PLANNING ACT 2008

THE INFRASTRUCTURE PLANNING (APPLICATIONS: PRESCRIBED FORMS AND PROCEDURE) REGULATIONS 2009

The Morecambe Offshore Windfarm Generation Assets

Spirit Energy's Responses to the Applicant's comments on Spirit Energy's Relevant Representation

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EN010121
Unique Reference: 20049981

Date	26 November 2024

Spirit Energy's Responses to the Applicant's comments on Spirit Energy's Relevant Representation (RR-077)

In this table, reference to 'Spirit' means Spirit Energy.

ID	RR	Applicant's Response	Spirit Energy Response to Applicant
Overall comments			
RR-077-01	Please see the attached Relevant representation of Spirit Energy Production UK Limited in Response to the S56 Notice	The Applicant notes this response.	N/A
RR-077-02	'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. We 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). This written representation in response to the section 56 notice from the Applicant is made on behalf of Spirit. Spirit is headquartered in the UK and collectively operates and/or holds interests in 27 producing fields and more than 70 petroleum licences across the UK and the Netherlands. Spirit is also the holder of Carbon Dioxide Appraisal and Storage Licence CS010.	The Applicant notes this response.	N/A

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	The Spirit operated Morecambe Hub currently comprises three fields in the East Irish Sea: North Morecambe, South Morecambe and Rhyl. These operations are licenced by the Oil and Gas Authority under Seaward Production Licences with references P.251 (6 July 1976), P.1483 (13 June 2007) and P.153 (10 July 1972) (SPLs). Spirit is designated duty holder, and therefore operator, of the East Irish Sea fields including Calder, licenced by Chrysaor Resources (Irish Sea) Limited (a Harbour Energy plc group company) (Harbour). Spirit has interests that lie within or adjacent to the order limits and the area for offshore works identified in the DCO and supporting plans that accompany the Application. Spirit's assets in the East Irish Sea include platforms, pipelines, seabed infrastructure and licensed blocks. The Morecambe Hub comprises late life assets which, paired with regulatory requirements and operating standards, inevitably presents a challenging environment for operation and maintenance activities to ensure the assets are safely managed. Spirit aligns with the UK government's latest OGA Strategy, encompassing Net Zero and Maximising Economic Recovery (MER) principles, and therefore the company seeks to: 1) safely deliver production from their existing assets into the 2030's; 2) meet and de-risk decommissioning		

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	obligations; and 3) actively pursue energy transition opportunities that could repurpose existing infrastructure.		
RR-077-03	In summary, whilst Spirit does not object to the principle of offshore wind development, it is concerned that the location of the Project as proposed in the Application does not allow for continued safe petroleum operations and managing decommissioning obligations in the East Irish Sea. Approval of the Project would fundamentally undermine Spirit's existing regulatory obligations and therefore licensed operations and would give rise to serious safety concerns and operational impacts including the ability to operate in an efficient and cost-effective manner. This relates in particular to the effects of the Project on aviation activity as well as shipping and navigation.	Please refer to below subsequent responses on these matters, in particular RR-077-22 and RR- 077-25.	See Spirit's corresponding responses below.
RR-077-04	The effects of the Project associated with aviation activity and shipping and navigation also has implications with respect to future transition of the Morecambe Hub fields for carbon dioxide (CO2) storage as part of the Morecambe Net Zero Project (MNZ) pursuant to obligations under the Carbon Dioxide Appraisal and Storage Licence CS010.	The Applicant notes this response. Please refer to our response in relation to Carbon Capture, Usage and Storage (CCUS) under Part 8 of this Spirit Energy response.	See Spirit's corresponding responses below.
RR-077-05	This representation comprises the following parts:	The Applicant notes this response. Please refer to below subsequent	See Spirit's corresponding responses below.

