expose personnel on affected assets to increased safety risk, and Spirit to risk of regulatory enforcement action for failure to keep SECEs in good repair and condition.

Verification plays a critical role within the SEMS audit and assurance framework to increase confidence in SECE availability and reliability, and ongoing suitability; many verification activities require the verifier to be physically present on the asset; the flight restrictions will therefore also compromise Spirit's ability to support execution of the verification scheme by the independent verifier.

Spirit would be unable to demonstrate compliance with SCR15 Reg.9 and Reg.10.

4.4.4 SCR15 Reg.11 Establishment of well examination scheme

a. Legal Requirement

This regulation requires Spirit to establish a well examination scheme for ensuring that wells are maintained in good repair and condition to prevent unplanned escape of fluids from the well and reduce risks to ALARP.

b. Analysis of Impact

Flight restrictions imposed by the proposed development seriously compromises Spirit's ability to maintain SECEs in accordance with their Performance Standards. An increasing backlog of maintenance is predicted which will expose personnel on affected assets to increased safety risk, and Spirit to risk of regulatory enforcement action for failure to keep SECEs in good repair and condition.

Spirit would be unable to demonstrate compliance with SCR15 Reg.11.

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4.4.5 Reg. 16 Management and control of major accident hazards

a. Legal Requirement

This regulation requires Spirit to demonstrate that all major accident risks have been evaluated, their likelihood and consequences assessed, and that suitable measures (including SECEs) will control those risks to ensure that the relevant statutory provisions will be complied with.

b. Analysis of Impact

Spirit has identified the following areas where the proposed development will impact the safety of its operations:

- the proximity of the proposed development compromises the safe conduct of helicopter operations at Calder and CPC, thereby increasing the likelihood of a helicopter crash
- flight restrictions to visual rules only will require a significantly higher number of helicopter flights to execute the maintenance plan, thereby significantly increasing the IRPA contribution from helicopter transportation
- a growing maintenance backlog will increase the potential for SECE failure, thereby increasing risks to personnel on the asset by increasing the likelihood of a major accident or the severity of consequences from the event
- displacement of commercial shipping traffic closer to CPC and Calder will increase the ship collision risk, potentially by a significant margin
- the proposed development has the potential to defeat the ability of REWS to detect and track targets within the affected area, thereby increasing the likelihood of ship collision
- reduced access to the preferred means of evacuation will increase fatality risk to personnel during emergency evacuation by increasing reliance on the alternative means of evacuation by lifeboat, or on limited SAR resources

As described in Section 4.4.8 (SCR15 Reg.24) with the impacts identified, Spirit would be unable to operate in compliance with the current safety case and supporting PFEER Reg.5 assessments. The proposed development would effectively invalidate many of the arrangements described in the current safety case for the management of major accident risk and will negatively impact risk.

The proposed development will impact major accident risk in multiple ways, by increasing the likelihood of some events, and challenging the effectiveness of many SECE design to limit the event consequences. In some cases, there are no clear mitigations to support a credible case for safety e.g., safety of helicopter operations, ship collision risk. For other risks it may be possible to identify potential mitigations, but these would require significant additional assessment to demonstrate their effectiveness and could require material changes to the way in which some operations are managed. The level of uncertainty is therefore currently high that these impacts can be effectively managed in accordance with SCR15 Reg.16.

With the regulatory compliance issues identified throughout Section 4 and challenges to risk mitigation as described above, there is currently no clear path to build a credible ALARP demonstration in support of a material change submission of the Safety Case to address these impacts i.e. Spirit cannot currently demonstrate that all major accident risks will be adequately controlled.

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4.4.6 Reg.17 Safety case for production installation

a. Legal Requirement

The regulation requires Spirit to prepare a Safety Case and ensure that assets are not operated until the Safety Case has been accepted by the Competent Authority.

b. Analysis of Impact

The Safety Case describes the systems in place for managing health, safety and environmental risks, and for managing and controlling major accident hazards. The Safety Case must be updated (kept live) throughout the life of the installation.

As required by Reg.17, the Safety Case also explicitly confirms that the scheme of maintenance supports the ongoing suitability of SECEs. This statement will continue to be accurate only as long as the Verification Scheme (defined in the Performance Standards) is implemented, and any subsequent verifier findings are appropriately dealt with. As discussed in Section 4.4.3, flight restrictions imposed by the proposed development seriously compromises Spirit's ability to keep SECEs in good repair and condition.

As described above and in Section 4.4.3 (Reg.9 & Reg.10), Section 5.4.4 (Reg.11), Section 4.4.5 (Reg.16) and Section 4.4.8 (SCR15 Reg.24), with the impacts identified, Spirit would be unable to operate in compliance with the current safety case and supporting PFEER Reg.5 assessments. The proposed development is therefore considered to materially impact the information in the current Safety Case.

4.4.7 Reg.23 Review of safety case

a. Legal Requirement

This regulation requires Spirit to thoroughly review their current safety case at suitable intervals not exceeding 5 years from the previous thorough review.

b. Analysis of Impact

A thorough review is a wide-ranging and in-depth review to confirm that the safety case as a whole continues to be fundamentally sound. Although a thorough review must be carried out at least every 5 years, a dutyholder may identify the need for a thorough review at any time within the five years since the last thorough review in response to a significant change.

As described throughout Section 4, the proposed development would impose multiple such impacts on how the current Safety Case describes the management of major accident risk. It is considered that cumulatively these effects will materially impact the current Safety Case and would justify detailed assessment and thorough review of the Safety Case in accordance with Reg.23. This thorough review would specifically consider any requirement for a material change to the Safety Case, but based on the current high-level impact assessments carried out in this document it is considered that a Material Change would be required in accordance with SCR15 Reg.24.

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4.4.8 Reg.24 Revision of safety case

a. Legal Requirement

Requires Spirit to revise their safety case and submit to the competent authority for acceptance where material changes are identified that:

- change the basis on which the original Safety Case was accepted

  (includes the basis on which risk control decisions are made or which necessitate a review of the adequacy of major hazard control measures, both physical modifications and operational management changes)

- introduce multiple cumulative impacts that have the potential to affect the major accident risks or their controls, either directly or indirectly

b. Analysis of Impact

A Safety Case under SCR15 is required for the affected assets and it is an offence to operate these assets without a Safety Case that has been accepted by the competent authority. Spirit must decide what constitutes a material change to their Safety Case; any proposed changes which may significantly deviate from the information provided in the accepted safety case may constitute a change to the basis on which the safety case was accepted.

The proposed development would introduce multiple such impacts on the management of major accident risk as described in the comments in Section 4.4.5. These will require a substantial re-evaluation of major accident risk and how these risks are to be managed to reduce them to ALARP, e.g., ship collision risk, helicopter transportation risk.

Flight restrictions will also result in multiple changes to the way that Spirit will be required to operate the assets:

- restriction of helicopter operations to visual flight rules
- reduced access to preferred means of evacuation
- any significant change to the way the assets are operated to mitigate risk impacts

Considering these as a cumulative impact consolidates Spirit's view that the proposed development will materially impact the current Safety Case. Spirit has met with the HSE to discuss the foreseeable impacts to Spirit's operations and can unequivocally confirm their view that these impacts constitute multiple material impacts on the Safety Case by changing the basis on which it was accepted.

The analysis throughout Sections 3 – 4 has demonstrated that the proposed development seriously compromises Spirit's ability to comply with multiple regulations and increases multiple risk contributions with limited scope for Spirit to effectively mitigate these additional risks. Spirit would find it extremely difficult, if not impossible, to demonstrate that all major accident risks will be adequately controlled, putting Spirit in the untenable position of trying to build a case for safety and ALARP demonstration that we do not believe to be credible and cannot support. This will in turn make it extremely difficult to demonstrate compliance with SCR15 and PFEER.

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Spirit does not consider it reasonable for a third-party development to impose such significant impacts such that it may not be able to achieve a Safety Case submission that satisfies the competent authority.

4.4.9 Reg.28 Duty to conform with safety case and notifications of operation

a. Legal Requirement

This regulation requires Spirit to ensure that installations are operated in conformity with the accepted Safety Case.

b. Analysis of Impact

The Safety Case describes the arrangements in place to effectively manage major accident risks, including those specified under PFEER and other relevant statutory provisions; Spirit operations may not deviate from those described in the accepted Safety Case.

The proposed development would introduce multiple impacts as described in the comments in Section 5.4.5; these impacts would make it impossible to operate in conformity with the current Safety Case since they would:

- seriously compromise Spirit's ability to comply with regulations
- require substantial changes to the way in which the assets are operated
- increase multiple risk contributions thereby requiring a substantial re-evaluation of the arrangements in place to manage risk

These changes must be accurately described in the safety case before taking effect putting Spirit in the position of operating in a way that does not conform to their safety case, or trying to build a case for safety and ALARP demonstration that does not appear to be credible (as described for SCR15 Reg.24).

4.5 OFFSHORE INSTALLATIONS (PREVENTION OF FIRE AND EXPLOSION, AND EMERGENCY RESPONSE) REGULATIONS 1995 (PFEER)

4.5.1 Reg.5 Assessment

a. Legal Requirement

This regulation requires Spirit to assess the fire and explosion, and other major accident events which may require evacuation, and to identify appropriate arrangements for dealing with them.

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b. Analysis of Impact

Flight restrictions imposed by the proposed development will result in several changes to the way that Spirit Energy will be required to operate the asset and will require a substantial revision of the PFEER Reg.5 assessment to re-evaluate major accident risks and how these risks are to be managed to reduce them to ALARP. The proposed development would effectively invalidate many of the arrangements described in the current safety case for the management of major accident risk and will negatively impact risk. Pending completion of a thorough review in accordance with SCR Reg.23 Spirit has identified the areas where the proposed development will impact the safety of its operations (see summary in SCR15 Reg.16).

Cumulatively the impacts identified result in a requirement to submit a Safety Case Material Change, putting Spirit in the untenable position of trying to build a case for safety and ALARP demonstration that we do not believe to be credible and cannot support. This will make it extremely difficult, if not impossible, to demonstrate compliance with SCR15 and PFEER. As described in SCR15 Reg.24, Spirit would find it extremely difficult, if not impossible, to build a credible ALARP demonstration in support of a material change submission of the Safety Case to address these impacts.

4.5.2 Reg.10 Detection of incidents

a. Legal Requirement

This regulation requires Spirit to take appropriate measures to detect emergencies for the full range of reasonably foreseeable events which require emergency response, and that these systems should provide sufficient levels of availability and reliability to meet the demands placed on them.

b. Analysis of Impact

The proposed development has the potential to defeat the ability of a Radar Early Warning System (REWS) to detect and track targets within the affected area, thereby increasing the likelihood of ship collision and seriously compromising Spirit's ability to demonstrate compliance with PFEER Reg.10 for ship collision threats.

4.5.3 PFEER Reg.15 Arrangements for evacuation

a. Legal Requirement

This regulation requires Spirit to:

- ensure the safe evacuation of all persons *'so far as is reasonably practicable'*
- select means of evacuation on the basis of their contribution to reducing the risks of those who might have to use them to as low as reasonably practicable

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b. Analysis of Impact

Flight restrictions imposed by the proposed development will significantly reduce access to our preferred means of evacuation, thereby increasing reliance on the alternative means of evacuation by lifeboat which exposes personnel to higher likelihood of fatality than evacuation by helicopter; very limited mitigation can be claimed for the Search and Rescue (SAR) service given its distance from the affected assets and potential for it to already be engaged on an unrelated critical tasking.