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	Part 3 - a summary of Spirit's assets and operations in the Irish Sea including the interface with the Project; Part 4 - an overview of the legislation and policy that underpins this representation; Part 5 - a summary of Spirit's concern with respect to maintaining safe operations given the impact of the Project on helicopter access; Part 6 - a summary of Spirit's concern with respect to maintaining safe operations given the impact of the Project on shipping and navigation; Part 7 - the implications of the Project with respect to Spirit's decommissioning activities and obligations; Part 8 - the implications of the Project with respect to MNZ and the UK's carbon capture utilisation and storage (CCUS) ambitions and targets; Part 9 - Spirit's initial observations on the Applicant's 'Habitats Regulations Assessment Without Prejudice Derogation Case; Part 10 - Spirit's position with respect to the protective provisions for its benefit in the draft Development Consent Order (dDCO) (PINS Document Reference:3.1).	responses on these matters.	
Part 3 – Spirit's Assets and Operations			
RR-077-06	Drawing PC1165-RHD-ES-OF-DR-Z-0055 illustrating the relevant oil and gas infrastructure, Licences and the Order Limits is provided in the Applicant's Environmental Statement (ES) Volume 5, Chapter 17	The Applicant notes this response.	N/A

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	"Infrastructure and Other Users Figures" (PINS Document Reference: 5.3.17). This is copied below.		
RR-077-07	The Morecambe Hub comprises: ▪ Three fields in the East Irish Sea - North Morecambe, South Morecambe and Rhyl. The fields lie approximately 25km south west of Walney Island, across blocks 110/2a, 110/3a, 110/8a and 113/27b, in water depths that range from 17 to 35m. One of the largest gas fields in the UKCS, at its peak, the Morecambe Hub met 20% of the UK's domestic gas demand. Despite being in production for over 30 years, the Morecambe Hub remains a cornerstone operated asset in the Spirit portfolio with production expected into the 2030's ▪ South Morecambe was discovered in 1974 and was the first of Spirit's fields to be developed, with production starting in 1985. The field has been developed using seven fixed jacket platforms, including the three-platform manned Central Processing Complex, four Normally Unmanned Installations (NUIs) and 36 development wells. Gas is exported via a 36" dedicated pipeline to the Barrow Gas Terminals. ▪ North Morecambe was discovered in 1976, with first gas in 1994. The development includes the normally unmanned DPPA platform which acts as	The Applicant notes this response, including that production is expected into the 2030s. The Morecambe Offshore Windfarm is expected to begin operation by 2030 and The Crown Estate (TCE) lease is for 60 years, so it is acknowledged there will be overlap albeit for a relatively small part of the overall operation of the windfarm.	The Applicant disagrees that the overlap can be characterised as "relatively small". The statement from the Applicant would appear to ignore the overlap of the entire construction phase of the Project. It would also appear to ignore that Spirit has stated that production is "expected into the 2030s". There is no statement to the effect that Spirit will cease production at the time that the wind farm commences. The response from the Applicant would also appear to ignore the decommissioning obligations that, as set out in Spirit's Relevant Representation [RR-077], will continue for several years following cessation of production and have the potential to be significantly impacted by the proposed development. The Applicant has not addressed the overlap with the Morecambe Net Zero (MNZ) project which is anticipated to transcend the operational stage of the proposed development.

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	the main gathering hub for the area, 10 development wells and a 12" pipeline to the Barrow Gas Terminals. ▪ Rhyl, which is north of the North Morecambe field, was discovered in 2009 and brought into production in March 2013. It has been developed as a two-well subsea tieback to DPPA. ▪ Gas from all the fields is processed at Barrow Gas Terminals, which is located near Barrow-in-Furness in Cumbria, before entry into the National Transmission System. ▪ Spirit's offshore facilities and onshore terminal also provides gathering and processing services for third parties in the East Irish Sea. As set out at paragraph 1.4, Spirit is designated duty holder, and therefore operator, of East Irish Sea fields including Calder, licenced by Harbour.		
RR-077-08	National Significance of Spirit's Operations As a leading upstream producer of natural gas, Spirit contributes substantially to the UK's energy landscape by ensuring a steady supply of domestic resources, reducing dependency on foreign imports which have higher emissions. This not only stabilises energy prices across the UK but supports thousands of jobs directly and indirectly. Spirit directly employs in excess of 600 employees across	Please refer to responses RR-077-22 and RR-077- 25 below. The Applicant also notes paragraph 3.3.62 of National Policy Statement (NPS) EN-1: "Government has concluded that there is a critical national priority (CNP) for the provision of nationally significant low carbon infrastructure." The Morecambe Offshore Windfarm is critical national priority infrastructure.	See Spirit's responses to RR-077-22 to RR-077-25.