With the preferred means of evacuation effectively inaccessible or otherwise potentially unavailable, the Applicant is effectively backing Spirit into a corner of tacit admission that there is only a single reliable means of evacuation for most of the time. We do not consider it reasonable for a third-party development to impose such significant restrictions on our preferred means of evacuation that results in increased risks to our personnel and seriously compromises our ability to comply with PFEER Reg.15 (see also comments against the 1974 Act).

4.5.4 Reg.19 Suitability and condition of plant

a. Legal Requirement

This regulation requires Spirit to ensure that SECEs are maintained in *'an efficient state, in efficient working order and in good repair'*.

b. Analysis of Impact

Flight restrictions imposed by the proposed development significantly reduce the available operational windows to access NUIs; this seriously compromises Spirit's ability to maintain SECEs in accordance with their Performance Standards and hence compliance with PFEER Reg.19.

An increasing backlog of maintenance is predicted which will expose personnel on affected assets to increased safety risk, and Spirit to risk of regulatory enforcement action for failure to keep SECEs in good repair and condition.

Without significant changes to the way maintenance is delivered Spirit would be unable to demonstrate compliance with PFEER Reg.19, exposing them to the risk of regulatory enforcement action for failure to keep SECEs in good repair and condition. If suitable mitigations could be found these are likely to be sufficiently significant as to require a material change to the Safety Case.

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4.6 PIPELINE SAFETY REGULATIONS 1996 (PSR)

4.6.1 Reg.13 Maintenance, and Schedule 3 Requirements for emergency shut-down valves

a. Legal Requirement

The Pipeline Safety Regulations 1996 (PSR) deal with the requirement to maintain the pipeline to secure its safe operation and to prevent loss of containment. Reg.13 requires Spirit to ensure that a pipeline and associated riser emergency shut-down valve are maintained in *'an efficient state, in efficient working order and in good repair'*.

b. Analysis of Impact

Maintenance is essential to ensure that the pipeline and associated equipment remains in a safe condition and is fit for purpose. As explained in detail within Section 3.5, flight restrictions imposed by the proposed development seriously compromises Spirit's ability to maintain SECEs in accordance with their Performance Standards and hence compliance with PSR Reg.13.

An increasing backlog of maintenance is predicted which will expose personnel on affected assets to increased safety risk, and Spirit to risk of regulatory enforcement action for failure to keep SECEs in good repair and condition.

APPENDIX 1 HELICOPTER EVACUATION TIME ANALYSIS

Step	CAT Evacuation	SAR Evacuation
1. Initial mobilisation readiness	15 min	15 min
2. Initial evacuation *Fly in / load / fly out / unload @ Blackpool*	30 min + 9 min = 39 min	78 min
3. Subsequent evacuations *Fly in / load / fly out / unload @ Blackpool*	2 x 30 min = 60 min	4 x 30 min = 120 min
4. Final evacuation (flight time to Blackpool excluded) *Fly in / load (and depart)*	15 min	15 min
5. Total evacuation time	2 hr 9 min	3 hr 48 min

Assumptions

- Normal operating POB of CPC = 110
- CAT helicopters 1xAW139 (12 seats) and 2xAW169 (8 seats); SAR S92 (19 seats)
- Helicopter load / unload time = 3 min
- Blackpool flight time = 12 mins; SAR station flight time = 60 min
- Offset of 3 min for CAT #2 and 6 min for CAT #3 = 9 min (time to load and take off before next helicopter can land)

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APPENDIX C: SPIRIT'S UPDATED PROTECTIVE PROVISIONS

Spirit Energy - Proposed draft protective provisions

PART 3

For the protection of Spirit Energy Production UK Limited

Application

1. For the protection of the licensee from time to time of the United Kingdom petroleum production licences with references P.251, P.1483 and P.153 (as the same may be assigned, amended or replaced from time to time) which at the date stated in article 1 (citation and commencement) of this Order is Spirit Energy Production UK Limited, the provisions of this Part of this Schedule shall have effect for so long as any of the said licences shall remain extant unless otherwise agreed in writing between the undertaker and the licensee.

Interpretation

2. In this Part of this Schedule—

"additional costs" means any additional costs incurred by the licensee in carrying out the licensee's operations as a result of the construction, operation or decommissioning of the authorised development;

"AP-1 helideck" means the helideck located on the accommodation platform at the CPC the coordinates of which are:

Location	Lat WGS84 (DD MM SS.sss)	Lon WGS84 (DD MM SS.sss)
AP-1 helideck	53° 50' 44.348" N	003° 35' 00.579" W

"authorised development" has the same meaning as in Schedule 1 of this Order and shall include any part of the said works including any preparatory works;

"cable" means the power and telecommunications cables connecting CPC to the DP3 wells shown pink and annotated as CPC to DP3 on the Spirit Licence Protective Provisions Plan;

"Calder Platform" means the normally unattended minimum facilities wellhead production platform located in the United Kingdom Continental Shelf Block 110/7a D;

"consequential loss" means—

(a) any consequential or indirect loss under English law; or

(b) the following irrespective of whether direct, indirect or consequential loss—

(i) loss or damage arising out of any delay, postponement, interruption or loss of production of hydrocarbons, any inability to produce, process or deliver hydrocarbons or any loss of or anticipated loss of use, profit or revenue;

(ii) loss or damage incurred or liquidated or pre-estimated damages of any kind whatsoever borne or payable under any contract for sale, exchange, transportation, processing, storage or other disposal of hydrocarbons;

(iii) losses associated with business interruption including the costs of overheads incurred during business interruption;

(iv) loss of bargain, contract, expectation or opportunity; or

(v) any other loss or anticipated loss or damage whatsoever in the nature of or consequential upon the foregoing, in either case (a) or (b) above howsoever caused or arising whether under contract, by virtue of any fiduciary duty, in tort or delict (including negligence), as a consequence of breach of any duty (statutory or otherwise) or under any other legal doctrine or principle whatsoever whether or not recoverable at common law or in equity and whether or not foreseeable at the date stated in article 1 (citation and commencement) of this Order;

"CPC" means the hydrocarbon production and processing facilities complex known generally as such or the Central Processing Complex located in the United Kingdom Continental Shelf Block 110/2a, 110/3a and 110/8a;

"DP-1 helideck" means the helideck located on drilling production platform 1 located at the CPC the coordinates of which are:

Location	Lat WGS84 (DD MM SS.sss)	Lon WGS84 (DD MM SS.sss)
DP-1 helideck	53° 50' 45.272" N	003° 34' 50.140" W

"DP-6 helideck" means the helideck located on drilling production platform 6 the coordinates of which are:

Location	Lat WGS84 (DD MM SS.sss)	Lon WGS84 (DD MM SS.sss)
DP-6 helideck	53° 51' 50.155" N	003° 37' 04.993" W

"DP-8 helideck" means the helideck located on drilling production platform 8 the coordinates of which are:

Location	Lat WGS84 (DD MM SS.sss)	Lon WGS84 (DD MM SS.sss)

DP-8 helideck	53° 53' 26.724" N	003° 37' 27.233" W

"helidecks" means the AP-1 helideck, the DP-1 helideck, the DP-6 helideck and the DP-8 helideck and "helideck" shall mean any one of them (as the context so requires);

"legacy wells" means the legacy wells known as DP3 (C1-5), 110/3-3, 110/8-2, 110/8A-7, 110/8-2 Relief and 110/8a-C5 Relief, the coordinates for which are:

Wells	Latitude	Longitude
DP3 (C1-5)	53°49'0.6155"N	3°33'36.1013"W
110/3-3	53°50'15.4200"N	3°34'50.9700"W
110/8-2	53°49'40.9985"N	3°33'22.7997"W
110/8A-7	53°46'4.3984"N	3°34'24.5556"W
110/8-2 Relief	53°49'57.1774"N	3°33'23.0190"W
110/8a-C5 Relief	53°49'40.4140"N	3°34'2.7666"W

and "legacy well" shall mean any of them (as the context so requires);

"licence" means United Kingdom Petroleum Production Licence P.153, United Kingdom Petroleum Production Licence P.1483 and United Kingdom Petroleum Production Licence P.251 (as any or all of the same may be assigned, amended or replaced from time to time);

"licensee" means the holder from time to time of any of the licences, which at the date stated in article 1 (citation and commencement) of this Order is Spirit Energy Production UK Limited;

"licensee's operations" means exploration, appraisal, development, production, transportation, maintenance, repair, replacement, interventions or decommissioning activity in accordance with and pursuant to the licence;

"offshore substation platform" or "OSP" means Work No. 2(a) forming Part 1 of Schedule 1 to this Order including foundations;

"O&G decommissioning date" means the date on which Offshore Petroleum Regulator for Environment and Decommissioning (or any successor body) confirms acceptance of the close-out reports for the decommissioning of Spirit Energy's East Irish Sea assets under the licence.

"pipeline" means—

(a) the decommissioned 24" gas Morecambe DP3 to CPC pipeline with pipeline reference number PL195; and

(b) the decommissioned 2" Morecambe CPC to DP3 pipeline with pipeline reference number PL205;

shown light green and annotated as CPC to DP3 on the Spirit Licence Protective Provisions Plan, together with any associated umbilicals, plant and equipment serving those pipelines;

"pipeline and cable proximity area" means the area five hundred meters (500m) either side and directly above the pipeline and cable shown shaded yellow and annotated as the Pipeline and Cable Proximity Area on the Spirit Licence Protective Provisions Plan;

"Spirit Licence Protective Provisions Plan" means the plan certified as the Spirit Licence Protective Provisions Plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

"temporary surface infrastructure" means any fixed temporary infrastructure to be used in the construction, operation and maintenance, and decommissioning of the authorised development including, but not limited to, jack-up barges and buoys, but does not include temporary surface infrastructure in transit;

"well buffer zone" means a one nautical mile (1 nm) radius buffer zone around each legacy well shown edged with a dashed black line and annotated as the well buffer zones on the Spirit Licence Protective Provisions Plan;

"wind turbine generator" or "WTG" means Work No. 1(a) from Part 1 of Schedule 1 to this Order including foundations;

"WTG and OSP aviation buffer zone" means an area of three point seven six nautical miles (3.76 nm) of unobstructed airspace measured from each of the helidecks in all directions and extending vertically from mean sea level shown to its southern extent shaded blue and edged grey and annotated as the WTG and OSP aviation buffer zones on the Spirit Licence Protective Provisions Plan;

"WTG and OSP marine buffer zone" means an area of one point five nautical miles (1.5 nm) of unobstructed sea space measured from each of the AP-1 helideck and DP-1 helideck in all directions shown to its southern extent edged in light blue and annotated as the WTG and OSP marine buffer zones on the Spirit Licence Protective Provisions Plan;

"WTG marine corridor" means a one nautical mile (1 nm) wide corridor of unobstructed sea space between the Calder Platform and the AP-1 helideck shown edged in dark green and annotated as the WTG marine corridor on the Spirit Licence Protective Provisions Plan.

Restriction on authorised development

3.—(1) No wind turbine generator, inter-array cables, offshore substation platform or temporary surface infrastructure shall be erected in the pipeline and cable proximity area, any WTG and OSP marine buffer zone or the WTG marine corridor unless otherwise agreed in writing between the licensee and the undertaker.

(2) No vessel or surface infrastructure in transit by or attributable to the undertaker or its agents or contractors in exercising the power of this Order shall pass within one nautical mile (1 nm) of any of the helidecks at any time nor within five hundred metres (500 m) of any of the legacy wells (whilst any rig or other vessel owned, controlled or instructed by the licensee, is present at this location) unless otherwise agreed in writing between the licensee and the undertaker.

(3) No wind turbine generator, offshore substation platform or temporary surface infrastructure shall be erected in any of the WTG and OSP aviation buffer zones unless otherwise agreed in writing between the licensee and the undertaker until after the O&G Decommissioning Date.

(4) No wind turbine generator, inter-array cables, offshore substation platform or temporary surface infrastructure shall be erected in any well buffer zone unless otherwise agreed in writing between the licensee and the undertaker.

Simultaneous operations

4. Prior to commencement of construction of the authorised development, the undertaker and the licensee shall use reasonable endeavours to agree arrangements for the coordination of simultaneous operations to include (but not be limited to) the provision of: schedules of and scope of works; design specifications; proposed timing of the execution of works; methods of working; navigation routes; and a notifications procedure.

Cooperation

5. The undertaker and the licensee must each act in good faith and use reasonable endeavours to cooperate with, and provide assistance to, each other as may be required to give effect to the provisions of this Part of this Schedule.

Financial security arrangements

6. Prior to commencing construction of the authorised development the undertaker must provide evidence to the licensee that it has first put in place suitably robust arrangements to ensure that it can meet any liabilities and obligations under this Part of this Schedule. Such arrangements shall be maintained during the construction, operation, maintenance, repair, replacement and decommissioning of the authorised development unless otherwise agreed in writing by the licensee (such agreement not to be unreasonably withheld).

Costs

7.-(1) The undertaker must reimburse the licensee in respect of all reasonable costs incurred by the licensee in engaging and retaining such experts, consultants and contractors as may be reasonably necessary to allow the licensee to carry out its functions under these protective provisions.

(2) The undertaker must reimburse the licensee for any additional costs.

(3) The licensee must, as soon as reasonably practicable after incurring any additional costs pursuant to sub-paragraph (2) above, serve the undertaker with an itemised invoice or claim.

(4) Within 14 days of receipt of an itemised invoice or claim, the undertaker must— (a) approve the amount of additional costs specified in the itemised invoice or claim; or (b) dispute the amount of additional costs specified in the itemised invoice or claim (or that the licensee has not used reasonable endeavours to mitigate or minimise any such additional costs) and refer the matter to arbitration pursuant to paragraph 9 of this Part of this Schedule.

(5) Save where otherwise agreed in writing between the undertaker and the licensee, the undertaker must thereafter pay to the licensee the additional costs within 28 days of approving the amount of additional costs pursuant to sub-paragraph (4)(a) above or final decision and award of additional costs pursuant to arbitration.

(6) The licensee must use reasonable endeavours to mitigate in whole or in part and to minimise any additional costs.

Indemnity

8. The undertaker shall be solely responsible for and shall defend, indemnify and hold harmless the licensee against all losses, damages, costs, claims, liabilities, liens, debts, charges expenses (including but not limited to legal expenses), causes of action of whatever nature and any payment made pursuant to an extra judicial settlement arising from, out of, or relating to the construction, operation, maintenance, repair, replacement and decommissioning of the authorised development (or any part thereof) or the failure of it (or any part thereof) in connection with:

(a) personal injury to or sickness, disease or death of personnel (including its officers, directors, employees, contractors, consultants or agency personnel) of the licensee;

(b) loss of, recovery of, or damage to any property of the licensee (including any of licensee's asset infrastructure or any marine and aeronautical vehicles, equipment, machinery, tools, materials, supplies and other objects or items owned, rented, leased, chartered or otherwise belonging to the licensee);

(c) pollution (including any spillage, release, emission to atmosphere or seepage of hydrocarbons) emanating from any property of the licensee; and

(d) consequential loss suffered by the licensee.

Arbitration

9. Any difference arising between the undertaker and the licensee under this Part shall be referred to and settled by arbitration under article 15 (arbitration) of this Order.

Drafting note

The following details will require to be added to Table 5, Schedule 8 of the Development Consent Order in the case that these protective provisions are granted to incorporate the Spirit Licence Protective Provisions Plan into the Development Consent Order as a document to be certified.

SLPPPR115042025 Spirit Licence Protective Provisions Plan 15 April 2025

PART 4

For the protection of the Calder duty holder

Application

1. For the protection of Spirit Energy Production UK Limited as the duty holder of the Calder Platform, the provisions of this Part of this Schedule shall have effect for so long as the licence shall remain extant and Spirit Energy Production UK Limited remains duty holder of the Calder Platform unless otherwise agreed in writing between the undertaker and the duty holder.

Interpretation

2. In this Part of this Schedule—

"additional costs" means any additional costs incurred by the duty holder in carrying out the duty holder's operations as a result of the construction, operation or decommissioning of the authorised development;

"AP-1 helideck" means the helideck located on the accommodation platform at the CPC the coordinates of which are:

Location	Lat WGS84 (DD MM SS.sss)	Lon WGS84 (DD MM SS.sss)
AP-1 helideck	53° 50' 44.348" N	003° 35' 00.579" W

"authorised development" has the same meaning as in Schedule 1 of this Order and shall include any part of the said works including any preparatory works;

"cable" means the power and telecommunications cables connecting the Calder Platform to CPC located in the South Morecambe Field (Block 110/3a) shown pink and annotated as Calder to CPC on the Calder Duty Holder Protective Provisions Plan;

"Calder helideck" means the helideck located on the Calder Platform the coordinates of which are:

Location	Lat WGS84 (DD MM SS.sss)	Lon WGS84 (DD MM SS.sss)
Calder Helideck	53° 48' 26.462" N	003° 39' 48.682" W

"Calder Platform" means the normally unattended minimum facilities wellhead production platform located in the United Kingdom Continental Shelf Block 110/7a D;

"consequential loss" means—

(a) any consequential or indirect loss under English law; or

(b) the following irrespective of whether direct, indirect or consequential loss—

(i) loss or damage arising out of any delay, postponement, interruption or loss of production of hydrocarbons, any inability to produce, process or deliver hydrocarbons or any loss of or anticipated loss of use, profit or revenue;

(ii) loss or damage incurred or liquidated or pre-estimated damages of any kind whatsoever borne or payable under any contract for sale, exchange, transportation, processing, storage or other disposal of hydrocarbons;

(iii) losses associated with business interruption including the costs of overheads incurred during business interruption;

(iv) loss of bargain, contract, expectation or opportunity; or

(v) any other loss or anticipated loss or damage whatsoever in the nature of or consequential upon the foregoing, in either case (a) or (b) above howsoever caused or arising whether under contract, by virtue of any fiduciary duty, in tort or delict (including negligence), as a consequence of breach of any duty (statutory or otherwise) or under any other legal doctrine or principle whatsoever whether or not recoverable at common law or in equity and whether or not foreseeable at the date stated in article 1 (citation and commencement) of this Order;

"CPC" means the hydrocarbon production and processing facilities complex known generally as such or the Central Processing Platform Complex located in the United Kingdom Continental Shelf Block 110/2a, 110/3a and 110/8a;

"duty holder" means Spirit Energy Production UK Limited as duty holder of the Calder Platform;

"duty holder's operations" means the operations and services provided by the duty holder to the licensee in accordance with and pursuant to an operating agreement between the duty holder and the licensee;

"Harbour Energy" means Chrysaor Resources (Irish Sea) Limited, a subsidiary of Harbour Energy PLC

"licence" means United Kingdom Petroleum Production Licence P.099 (as the same may be assigned, amended or replaced from time to time);

"licensee" means the holder from time to time of the licence, which at the date stated in article 1 (citation and commencement) of this Order is Harbour Energy;

"North East corner of the Calder Platform" means the north east corner of the Calder Platform the coordinates of which are:

Location	Lat WGS84 (DD MM SS.sss)	Lon WGS84 (DD MM SS.sss)
North East corner of the Calder Platform	53° 48' 27.021" N	003° 39' 47.105" W

"offshore substation platform" or "OSP" means Work No. 2(a) forming Part 1 of Schedule 1 to this Order including foundations;

"pipeline" means—

(a) the 3″ Rivers onshore terminal to Calder chemical pipeline with pipeline reference number PL1965; and

(b) the 24″ Calder to Rivers onshore terminal gas pipeline with pipeline reference number PL1966;

shown light green and annotated as the Calder to Rivers Onshore Terminal (PL1966) and Rivers Onshore Terminal to Calder (PL1965) on the Calder Duty Holder Protective Provisions Plan, together with any associated umbilicals, plant and equipment serving those pipelines;

"pipeline and cable proximity area" means the area five hundred meters (500m) either side and directly above the pipeline and cable shown shaded yellow and annotated as the Pipeline and Cable Proximity Area on the Calder Duty Holder Protective Provisions Plan;

"Calder Duty Holder Protective Provisions Plan" means the plan certified as the Calder Duty Holder Protective Provisions Plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

"temporary surface infrastructure" means any fixed temporary infrastructure to be used in the construction, operation and maintenance, and decommissioning of the authorised development including, but not limited to, jack-up barges and buoys, but does not include temporary surface infrastructure in transit;

"wind turbine generator" or "WTG" means Work No. 1(a) from Part 1 of Schedule 1 to this Order including foundations;

"WTG and OSP aviation buffer zone" means an area of three point seven six nautical miles (3.76 nm) of unobstructed airspace measured from the Calder helideck in all directions and extending vertically from mean sea level shown shaded blue and edged grey and annotated as the WTG and OSP aviation buffer zone on the Calder Duty Holder Protective Provisions Plan;

"WTG and OSP marine buffer zone" means an area of one point five nautical mile (1.5 nm) of unobstructed sea space measured from the North East corner of the Calder Platform in all directions

shown edged in light blue and annotated as the WTG and OSP marine buffer zone on the Calder Duty Holder Protective Provisions Plan;

"WTG marine corridor" means a one nautical mile (1 nm) wide corridor of unobstructed sea space between the Calder Platform and the AP-1 helideck shown edged in dark green and annotated as the WTG marine corridor on the Calder Duty Holder Protective Provisions Plan.

Restriction on authorised development

3.—(1) No wind turbine generator, inter-array cables, offshore substation platform or temporary surface infrastructure shall be erected in the pipeline and cable proximity area, the WTG and OSP marine buffer zone or the WTG marine corridor unless otherwise agreed in writing between the duty holder and the undertaker.

(2) No vessel or surface infrastructure in transit by or attributable to the undertaker or its agents or contractors in exercising the power of this Order shall pass within one nautical mile (1 nm) of the Calder Platform unless otherwise agreed in writing between the duty holder and the undertaker.

(3) No wind turbine generator, offshore substation platform or temporary surface infrastructure shall be erected in the WTG and OSP aviation buffer zone unless otherwise agreed in writing between the duty holder and the undertaker.

Simultaneous operations

4. Prior to commencement of construction of the authorised development, the undertaker and the duty holder shall use reasonable endeavours to agree arrangements for the coordination of simultaneous operations to include (but not be limited to) the provision of: schedules of and scope of works; design specifications; proposed timing of the execution of works; methods of working; navigation routes; and a notifications procedure.

Cooperation

5.The undertaker and the duty holder must each act in good faith and use reasonable endeavours to cooperate with, and provide assistance to, each other as may be required to give effect to the provisions of this Part of this Schedule.

Financial security arrangements

6. Prior to commencing construction of the authorised development the undertaker must provide evidence to the duty holder that it has first put in place suitably robust arrangements to ensure that it can meet any liabilities and obligations under this Part of this Schedule. Such arrangements shall be maintained during the construction, operation, maintenance, repair, replacement and decommissioning of the authorised development unless otherwise agreed in writing by the duty holder (such agreement not to be unreasonably withheld).

Costs

7.-(1) The undertaker must reimburse the duty holder in respect of all reasonable costs incurred by the duty holder in engaging and retaining such experts, consultants and contractors as may be reasonably necessary to allow the duty holder to carry out its functions under these protective provisions.

(2) The undertaker must reimburse the duty holder for any additional costs.