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	sites in both the UK and Netherlands. Revenue across the group for the 2023 financial year totalled £950 million with a further £1.05 billion of total tax charges. The Morecambe Hub, and associated producing fields are fundamental to ensuring sustained, long-term energy security for the UK. Despite being in production for over 30 years, the Morecambe Hub remains a cornerstone operated asset in the Spirit portfolio. Spirit's fields continue to produce in excess of 18 million cubic feet of natural gas per year, and Spirit's ambition is for continued investment in the assets so that they can continue to operate into the 2030's. There are remaining gas volumes of up to 192 bcf that could be extracted from the licenced area which would ultimately require Spirit's Central Processing Complex infrastructure to facilitate economic recovery. The Project would not allow for continued safe operations of the asset so as to allow for these resources to be produced in line with obligations under the UK Governments MER Strategy. Spirit is therefore forecasting significant capital expenditure over the next 5 years to ensure continued gas production.		
RR-077-09	Morecambe's transition to Net Zero The Morecambe Hub fields will play a pivotal	The Applicant notes this response. Please refer to our response in relation	See Spirit's response to RR-077-86.

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	part in the UK's journey to net zero. Once the gas fields have ceased natural gas production, repurposing the reservoirs and associated infrastructure for carbon storage is of paramount importance to ensure the UK can meet its Net Zero targets. As a result, Spirit's vision for repurposing of the fields has been endorsed by the UK Government through the award of Carbon Storage licence CS010 in September 2023, pursuant to section 18 of the Energy Act 2008. The UK's Net Zero Strategy, published in 2021 sets out a target of 20-30 million tonnes per annum (MTPA) of CCUS in the UK by 2030, rising to at least 50 MTPA by 2035. It is expected that Spirit's Morecambe Net Zero CCS project could facilitate up to 25MTPA of carbon storage by 2040, delivering half of the UK's storage target. The cumulative volume that can be stored is up to 1 GT of CO2 which is equivalent to 10 years of the UK's current industrial CO2 emissions. The initial phase of the MNZ project seeks to bring together a number of the UK's leading cement and lime producers (the Peak Cluster) to deliver CO2 volumes into Spirit's carbon stores. The MNZ Peak Cluster partnership was created with the fundamental goal of decarbonising 40% of the UK's cement and lime industry and to ensure that close to four million tonnes of carbon dioxide emissions will be captured and permanently stored per year.	to Carbon Capture, Usage and Storage (CCUS) under Part 8 of this Spirit Energy response.	

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	The Climate Change Committee's (CCC) latest report (July 2024) highlights that rapid initial deployment and scale-up of CCUS technologies are critical in the context of meeting the ambitious goals outlined in the Carbon Budget Delivery Plan, which includes at least 5 MtCO2 of engineered removals by 2030. The CCC has affirmed that CCUS is a necessity in achieving Net Zero goals. The scale of MNZ and capacity for storage at the Morecambe Hub must not be understated and is absolutely critical to realising these aspirations.		
R-077-10	Affected Assets Spirit assets in the East Irish Sea include platforms, pipelines, seabed infrastructure and licensed blocks. Spirit's specific assets within close proximity of the Project are identified in Table 7.13 of Volume 5 Chapter 17 of the ES "Infrastructure and Other Users" (PINS Document Reference: 5.1.17). This has been reproduced at Appendix A for reference. In summary, the Affected Assets comprise the following; with related operations being within proximity to the potential location the wind farm boundary and turbines (the Unconstrained Areas as defined in the ES): 1. South Morecambe Central Processing	The Applicant confirms that all identified assets have been considered within Environmental Statement (ES) Chapter 17 Infrastructure and Other Users (APP-054). Please refer to below subsequent response (RR-077-11) on this matter.	See response to RR-077-11.