(3) The duty holder must, as soon as reasonably practicable after incurring any additional costs pursuant to sub-paragraph (2) above, serve the undertaker with an itemised invoice or claim.

(4) Within 14 days of receipt of an itemised invoice or claim, the undertaker must— (a) approve the amount of additional costs specified in the itemised invoice or claim; or (b) dispute the amount of additional costs specified in the itemised invoice or claim (or that the duty holder has not used reasonable endeavours to mitigate or minimise any such additional costs) and refer the matter to arbitration pursuant to paragraph 9 of this Part of this Schedule.

(5) Save where otherwise agreed in writing between the undertaker and the duty holder, the undertaker must thereafter pay to the duty holder the additional costs within 28 days of approving the amount of additional costs pursuant to sub-paragraph (4)(a) above or final decision and award of additional costs pursuant to arbitration.

(6) The duty holder must use reasonable endeavours to mitigate in whole or in part and to minimise any additional costs.

Indemnity

8. The undertaker shall be solely responsible for and shall defend, indemnify and hold harmless the duty holder against all losses, damages, costs, claims, liabilities, liens, debts, charges expenses (including but not limited to legal expenses), causes of action of whatever nature and any payment

made pursuant to an extra judicial settlement arising from, out of, or relating to the construction, operation, maintenance, repair, replacement and decommissioning of the authorised development (or any part thereof) or the failure of it (or any part thereof) in connection with:

(a) personal injury to or sickness, disease or death of personnel (including its officers, directors, employees, contractors, consultants or agency personnel) of the duty holder;

(b) loss of, recovery of, or damage to any property of the duty holder (including any of duty holder's asset infrastructure or any marine and aeronautical vehicles, equipment, machinery, tools, materials, supplies and other objects or items owned, rented, leased, chartered or otherwise belonging to the duty holder);

(c) pollution (including any spillage, release, emission to atmosphere or seepage of hydrocarbons) emanating from any property of the duty holder; and

(d) consequential loss suffered by the duty holder.

Arbitration

9. Any difference arising between the undertaker and the duty holder under this Part shall be referred to and settled by arbitration under article 15 (arbitration) of this Order.

Drafting note

The following details will require to be added to Table 5, Schedule 8 of the Development Consent Order in the case that these protective provisions are granted to incorporate the Calder Duty Holder Protective Provisions Plan into the Development Consent Order as a document to be certified.

CDHPPPR115042025 Calder Duty Holder Protective Provisions Plan 15 April 2025

PART 5

For the protection of the MNZ licence holder

Application

1. For the protection of the licensee from time to time of Carbon Capture Appraisal and Storage licence CS010 which at the date stated in article 1 (citation and commencement) of this Order is Spirit Energy Production UK Limited, the provisions of this Part of this Schedule shall have effect for so long as the licence remains extant unless otherwise agreed in writing between the undertaker and the licensee.

Interpretation

2. In this Part of this Schedule—

"additional costs" means any additional costs incurred by the duty holder in carrying out the duty holder's operations as a result of the construction, operation or decommissioning of the authorised development;

"authorised development" has the same meaning as in Schedule 1 of this Order and shall include any part of the said works including any preparatory works;

"cable" means the power and telecommunications cables connecting CPC to the DP3 wells shown pink and annotated as CPC to DP3 on the MNZ Protective Provisions Plan;

"consequential loss" means—

(a) any consequential or indirect loss under English law; or

(b) the following irrespective of whether direct, indirect or consequential loss—

(i) loss or damage arising out of any delay, postponement, interruption or loss of containment of carbon dioxide, any inability to store, process or accept delivery of carbon dioxide or any loss of or anticipated loss of use, profit or revenue;

(ii) loss or damage incurred or liquidated or pre-estimated damages of any kind whatsoever borne or payable under any contract for sale, exchange, transportation, processing, storage or other disposal of carbon dioxide;

(iii) losses associated with business interruption including the costs of overheads incurred during business interruption;

(iv) loss of bargain, contract, expectation or opportunity; or

(v) any other loss or anticipated loss or damage whatsoever in the nature of or consequential upon the foregoing, in either case (a) or (b) above howsoever caused or arising whether under contract,

by virtue of any fiduciary duty, in tort or delict (including negligence), as a consequence of breach of any duty (statutory or otherwise) or under any other legal doctrine or principle whatsoever whether or not recoverable at common law or in equity and whether or not foreseeable at the date stated in article 1 (citation and commencement) of this Order;

"CPC" means the hydrocarbon production and processing facilities complex known generally as such or the Central Processing Complex located in the United Kingdom Continental Shelf Block 110/2a, 110/3a and 110/8a;

"legacy wells" means the legacy wells known as DP3 (C1-5), 110/3-3, 110/8-2, 110/8A-7, 110/8-2 Relief and 110/8a-C5 Relief, the coordinates for which are:

Wells	Latitude	Longitude
DP3 (C1-5)	53°49'0.6155"N	3°33'36.1013"W
110/3-3	53°50'15.4200"N	3°34'50.9700"W
110/8-2	53°49'40.9985"N	3°33'22.7997"W
110/8A-7	53°46'4.3984"N	3°34'24.5556"W
110/8-2 Relief	53°49'57.1774"N	3°33'23.0190"W
110/8a-C5 Relief	53°49'40.4140"N	3°34'2.7666"W

"licence" means Carbon Capture Appraisal and Storage licence CS010;

"licensee" means the holder from time to time of the licence, which at the date stated in article 1 (citation and commencement) of this Order is Spirit Energy Production UK Limited;

"MNZ Protective Provisions Plan" means the plan certified as the MNZ Protective Provisions Plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

"offshore substation platform" or "OSP" means Work No. 2(a) forming Part 1 of Schedule to the Order including foundations;

"pipeline" means—

(a) the decommissioned 24 inch gas DP3 to CPC pipeline with pipeline reference number PL195; and

(b) the decommissioned 2 inch CPC to DP3 pipeline with pipeline reference number PL205;

shown light green and annotated as CPC to DP3 on the MNZ Protective Provisions Plan, together with any associated umbilicals, plant and equipment serving those pipelines;

"pipeline and cable proximity area" means the area five hundred meters (500m) either side and directly above the pipeline and cable shown shaded yellow and annotated as the Pipeline and Cable Proximity Area on the MNZ Protective Provisions Plan;

"proposed CCS injection platform" means the licensee's proposed injection platform, to be located in the position marked "SM W 2" shown with a red circle edged black and annotated as SM W 2 on the MNZ Protective Provisions Plan;

"temporary surface infrastructure" means any fixed temporary infrastructure to be used in the construction, operation and maintenance, and decommissioning of the authorised development including, but not limited to, jack-up barges and buoys, but does not include temporary surface infrastructure in transit;

"well buffer zone" means a one nautical mile (1 nm) radius buffer zone around each of the legacy wells shown edged with a dashed black line and annotated as the well buffer zones on the MNZ Protective Provisions Plan;

"well cable buffer zone" means a two hundred metre (200 m) radius buffer zone around the legacy wells shown edged with a dashed red line and annotated as the well cable buffer zones on the MNZ Protective Provisions Plan.

"wind turbine generator" or "WTG" means Work No. 1(a) from Part 1 of Schedule 1 to this Order including foundations;

"WTG and OSP aviation buffer zone" means an area of three point seven six nautical miles (3.76 nm) of unobstructed airspace measured from the proposed CCS injection platform in all directions and extending vertically from mean sea level shown to its southern extent shaded blue and edged grey and annotated as the WTG and OSP aviation buffer zone on the MNZ Protective Provisions Plan;

"WTG and OSP marine buffer zone" means an area of one point five nautical miles (1.5 nm) of unobstructed sea space measured from the proposed CCS injection platform in all directions and extending vertically from mean sea level shown edged in light blue and annotated as the WTG and OSP marine buffer zone on the MNZ Protective Provisions Plan;

"WTG and OSP marine corridor" means a one nautical mile (1 nm) wide corridor of unobstructed sea space for separate access and egress for rigs and construction vessels to the legacy wells and the proposed CCS injection platform.

Restriction on authorised development

3.—(1) No wind turbine generator, inter-array cables, offshore substation platform or temporary surface infrastructure shall be erected in the pipeline and cable proximity area or the WTG and OSP marine buffer zone unless otherwise agreed in writing between the licensee and the undertaker.

(2) No vessel or surface infrastructure in transit by or attributable to the undertaker or its agents or contractors in exercising the power of this Order shall pass within one nautical mile (1 nm) of the Proposed MNZ injection platform at any time nor within five hundred metres (500 m) of the legacy wells (whilst any rig or other vessel owned, controlled or instructed by the licensee, is present at this location) unless otherwise agreed in writing with the licensee.

(4) No wind turbine generator, offshore substation platform or temporary surface infrastructure shall be erected in the WTG and OSP aviation buffer zone unless otherwise agreed in writing between the licensee and the undertaker.

(5) No wind turbine generator, inter-array cables, offshore substation platform or temporary surface infrastructure shall be erected in the well buffer zone or the WTG and OSP marine corridor unless otherwise agreed in writing between the licensee and the undertaker.

(6) No new cable associated with the authorised development shall be laid within the well cable buffer zone.

Simultaneous operations

4. Prior to commencement of construction of the authorised development, the undertaker and the licensee shall use reasonable endeavours to agree arrangements for the coordination of simultaneous operations to include (but not be limited to) the provision of; schedules of and scope of works; design specifications; proposed timing of the execution of works; methods of working; navigation routes; and a notifications procedure.

Cooperation

5.The undertaker and the licensee must each act in good faith and use reasonable endeavours to cooperate with, and provide assistance to, each other as may be required to give effect to the provisions of this Part of this Schedule.

Financial security arrangements

6. Prior to commencing construction of the authorised development the undertaker must provide evidence to the licensee that it has first put in place suitably robust arrangements to ensure that it can meet any liabilities and obligations under this Part of this Schedule. Such arrangements shall be maintained during the construction, operation, maintenance, repair, replacement and

decommissioning of the authorised development unless otherwise agreed in writing by the licensee (such agreement not to be unreasonably withheld).

Costs

7.-(1) The undertaker must reimburse the licensee in respect of all reasonable costs incurred by the licensee in engaging and retaining such experts, consultants and contractors as may be reasonably necessary to allow the licensee to carry out its functions under these protective provisions.

(2) The undertaker must reimburse the licensee for any additional costs.

(3) The licensee must, as soon as reasonably practicable after incurring any additional costs pursuant to sub-paragraph (2) above, serve the undertaker with an itemised invoice or claim.

(4) Within 14 days of receipt of an itemised invoice or claim, the undertaker must— (a) approve the amount of additional costs specified in the itemised invoice or claim; or (b) dispute the amount of additional costs specified in the itemised invoice or claim (or that the licensee has not used reasonable endeavours to mitigate or minimise any such additional costs) and refer the matter to arbitration pursuant to paragraph 9 of this Part of this Schedule.

(5) Save where otherwise agreed in writing between the undertaker and the licensee, the undertaker must thereafter pay to the licensee the additional costs within 28 days of approving the amount of additional costs pursuant to sub-paragraph (4)(a) above or final decision and award of additional costs pursuant to arbitration.

(6) The licensee must use reasonable endeavours to mitigate in whole or in part and to minimise any additional costs.