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	Complex (CPC) comprises of the Accommodation Platform 1 (AP-1), Central Processing Platform 1 (CPP-1) and Drilling Platform 1 (DP-1). There are two helidecks within the Central Processing Complex – one at AP-1 and one at DP-1. 2. Calder CA1 (Calder) remote drilling and production platform with helideck which (as set out in paragraph 1.4) Spirit is designated duty holder, and therefore operator, under licence from Harbour. 3. South Morecambe DP6 NUI (with helideck). South Morecambe DP8 NUI (with helideck). North Morecambe DPPA NUI (with helideck).		
RR-077-11	Spirit notes that Table 7.13 provided by the Applicant (and replicated at Appendix A) does not include the North Morecambe DPPA platform. Spirit considers that the North Morecambe DPPA platform (in addition to all of the platforms listed at Appendix A) are the Affected Assets due to the nature of the flight operations via the Central Processing Complex. The below table references the distances noting proximity to the wind farm boundary and unconstrained areas.	The Applicant notes that the North Morecambe DPPA platform is listed in the second page (page 64) of Table 17.13 of ES Chapter 17 Infrastructure and Other Users (APP-054), and also considered in Appendix 17.1 Helicopter Access Study (APP-081). Appendix 17.1 Helicopter Access Study (APP-081) identifies that a low percentage of helicopter flights were flown to the North Morecambe DPPA platform at night and under Instrument Meteorological Conditions (IMC).	North Morecambe DPPA platform helideck is a night rated deck which allows to operate helicopters in both day and night conditions, and Spirit Energy operates flight schedule to ensure that the maximum productive hours are being delivered on the Asset. Appendix 17.1 Helicopter Access Study (APP-081) has made an incorrect assumption regarding the Vantage data and historical flights. There were two large maintenance campaigns undertaken in 2022 and 2023 with the Walk to Work (W2W) vessel and Jack up barge which contributed to the reduction of helicopter flights to DPPA platform for safety critical and production critical maintenance over those two years in the Vantage data provided to the Applicant. However Spirit

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			consider that the W2W vessel to rig interface is a significant challenge since very few W2W systems can reach the lower deck of a jack-up drilling rig. Thus the number of suitable W2W vessels is very limited and they may not be available when required.
RR-077-12	Throughout the remainder of this representation, we use the term the Affected Assets which means all of the assets above and listed as under the ownership of Spirit (plus Calder that is under the ownership of Harbour) and referred to above. We will refer elsewhere to specific assets within the list of Affected Assets, as the context requires.	The Applicant notes this response.	N/A
DCO comments			
RR-077-13	For the purposes of securing the powers to construct, operate and maintain the Project, the Applicant's Offshore Works Plan (PINS Document Reference: 2.3) shows the Order Limits edged red and the area within which turbines may be installed hatched light green. The Central Processing Complex infrastructure is illustrated in purple and is denoted as AP-1, DP-1 and CPP-1 due north of the Order limits. Calder is shown (illustrated in purple) to the east of the Order limits. The Offshore Works Plan is enclosed at Appendix B. It is instructive at the outset to explain how the 1.5nm "buffer zone" used in the ES is currently secured in the dDCO.	The Applicant notes this response.	N/A

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RR-077-14	Paragraph 3 (restriction on unauthorised development) of Part 3 of Schedule 3 of the dDCO (Protective provisions for the protection of Spirit Energy) states: "*No wind turbine generator or offshore substation platform shall be erected in the pipeline and cable proximity area or in the WTG and OSP buffer zone unless otherwise agreed in writing between the owner and the undertaker*." The following terms referred to above are defined at paragraph 2: "*pipeline and cable proximity area" means the area five hundred meters (500m) either side and directly above the pipeline and cable;*" "*WTG and OSP buffer zone" means an area of one point five nautical miles (1.5 nm) of clear airspace measured from the outer extremity edge of each of the AP-1 helideck and DP-1 helideck to any tip from any wind turbine generator located within the Licence and extending vertically from mean sea level*." It is the latter definition that is particularly important. Specifically, that the 1.5nm "buffer zone" used in the ES is secured by virtue of the protective provisions applying a 1.5nm minimum separation distance between turbine tips measured from (only) the following: ▪ The AP-1 helideck – defined paragraph 2	The Applicant notes this response.	N/A