Indemnity

8. The undertaker shall be solely responsible for and shall defend, indemnify and hold harmless the licensee against all losses, damages, costs, claims, liabilities, liens, debts, charges expenses (including but not limited to legal expenses), causes of action of whatever nature and any payment made pursuant to an extra judicial settlement arising from, out of, or relating to the construction, operation, maintenance, repair, replacement and decommissioning of the authorised development (or any part thereof) or the failure of it (or any part thereof) in connection with:

(a) personal injury to or sickness, disease or death of personnel (including its officers, directors, employees, contractors, consultants or agency personnel) of the licensee;

(b) loss of, recovery of, or damage to any property of the licensee (including any of licensee's asset infrastructure or any marine and aeronautical vehicles, equipment, machinery, tools, materials, supplies and other objects or items owned, rented, leased, chartered or otherwise belonging to the licensee);

(c) pollution (including any spillage, release, emission to atmosphere or seepage of hydrocarbons) emanating from any property of the licensee; and

(d) consequential loss suffered by the licensee.

Arbitration

9. Any difference arising between the undertaker and the licensee under this Part shall be referred to and settled by arbitration under article 15 (arbitration) of this Order.

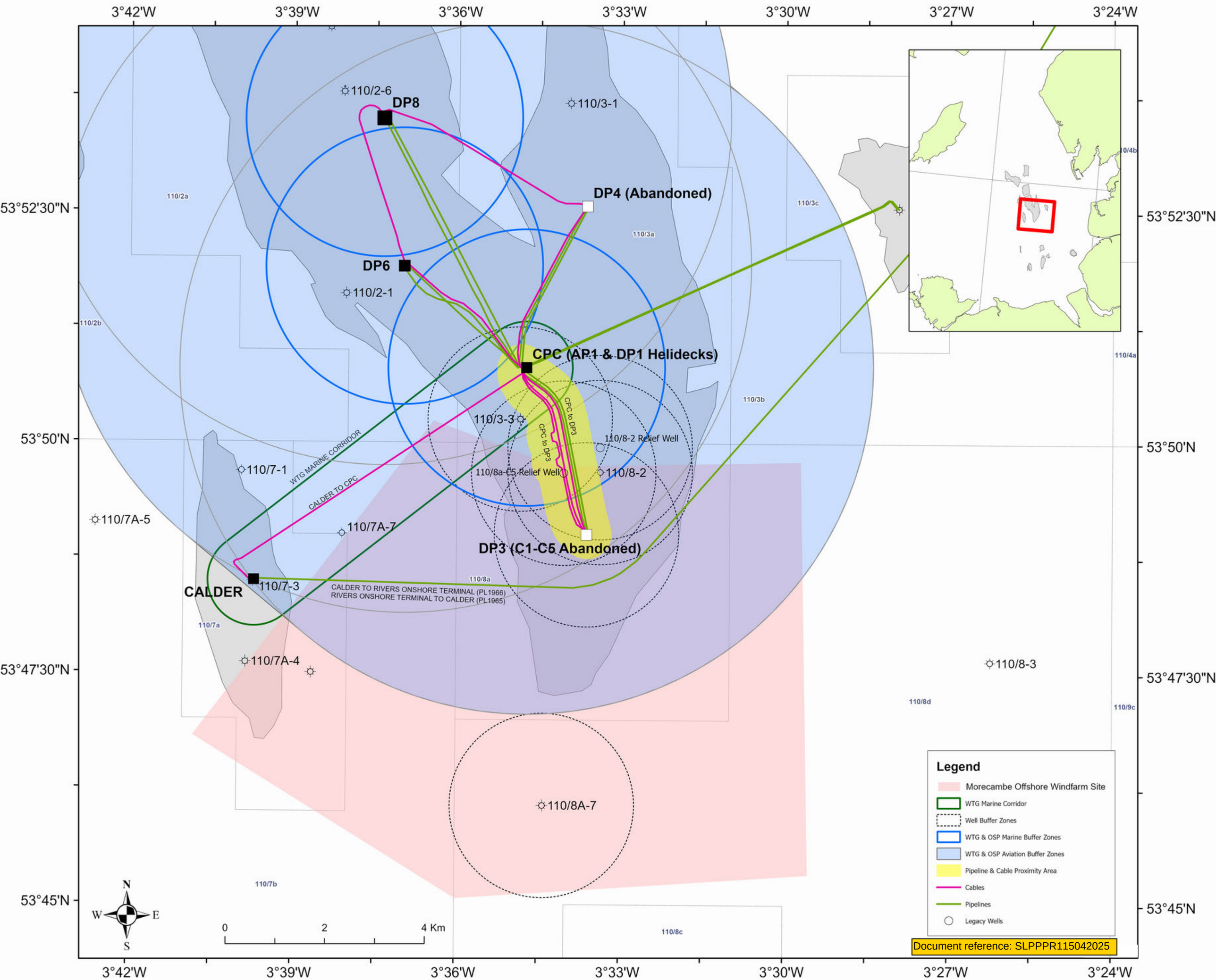
Drafting note

The following details will require to be added to Table 5, Schedule 8 of the Development Consent Order in the case that these protective provisions are granted to incorporate the MNZ Protective Provisions Plan into the Development Consent Order as a document to be certified.

MNZPPPR115042025 MNZ Protective Provisions Plan 15 April 2025

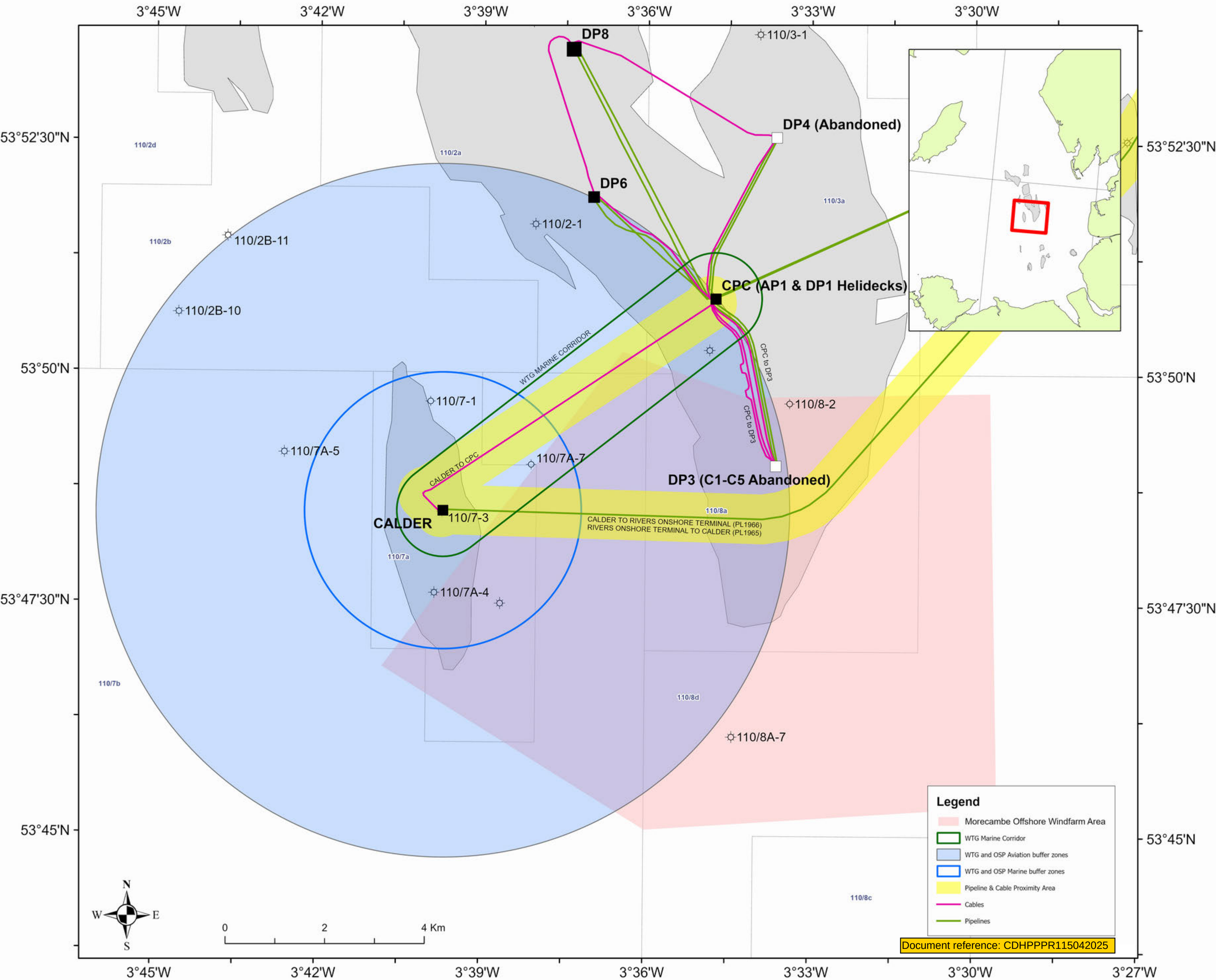
APPENDIX D: SPIRIT PROTECTIVE PROVISION PLANS

Spirit Licence Protective Provisions Plan

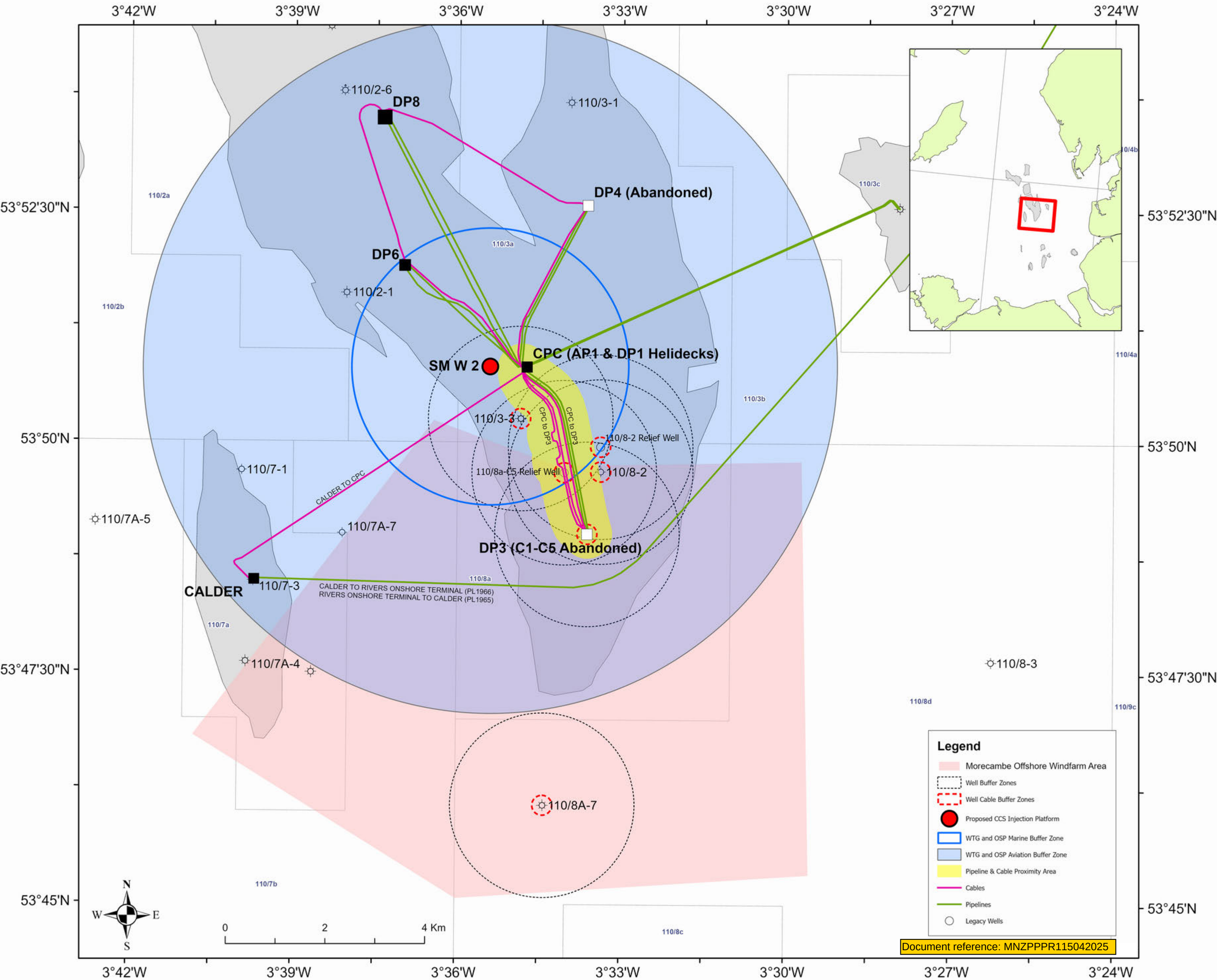


Document reference: SLPPPR115042025

Calder Duty Holder Protective Provisions Plan



MNZ Protective Provisions Plan



Document reference: MNZPPPR115042025

APPENDIX E: COMPARISON OF PROTECTIVE PROVISIONS SUBMITTED BY SPIRIT AT DEADLINE 5A AND DEADLINE 6

Spirit Energy - Proposed draft protective provisions

PART 3

For the protection of Spirit Energy Production UK Limited

Application

1. For the protection of the licensee from time to time of the United Kingdom petroleum production licences with references P.251, P.1483 and P.153 (as the same may be assigned, amended or replaced from time to time) which at the date stated in article 1 (citation and commencement) of this Order is Spirit Energy Production UK Limited, the provisions of this Part of this Schedule shall have effect for so long as any of the said licences shall remain extant unless otherwise agreed in writing between the undertaker and the licensee.