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	as "…the helideck located on the accommodation platform which is linked by bridge to CPP1"; and ▪ The DP-1 helideck – defined in paragraph 2 as "the helideck located on the drilling platform 1 located in the United Kingdom Continental Shelf Block 110/2a, 110/3a and 110/8a". With respect to Calder, paragraph 3 (restriction on unauthorised development) Part 2 of Schedule 2 of the dDCO (Protective provisions for the protection of Harbour Energy) states: "*No wind turbine generator or offshore substation platform shall be erected in the pipeline and cable proximity area or in the WTG and OSP buffer zone unless otherwise agreed in writing between the owner and the undertaker*." The definitions in paragraph 2 are similar to those that apply in Spirit's protective provisions except in respect of applying instead to Calder: "*WTG and OSP buffer zone" means an area of one point five nautical miles (1.5 nm) of clear airspace measured from the outer extremity edge of the Calder Platform to any tip from any wind turbine generator located within the Licence and extending vertically from mean sea level*" "*Calder Platform" means the normally unattended, minimum facilities wellhead*		

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	platform located in the United Kingdom Continental Shelf Block 110/7a" Any references to a 1.5nm "buffer zone" in this representation must be considered by reference to the aforementioned protective provisions and definitions.		
RR-077-15	As an important preliminary matter, Spirit note that the protective provisions for its benefit are framed in a way that only secures the 1.5nm buffer zone for aviation purposes – this separation distance being measured from the AP-1 helipad and DP-1 helipad. The consequence is that the removal of those helipads in turn removes the 1.5nm buffer zone. That being the case: ▪ The protective provisions effectively only secure a 500m buffer zone for shipping and navigation purposes. For reasons that we come onto at Part 6 that is inadequate, especially as marine requirements will remain to enable Spirit to manage decommissioning obligations and secure rig and heavy lift vehicle access until mid-2030's. For the foregoing reason, and to aid clarity, Spirit's position is that the protective provision must be split out and articulated separately for marine and aviation requirements. The protective provisions do not contemplate any change to the helipad locations at the Central Processing Complex or a new location for the take-off and landing of helicopters to serve	The Applicant notes this response. The Applicant will continue to engage with Spirit Energy to ensure that the definition of the buffer zones within the protective provisions (Schedule 3 Part 3 of the draft DCO APP-012) is appropriate for Spirit Energy's operations. As set out in at RR-077-88 below, the Applicant proposes to include revised protective provisions in the version of the draft DCO submitted at Deadline 2.	

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	the Central Processing Complex infrastructure. Thus the 1.5nm simply assumes the "status quo". That is plainly inadequate: the buffer zone (which for the reasons we come onto must be a greater distance than 1.5nm in any event) must be measured, as we note is the case with the protective provision in respect of Calder, from the "outer extremity" of all of the Central Processing Complex infrastructure.		
Part 4 – Legislative and policy context			
RR-077-16	We generally agree with the statement of legislation and policy set out in chapter 2 of the ES. However, the following section is of particular relevance to consideration of the Application in light of Spirit's interests and operations in the area. The oil and gas sector is highly regulated. The impacts of the Project on Spirit's existing and future operations will require to be managed by Spirit in the context of that regulatory framework. Accordingly, the implications of applicable regulatory frameworks (as set out in the paragraphs that follow) are relevant to the determination of the Application. As discussed in the remainder of this representation, the EIA undertaken by the Applicant does not fully capture the impacts of the Project in relation to Spirit's interests. Moreover, the health and safety regulatory regime under which Spirit operates requires it to assess the risks arising	The Applicant notes this response. Please refer to the Applicant's subsequent responses on these matters under Parts 4, 5, 6 and 7 of this Spirit Energy Relevant Representation (RR).	

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	from the Project in a different manner and respond to those risks accordingly. For this reason, it is very important and highly relevant for the Examining Authority to consider the potential impacts of the Project as viewed within that health and safety context and the consequential implications for Spirit.		
RR-077-17	**Health and safety - Legislative requirements** This section of the representation sets out the health and safety requirements that apply to Spirit's operations – it must be read together with the health and safety risks as a consequence of the Project that are identified and illustrated at Part 5: Aviation related safety. It is also important and relevant in the context of appraising the risks identified as a consequence of the Project at Part 6: Shipping and Navigational Risk. The primary legislation that gives rise to Spirit's representation, and that must be afforded full weight in appraising the safety risk of the Project, relates to workplace health and safety requirements in operating offshore installations. In particular, the following: 1. The Health and Safety at Work etc. Act 1974 (HSWA) enables wide-ranging regulatory instruments to be developed and enforced. Secondary legislation in the form of regulations express general duties, principles and goals with subordinate detail	The Applicant notes this response and agrees that these are the primary relevant health and safety pieces of legislation.	N/A