Interpretation

2. In this Part of this Schedule—

"additional costs" means any additional costs incurred by the licensee in carrying out the licensee's operations as a result of the construction, operation or decommissioning of the authorised development;

"AP-1 helideck" means the helideck located on the accommodation platform at the CPC the coordinates of which are:

Location	Lat WGS84 (DD MM SS.sss)	Lon WGS84 (DD MM SS.sss)
AP-1 helideck	53° 50' 44.348" N	003° 35' 00.579" W

"authorised development" has the same meaning as in Schedule 1 of this Order and shall include any part of the said works including any preparatory works;

"cable" means the power and telecommunications cables connecting CPC to the DP3 wells shown ~~purple~~pink and annotated as ~~Morecambe to~~ CPC to DP3 on the Spirit ~~and Harbour~~Licence Protective Provisions Plan;

"Calder Platform" means the normally unattended minimum facilities wellhead production platform located in the United Kingdom Continental Shelf Block 110/7a D;

"consequential loss" means—

(a) any consequential or indirect loss under English law; or

(b) the following irrespective of whether direct, indirect or consequential loss—

(i) loss or damage arising out of any delay, postponement, interruption or loss of production of hydrocarbons, any inability to produce, process or deliver hydrocarbons or any loss of or anticipated loss of use, profit or revenue;

(ii) loss or damage incurred or liquidated or pre-estimated damages of any kind whatsoever borne or payable under any contract for sale, exchange, transportation, processing, storage or other disposal of hydrocarbons;

(iii) losses associated with business interruption including the costs of overheads incurred during business interruption;

(iv) loss of bargain, contract, expectation or opportunity; or

(v) any other loss or anticipated loss or damage whatsoever in the nature of or consequential upon the foregoing, in either case (a) or (b) above howsoever caused or arising whether under contract, by virtue of any fiduciary duty, in tort or delict (including negligence), as a consequence of breach of any duty (statutory or otherwise) or under any other legal doctrine or principle whatsoever whether or not recoverable at common law or in equity and whether or not foreseeable at the date stated in article 1 (citation and commencement) of this Order;

"CPC" means the hydrocarbon production and processing facilities complex known generally as such or the Central Processing Complex located in the United Kingdom Continental Shelf Block 110/2a, 110/3a and 110/8a;

"DP-1 helideck" means the helideck located on drilling production platform 1 located at the CPC the coordinates of which are:

Location	Lat WGS84 (DD MM SS.sss)	Lon WGS84 (DD MM SS.sss)
DP-1 helideck	53° 50' 45.272" N	003° 34' 50.140" W

"DP-6 helideck" means the helideck located on drilling production platform 6 the coordinates of which are:

Location	Lat WGS84 (DD MM SS.sss)	Lon WGS84 (DD MM SS.sss)
DP-6 helideck	53° 51' 50.155" N	003° 37' 04.993" W

"DP-8 helideck" means the helideck located on drilling production platform 8 the coordinates of which are:

Location	Lat WGS84 (DD MM SS.sss)	Lon WGS84 (DD MM SS.sss)

DP-8 helideck	53° 53' 26.724" N	003° 37' 27.233" W

"helidecks" means the AP-1 helideck, the DP-1 helideck, the DP-6 helideck and the DP-8 helideck and "helideck" shall mean any one of them (as the context so requires);

"legacy wells" means the legacy wells known as DP3 (C1-5), 110/3-3, 110/8-2, 110/8A-7, 110/8-2 Relief and 110/8a-C5 Relief, the coordinates for which are:

Wells	Latitude	Longitude
DP3 (C1-5)	53°49'0.6155"N	3°33'36.1013"W
110/3-3	53°50'15.4200"N	3°34'50.9700"W
110/8-2	53°49'40.9985"N	3°33'22.7997"W
110/8A-7	53°46'4.3984"N	3°34'24.5556"W
110/8-2 Relief	53°49'57.1774"N	3°33'23.0190"W
110/8a-C5 Relief	53°49'40.4140"N	3°34'2.7666"W

and "legacy well" shall mean any of them (as the context so requires);

"licence" means United Kingdom Petroleum Production Licence P.153, United Kingdom Petroleum Production Licence P.1483 and United Kingdom Petroleum Production Licence P.251 (as any or all of the same may be assigned, amended or replaced from time to time);

"licensee" means the holder from time to time of any of the licences, which at the date stated in article 1 (citation and commencement) of this Order is Spirit Energy Production UK Limited;

"licensee's operations" means exploration, appraisal, development, production, transportation, maintenance, repair, replacement, interventions or decommissioning activity in accordance with and pursuant to the licence;

~~"pipeline and cable proximity area" means the area five hundred meters (500m) either side and directly above the pipeline and cable;~~

"offshore substation platform" or "OSP" means Work No. 2(a) forming Part 1 of Schedule 1 to this Order including foundations;

"O&G decommissioning date" means the date on which Offshore Petroleum Regulator for Environment and Decommissioning (or any successor body) confirms acceptance of the close-out reports for the decommissioning of Spirit Energy's East Irish Sea assets under the licence.

"pipeline" means—

(a) the decommissioned 24" gas Morecambe DP3 to CPC pipeline with pipeline reference number PL195; and

(b) the decommissioned 2" Morecambe CPC to DP3 pipeline with pipeline reference number PL205;

shown light green and annotated as ~~Morecambe~~ CPC to DP3 on the Spirit ~~and Harbour~~Licence Protective Provisions Plan, together with any associated umbilicals, plant and equipment serving those pipelines;

"pipeline and cable proximity area" means the area five hundred meters (500m) either side and directly above the pipeline and cable shown shaded yellow and annotated as the Pipeline and Cable Proximity Area on the Spirit Licence Protective Provisions Plan;

"Spirit ~~and Harbour~~Licence Protective Provisions Plan" means the plan certified as the Spirit ~~and Harbour~~Licence Protective Provisions Plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

"temporary surface infrastructure" means any fixed temporary infrastructure to be used in the construction, operation and maintenance, and decommissioning of the authorised development including, but not limited to, jack-up barges and buoys, but does not include temporary surface infrastructure in transit;

"well buffer zone" means a one nautical mile (1 nm) radius buffer zone around ~~a~~each legacy ~~Well.~~well shown edged with a dashed black line and annotated as the well buffer zones on the Spirit Licence Protective Provisions Plan;

"wind turbine generator" or "WTG" means Work No. 1(a) from Part 1 of Schedule 1 to this Order including foundations;

"WTG and OSP aviation buffer zone" means an area of three point seven six nautical miles (3.76 nm) of unobstructed airspace measured from each of the helidecks in all directions and extending vertically from mean sea level shown ~~edged~~to its southern extent shaded blue and edged grey and annotated ~~and shown~~ as the WTG and OSP aviation buffer zones on the Spirit ~~and Harbour~~Licence Protective Provisions Plan;

"WTG and OSP marine buffer zone" means an area of one point five nautical miles (1.5 nm) of unobstructed sea space measured from each of the AP-1 helideck and DP-1 helideck in all directions shown to its southern extent edged in light ~~green~~blue and annotated ~~and shown~~ as the WTG and OSP marine buffer zones on the Spirit ~~and Harbour~~Licence Protective Provisions Plan;

"WTG marine corridor" means a one nautical mile (1 nm) wide corridor of unobstructed sea space between the Calder Platform and the AP-1 helideck shown edged in dark green and annotated ~~and shown~~ as the WTG marine corridor on the Spirit ~~and Harbour~~Licence Protective Provisions Plan.

Restriction on authorised development

3.—(1) No wind turbine generator, inter-array cables, offshore substation platform or temporary surface infrastructure shall be erected in the pipeline and cable proximity area, any WTG and OSP marine buffer zone or the WTG marine corridor unless otherwise agreed in writing between the licensee and the undertaker.

(2) No vessel or surface infrastructure in transit by or attributable to the undertaker or its agents or contractors in exercising the power of this Order shall pass within one nautical mile (1 nm) of any of the helidecks at any time nor within five hundred metres (500 m) of any of the legacy wells (whilst any rig or other vessel owned, controlled or instructed by the licensee, is present at this location) unless otherwise agreed in writing between the licensee and the undertaker.

(3) No wind turbine generator, offshore substation platform or temporary surface infrastructure shall be erected in any of the WTG and OSP aviation buffer zones unless otherwise agreed in writing between the licensee and the undertaker until after the O&G Decommissioning Date.

(4) No wind turbine generator, inter-array cables, offshore substation platform or temporary surface infrastructure shall be erected in any well buffer zone unless otherwise agreed in writing between the licensee and the undertaker.

Simultaneous operations

4. Prior to commencement of construction of the authorised development, the undertaker and the licensee shall use reasonable endeavours to agree arrangements for the coordination of simultaneous operations to include (but not be limited to) the provision of: schedules of and scope of works; design specifications; proposed timing of the execution of works; methods of working; navigation routes; and a notifications procedure.

Cooperation

5. The undertaker and the licensee must each act in good faith and use reasonable endeavours to cooperate with, and provide assistance to, each other as may be required to give effect to the provisions of this Part of this Schedule.

Financial security arrangements

6. Prior to commencing construction of the authorised development the undertaker must provide evidence to the licensee that it has first put in place suitably robust arrangements to ensure that it can meet any liabilities and obligations under this Part of this Schedule. Such arrangements shall

be maintained during the construction, operation, maintenance, repair, replacement and decommissioning of the authorised development unless otherwise agreed in writing by the licensee (such agreement not to be unreasonably withheld).

Costs

7.-(1) The undertaker must reimburse the licensee in respect of all reasonable costs incurred by the licensee in engaging and retaining such experts, consultants and contractors as may be reasonably necessary to allow the licensee to carry out its functions under these protective provisions.

(2) The undertaker must reimburse the licensee for any additional costs.

(3) The licensee must, as soon as reasonably practicable after incurring any additional costs pursuant to sub-paragraph (2) above, serve the undertaker with an itemised invoice or claim.

(4) Within 14 days of receipt of an itemised invoice or claim, the undertaker must— (a) approve the amount of additional costs specified in the itemised invoice or claim; or (b) dispute the amount of additional costs specified in the itemised invoice or claim (or that the licensee has not used reasonable endeavours to mitigate or minimise any such additional costs) and refer the matter to arbitration pursuant to paragraph 9 of this Part of this Schedule.

(5) Save where otherwise agreed in writing between the undertaker and the licensee, the undertaker must thereafter pay to the licensee the additional costs within 28 days of approving the amount of additional costs pursuant to sub-paragraph (4)(a) above or final decision and award of additional costs pursuant to arbitration.

(6) The licensee must use reasonable endeavours to mitigate in whole or in part and to minimise any additional costs.

Indemnity

8. The undertaker shall be solely responsible for and shall defend, indemnify and hold harmless the licensee against all losses, damages, costs, claims, liabilities, liens, debts, charges expenses (including but not limited to legal expenses), causes of action of whatever nature and any payment made pursuant to an extra judicial settlement arising from, out of, or relating to the construction, operation, maintenance, repair, replacement and decommissioning of the authorised development (or any part thereof) or the failure of it (or any part thereof) in connection with:

(a) personal injury to or sickness, disease or death of personnel (including its officers, directors, employees, contractors, consultants or agency personnel) of the licensee;

(b) loss of, recovery of, or damage to any property of the licensee (including any of licensee's asset infrastructure or any marine and aeronautical vehicles, equipment, machinery, tools, materials, supplies and other objects or items owned, rented, leased, chartered or otherwise belonging to the licensee);

(c) pollution (including any spillage, release, emission to atmosphere or seepage of hydrocarbons) emanating from any property of the licensee; and

(d) consequential loss suffered by the licensee.

Arbitration

9. Any difference arising between the undertaker and the licensee under this Part shall be referred to and settled by arbitration under article 15 (arbitration) of this Order.

Drafting note

The following details will require to be added to Table 5, Schedule 8 of the Development Consent Order in the case that these protective provisions are granted to incorporate the Spirit Licence Protective Provisions Plan into the Development Consent Order as a document to be certified.

SLPPPR115042025 Spirit Licence Protective Provisions Plan 15 April 2025

PART 4

For the protection of the Calder duty holder

Application

1. For the protection of Spirit Energy Production UK Limited as the duty holder of the Calder Platform, the provisions of this Part of this Schedule shall have effect for so long as the licence shall remain extant and Spirit Energy Production UK Limited remains duty holder of the Calder Platform unless otherwise agreed in writing between the undertaker and the duty holder.

Interpretation

2. In this Part of this Schedule—

"additional costs" means any additional costs incurred by the duty holder in carrying out the duty holder's operations as a result of the construction, operation or decommissioning of the authorised development;

"AP-1 helideck" means the helideck located on the accommodation platform at the CPC the coordinates of which are:

Location	Lat WGS84 (DD MM SS.sss)	Lon WGS84 (DD MM SS.sss)
AP-1 helideck	53° 50' 44.348" N	003° 35' 00.579" W

"authorised development" has the same meaning as in Schedule 1 of this Order and shall include any part of the said works including any preparatory works;

"cable" means the power and telecommunications cables connecting the Calder Platform to CPC located in the South Morecambe Field (Block 110/3a) shown ~~purple~~pink and annotated as Calder to CPC on the ~~Spirit and Harbour~~Calder Duty Holder Protective Provisions Plan;

"Calder helideck" means the helideck located on the Calder Platform the coordinates of which are:

Location	Lat WGS84 (DD MM SS.sss)	Lon WGS84 (DD MM SS.sss)
Calder Helideck	53° 48' 26.462" N	003° 39' 48.682" W

"Calder Platform" means the normally unattended minimum facilities wellhead production platform located in the United Kingdom Continental Shelf Block 110/7a D;

"consequential loss" means—

(a) any consequential or indirect loss under English law; or

(b) the following irrespective of whether direct, indirect or consequential loss—

(i) loss or damage arising out of any delay, postponement, interruption or loss of production of hydrocarbons, any inability to produce, process or deliver hydrocarbons or any loss of or anticipated loss of use, profit or revenue;

(ii) loss or damage incurred or liquidated or pre-estimated damages of any kind whatsoever borne or payable under any contract for sale, exchange, transportation, processing, storage or other disposal of hydrocarbons;

(iii) losses associated with business interruption including the costs of overheads incurred during business interruption;

(iv) loss of bargain, contract, expectation or opportunity; or

(v) any other loss or anticipated loss or damage whatsoever in the nature of or consequential upon the foregoing, in either case (a) or (b) above howsoever caused or arising whether under contract, by virtue of any fiduciary duty, in tort or delict (including negligence), as a consequence of breach of any duty (statutory or otherwise) or under any other legal doctrine or principle whatsoever whether or not recoverable at common law or in equity and whether or not foreseeable at the date stated in article 1 (citation and commencement) of this Order;

"CPC" means the hydrocarbon production and processing facilities complex known generally as such or the Central Processing Platform Complex located in the United Kingdom Continental Shelf Block 110/2a, 110/3a and 110/8a;

"duty holder" means Spirit Energy Production UK Limited as duty holder of the Calder Platform;

"duty holder's operations" means the operations and services provided by the duty holder to the licensee in accordance with and pursuant to an operating agreement between the duty holder and the licensee;

"Harbour Energy" means Chrysaor Resources (Irish Sea) Limited, a subsidiary of Harbour Energy PLC

"licence" means United Kingdom Petroleum Production Licence P.099 (as the same may be assigned, amended or replaced from time to time);

"licensee" means the holder from time to time of the licence, which at the date stated in article 1 (citation and commencement) of this Order is Harbour Energy;

"North East corner of the Calder Platform" means the north east corner of the Calder Platform the coordinates of which are:

Location	Lat WGS84 (DD MM SS.sss)	Lon WGS84 (DD MM SS.sss)

North East corner of the Calder Platform	53° 48' 27.021" N	003° 39' 47.105" W

~~"pipeline and cable proximity area" means the area five hundred meters (500m) either side and directly above the pipeline and cable;~~

"offshore substation platform" or "OSP" means Work No. 2(a) forming Part 1 of Schedule 1 to this Order including foundations;

"pipeline" means—

(a) the 3″ Rivers onshore terminal to Calder chemical pipeline with pipeline reference number PL1965; and

(b) the 24″ Calder to Rivers onshore terminal gas pipeline with pipeline reference number PL1966; shown light green and annotated as the Calder to Rivers Onshore Terminal (PL1966) and Rivers Onshore Terminal to Calder (PL1965) on the ~~Spirit and Harbour~~Calder Duty Holder Protective Provisions Plan, together with any associated umbilicals, plant and equipment serving those pipelines;

"pipeline and cable proximity area" means the area five hundred meters (500m) either side and directly above the pipeline and cable shown shaded yellow and annotated as the Pipeline and Cable Proximity Area on the Calder Duty Holder Protective Provisions Plan;

"~~Spirit and Harbour~~Calder Duty Holder Protective Provisions Plan" means the plan certified as the ~~Spirit and Harbour~~Calder Duty Holder Protective Provisions Plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

"temporary surface infrastructure" means any fixed temporary infrastructure to be used in the construction, operation and maintenance, and decommissioning of the authorised development including, but not limited to, jack-up barges and buoys, but does not include temporary surface infrastructure in transit;

"wind turbine generator" or "WTG" means Work No. 1(a) from Part 1 of Schedule 1 to this Order including foundations;

"WTG and OSP aviation buffer zone" means an area of three point seven six nautical miles (3.76 nm) of unobstructed airspace measured from the Calder helideck in all directions and extending vertically from mean sea level shown ~~edged~~shaded blue and edged grey and annotated ~~and shown~~

as the WTG and OSP aviation buffer zone on the ~~Spirit and Harbour~~Calder Duty Holder Protective Provisions Plan;

"WTG and OSP marine buffer zone" means an area of one point five nautical mile (1.5 nm) of unobstructed sea space measured from the North East corner of the Calder Platform in all directions shown edged in light ~~green~~blue and annotated ~~and shown~~ as the WTG and OSP marine buffer zone on the ~~Spirit and Harbour~~Calder Duty Holder Protective Provisions Plan;

"WTG marine corridor" means a one nautical mile (1 nm) wide corridor of unobstructed sea space between the Calder Platform and the AP-1 helideck shown edged in dark green and annotated ~~and shown~~ as the WTG marine corridor on the ~~Spirit and Harbour~~Calder Duty Holder Protective Provisions Plan.

Restriction on authorised development

3.—(1) No wind turbine generator, inter-array cables, offshore substation platform or temporary surface infrastructure shall be erected in the pipeline and cable proximity area, the WTG and OSP marine buffer zone or the WTG marine corridor unless otherwise agreed in writing between the duty holder and the undertaker.

(2) No vessel or surface infrastructure in transit by or attributable to the undertaker or its agents or contractors in exercising the power of this Order shall pass within one nautical mile (1 nm) of the Calder Platform unless otherwise agreed in writing between the duty holder and the undertaker.

(3) No wind turbine generator, offshore substation platform or temporary surface infrastructure shall be erected in the WTG and OSP aviation buffer zone unless otherwise agreed in writing between the duty holder and the undertaker.

Simultaneous operations

4. Prior to commencement of construction of the authorised development, the undertaker and the duty holder shall use reasonable endeavours to agree arrangements for the coordination of simultaneous operations to include (but not be limited to) the provision of: schedules of and scope of works; design specifications; proposed timing of the execution of works; methods of working; navigation routes; and a notifications procedure.

Cooperation

5.The undertaker and the duty holder must each act in good faith and use reasonable endeavours to cooperate with, and provide assistance to, each other as may be required to give effect to the provisions of this Part of this Schedule.

Financial security arrangements

6. Prior to commencing construction of the authorised development the undertaker must provide evidence to the duty holder that it has first put in place suitably robust arrangements to ensure that it can meet any liabilities and obligations under this Part of this Schedule. Such arrangements shall be maintained during the construction, operation, maintenance, repair, replacement and decommissioning of the authorised development unless otherwise agreed in writing by the duty holder (such agreement not to be unreasonably withheld).

Costs

7.-(1) The undertaker must reimburse the duty holder in respect of all reasonable costs incurred by the duty holder in engaging and retaining such experts, consultants and contractors as may be reasonably necessary to allow the duty holder to carry out its functions under these protective provisions.

(2) The undertaker must reimburse the duty holder for any additional costs.

(3) The duty holder must, as soon as reasonably practicable after incurring any additional costs pursuant to sub-paragraph (2) above, serve the undertaker with an itemised invoice or claim.

(4) Within 14 days of receipt of an itemised invoice or claim, the undertaker must— (a) approve the amount of additional costs specified in the itemised invoice or claim; or (b) dispute the amount of additional costs specified in the itemised invoice or claim (or that the duty holder has not used reasonable endeavours to mitigate or minimise any such additional costs) and refer the matter to arbitration pursuant to paragraph 9 of this Part of this Schedule.

(5) Save where otherwise agreed in writing between the undertaker and the duty holder, the undertaker must thereafter pay to the duty holder the additional costs within 28 days of approving the amount of additional costs pursuant to sub-paragraph (4)(a) above or final decision and award of additional costs pursuant to arbitration.

(6) The duty holder must use reasonable endeavours to mitigate in whole or in part and to minimise any additional costs.

Indemnity

8. The undertaker shall be solely responsible for and shall defend, indemnify and hold harmless the duty holder against all losses, damages, costs, claims, liabilities, liens, debts, charges expenses (including but not limited to legal expenses), causes of action of whatever nature and any payment made pursuant to an extra judicial settlement arising from, out of, or relating to the construction, operation, maintenance, repair, replacement and decommissioning of the authorised development (or any part thereof) or the failure of it (or any part thereof) in connection with:

(a) personal injury to or sickness, disease or death of personnel (including its officers, directors, employees, contractors, consultants or agency personnel) of the duty holder;

(b) loss of, recovery of, or damage to any property of the duty holder (including any of duty holder's asset infrastructure or any marine and aeronautical vehicles, equipment, machinery, tools, materials, supplies and other objects or items owned, rented, leased, chartered or otherwise belonging to the duty holder);

(c) pollution (including any spillage, release, emission to atmosphere or seepage of hydrocarbons) emanating from any property of the duty holder; and

(d) consequential loss suffered by the duty holder.

Arbitration

9. Any difference arising between the undertaker and the duty holder under this Part shall be referred to and settled by arbitration under article 15 (arbitration) of this Order.

Drafting note

The following details will require to be added to Table 5, Schedule 8 of the Development Consent Order in the case that these protective provisions are granted to incorporate the Calder Duty Holder Protective Provisions Plan into the Development Consent Order as a document to be certified.

CDHPPPR115042025 Calder Duty Holder Protective Provisions Plan 15 April 2025

PART 5

For the protection of the MNZ licence holder

Application

1. For the protection of the licensee from time to time of Carbon Capture Appraisal and Storage licence CS010 which at the date stated in article 1 (citation and commencement) of this Order is Spirit Energy Production UK Limited, the provisions of this Part of this Schedule shall have effect for so long as the licence remains extant unless otherwise agreed in writing between the undertaker and the licensee.

Interpretation

2. In this Part of this Schedule—

"additional costs" means any additional costs incurred by the duty holder in carrying out the duty holder's operations as a result of the construction, operation or decommissioning of the authorised development;

"authorised development" has the same meaning as in Schedule 1 of this Order and shall include any part of the said works including any preparatory works;

"cable" means the power and telecommunications cables connecting CPC to the DP3 wells shown ~~purple~~pink and annotated as ~~Morecambe to~~ CPC to DP3 on the MNZ Protective Provisions Plan;

"consequential loss" means—

(a) any consequential or indirect loss under English law; or

(b) the following irrespective of whether direct, indirect or consequential loss—

(i) loss or damage arising out of any delay, postponement, interruption or loss of containment of carbon dioxide, any inability to store, process or accept delivery of carbon dioxide or any loss of or anticipated loss of use, profit or revenue;

(ii) loss or damage incurred or liquidated or pre-estimated damages of any kind whatsoever borne or payable under any contract for sale, exchange, transportation, processing, storage or other disposal of carbon dioxide;

(iii) losses associated with business interruption including the costs of overheads incurred during business interruption;

(iv) loss of bargain, contract, expectation or opportunity; or

(v) any other loss or anticipated loss or damage whatsoever in the nature of or consequential upon the foregoing, in either case (a) or (b) above howsoever caused or arising whether under contract, by virtue of any fiduciary duty, in tort or delict (including negligence), as a consequence of breach of any duty (statutory or otherwise) or under any other legal doctrine or principle whatsoever whether or not recoverable at common law or in equity and whether or not foreseeable at the date stated in article 1 (citation and commencement) of this Order;

"CPC" means the hydrocarbon production and processing facilities complex known generally as such or the Central Processing ~~Platform~~ Complex located in the United Kingdom Continental Shelf Block 110/2a, 110/3a and 110/8a;

"legacy wells" means the legacy wells known as DP3 (C1-5), 110/3-3, 110/8-2, 110/8A-7, 110/8-2 Relief and 110/8a-C5 Relief, the coordinates for which are:

Wells	Latitude	Longitude
DP3 (C1-5)	53°49'0.6155"N	3°33'36.1013"W
110/3-3	53°50'15.4200"N	3°34'50.9700"W
110/8-2	53°49'40.9985"N	3°33'22.7997"W
110/8A-7	53°46'4.3984"N	3°34'24.5556"W
110/8-2 Relief	53°49'57.1774"N	3°33'23.0190"W
110/8a-C5 Relief	53°49'40.4140"N	3°34'2.7666"W

"licence" means Carbon Capture Appraisal and Storage licence CS010;

"licensee" means the holder from time to time of the licence, which at the date stated in article 1 (citation and commencement) of this Order is Spirit Energy Production UK Limited;

"MNZ Protective Provisions Plan" means the plan certified as the MNZ Protective Provisions Plan by the Secretary of State under article 12 (certification of documents and plans, etc.) of the Order;

"offshore substation platform" or "OSP" means Work No. 2(a) forming Part 1 of Schedule to the Order including foundations;

"pipeline" means—

(a) the decommissioned 24 inch gas ~~Morecambe~~ DP3 to CPC pipeline with pipeline reference number PL195; and

(b) the decommissioned 2 inch ~~Morecambe~~ CPC to DP3 pipeline with pipeline reference number PL205;

shown light green and annotated as CPC to DP3 on the MNZ Protective Provisions Plan, together with any associated umbilicals, plant and equipment serving those pipelines;

"pipeline and cable proximity area" means the area five hundred meters (500m) either side and directly above the pipeline and cable shown shaded yellow and annotated as the Pipeline and Cable Proximity Area on the MNZ Protective Provisions Plan;

"proposed CCS injection platform" means the licensee's proposed injection platform, to be located in the position marked "SM W 2" shown with a red circle edged black and annotated as SM W 2 on the MNZ Protective Provisions Plan;

"temporary surface infrastructure" means any fixed temporary infrastructure to be used in the construction, operation and maintenance, and decommissioning of the authorised development including, but not limited to, jack-up barges and buoys, but does not include temporary surface infrastructure in transit;

"well buffer zone" means a one nautical mile (1 nm) radius buffer zone around each of the legacy wells~~.~~ shown edged with a dashed black line and annotated as the well buffer zones on the MNZ Protective Provisions Plan;

"well cable buffer zone" means a two hundred metre (200 m) radius buffer zone around the legacy wells shown edged with a dashed red line and annotated as the well cable buffer zones on the MNZ Protective Provisions Plan.

"wind turbine generator" or "WTG" means Work No. 1(a) from Part 1 of Schedule 1 to this Order including foundations;

"WTG and OSP aviation buffer zone" means an area of three point seven six nautical miles (3.76 nm) of unobstructed airspace measured from the proposed CCS injection platform in all directions and extending vertically from mean sea level shown ~~edged~~to its southern extent shaded blue and edged grey and annotated ~~and shown~~ as the WTG and OSP aviation buffer zone on the MNZ Protective Provisions Plan;

"WTG and OSP marine buffer zone" means an area of one point five nautical miles (1.5 nm) of unobstructed sea space measured from the proposed CCS injection platform in all directions and extending vertically from mean sea level shown edged in light ~~green~~blue and annotated ~~and shown~~ as the WTG and OSP marine buffer zone on the MNZ Protective Provisions Plan;

"WTG and OSP marine corridor" means a one nautical mile (1 nm) wide corridor of unobstructed sea space for separate access and egress for rigs and construction vessels to the legacy wells and the proposed CCS injection platform.

Restriction on authorised development

3.—(1) No wind turbine generator, inter-array cables, offshore substation platform or temporary surface infrastructure shall be erected in the pipeline and cable proximity area or the WTG and OSP marine buffer zone unless otherwise agreed in writing between the licensee and the undertaker.

(2) No vessel or surface infrastructure in transit by or attributable to the undertaker or its agents or contractors in exercising the power of this Order shall pass within one nautical mile (1 nm) of the Proposed MNZ injection platform at any time nor within five hundred metres (500 m) of the legacy wells (whilst any rig or other vessel owned, controlled or instructed by the licensee, is present at this location) unless otherwise agreed in writing with the licensee.

(4) No wind turbine generator, offshore substation platform or temporary surface infrastructure shall be erected in the WTG and OSP aviation buffer zone unless otherwise agreed in writing between the licensee and the undertaker.

(5) No wind turbine generator, inter-array cables, offshore substation platform or temporary surface infrastructure shall be erected in the well buffer zone or the WTG and OSP marine corridor unless otherwise agreed in writing between the licensee and the undertaker.

(6) No new cable associated with the authorised development shall be laid within the well cable buffer zone.

Simultaneous operations

4. Prior to commencement of construction of the authorised development, the undertaker and the licensee shall use reasonable endeavours to agree arrangements for the coordination of simultaneous operations to include (but not be limited to) the provision of; schedules of and scope of works; design specifications; proposed timing of the execution of works; methods of working; navigation routes; and a notifications procedure.

Cooperation

5.The undertaker and the licensee must each act in good faith and use reasonable endeavours to cooperate with, and provide assistance to, each other as may be required to give effect to the provisions of this Part of this Schedule.

Financial security arrangements

6. Prior to commencing construction of the authorised development the undertaker must provide evidence to the licensee that it has first put in place suitably robust arrangements to ensure that it

can meet any liabilities and obligations under this Part of this Schedule. Such arrangements shall be maintained during the construction, operation, maintenance, repair, replacement and decommissioning of the authorised development unless otherwise agreed in writing by the licensee (such agreement not to be unreasonably withheld).

Costs

7.-(1) The undertaker must reimburse the licensee in respect of all reasonable costs incurred by the licensee in engaging and retaining such experts, consultants and contractors as may be reasonably necessary to allow the licensee to carry out its functions under these protective provisions.

(2) The undertaker must reimburse the licensee for any additional costs.

(3) The licensee must, as soon as reasonably practicable after incurring any additional costs pursuant to sub-paragraph (2) above, serve the undertaker with an itemised invoice or claim.

(4) Within 14 days of receipt of an itemised invoice or claim, the undertaker must— (a) approve the amount of additional costs specified in the itemised invoice or claim; or (b) dispute the amount of additional costs specified in the itemised invoice or claim (or that the licensee has not used reasonable endeavours to mitigate or minimise any such additional costs) and refer the matter to arbitration pursuant to paragraph 9 of this Part of this Schedule.

(5) Save where otherwise agreed in writing between the undertaker and the licensee, the undertaker must thereafter pay to the licensee the additional costs within 28 days of approving the amount of additional costs pursuant to sub-paragraph (4)(a) above or final decision and award of additional costs pursuant to arbitration.

(6) The licensee must use reasonable endeavours to mitigate in whole or in part and to minimise any additional costs.

Indemnity

8. The undertaker shall be solely responsible for and shall defend, indemnify and hold harmless the licensee against all losses, damages, costs, claims, liabilities, liens, debts, charges expenses (including but not limited to legal expenses), causes of action of whatever nature and any payment made pursuant to an extra judicial settlement arising from, out of, or relating to the construction, operation, maintenance, repair, replacement and decommissioning of the authorised development (or any part thereof) or the failure of it (or any part thereof) in connection with:

(a) personal injury to or sickness, disease or death of personnel (including its officers, directors, employees, contractors, consultants or agency personnel) of the licensee;

(b) loss of, recovery of, or damage to any property of the licensee (including any of licensee's asset infrastructure or any marine and aeronautical vehicles, equipment, machinery, tools, materials, supplies and other objects or items owned, rented, leased, chartered or otherwise belonging to the licensee);

(c) pollution (including any spillage, release, emission to atmosphere or seepage of hydrocarbons) emanating from any property of the licensee; and

(d) consequential loss suffered by the licensee.

Arbitration

9. Any difference arising between the undertaker and the licensee under this Part shall be referred to and settled by arbitration under article 15 (arbitration) of this Order.

Drafting note

The following details will require to be added to Table 5, Schedule 8 of the Development Consent Order in the case that these protective provisions are granted to incorporate the MNZ Protective Provisions Plan into the Development Consent Order as a document to be certified.

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