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	set out in Approved Codes of Practice (ACOP) and guidance. The general duties in HSWA are comprehensive in coverage. 2. The Management of Health and Safety at Work Regulations 1999 (MHSWR) require the assessment of risks to identify the measures required to comply with duties under health and safety law – the assessment provisions of MHSWR permeate all other workplace health and safety legislation. A range of regulations were put in place specifically for the offshore oil and gas industry following the Piper Alpha disaster in July 1988 that claimed the lives of 167 men – recommendations from the Cullen enquiry transformed the regulations for offshore installations with the two key regulations (comprising related requirements): 1. The Offshore Installations (Offshore Safety Directive)(Safety Case etc) Regulations 2015 (SCR): The primary aim of SCR is to reduce risks from major accident hazards, and to implement the central recommendation of the Cullen enquiry, requiring preparation of a Safety Case Standards for the control of major accident risks are set by PFEER (see next paragraph) and other regulations. A Safety Case demonstrates that arrangements are in		

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	place which, if implemented, are capable of achieving compliance with these legal objectives. These arrangements include the Safety and Environment Critical Elements (SECE) to prevent major accidents or reduce their consequences, and the development of an independent verification scheme to demonstrate the ongoing condition and suitability of SECEs. Spirit, as an offshore operator, are legally required to comply with the provisions described in the Safety Case. Offshore Installations (Prevention of Fire and Explosion, and Emergency Response Regulations 1995) (PFEER): PFEER requires a formal risk assessment of major accident hazards to be carried out, and sets out specific requirements for equipment that must be in place to reduce the likelihood of a fire or explosion event, to quickly bring such an event under control, mitigate the consequences and ensure that people are kept safe from harm. Measures specified within PFEER are SECE under SCR."		
	ALARP The concept of 'reasonably practicable' is a core principle of UK health and safety law, and is a key part of the general duties of the HSWA and specific regulatory requirements placed on offshore installations under SCR and PFEER.	The Applicant notes this response and agrees with definitions provided by Spirit Energy.	N/A

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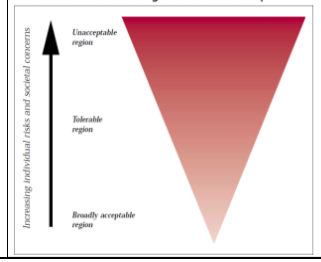
	ALARP is short for 'As Low As Reasonably Practicable' and describes the level to which Spirit is obliged to ensure that workplace risks are controlled. The term 'reasonably practicable' is a narrower term than 'physically possible' and involves weighing a risk against the sacrifice (trouble, time and cost) needed to reduce it. Generally, risk reduction measures need to be adopted except where they involve grossly disproportionate sacrifice. **A framework for the tolerability of risk has been published by the Health and Safety Executive:** The triangle represents increasing level of 'risk' for a particular hazardous activity as we move from the bottom of the triangle towards the top  **Unacceptable:** The dark zone at the top represents an unacceptable region where an activity is regarded as unacceptable whatever the level of benefits it may bring **Broadly Acceptable:** The light zone at the bottom represents a broadly acceptable region where risks are generally regarded as insignificant and adequately controlled **Tolerable:** Between the unacceptable and broadly acceptable regions is the tolerable region representing risks from activities that people are prepared to tolerate in order to secure benefits		
RR-077-20	Under SCR and PFEER, Spirit is required to assess the risks of a major accident and ensure that suitable SECE are in place to control these risks to ALARP. Crucially, Spirit must carry out regular Maintenance, Inspection and Testing (MIT) to demonstrate that SECEs continue to be suitable and remain in good repair and condition to perform their required safety function when required.	The Applicant notes this response and is aware of Spirit Energy's requirements under Single Central Record (SCR) and Prevention of Fire and Explosion, and Emergency Response (PFEER) regulations.	SCR does not mean Single Central Record as noted by the Applicant, it stands for Safety Case Regulations.

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RR-077-21	MIT activities are carried out in accordance with maintenance strategies designed to preserve equipment availability and reliability; the strategy specifies the MIT intervals to achieve the required performance – any deviation from the MIT strategy, including MIT intervals, could have significant adverse effects on equipment performance i.e. MIT cannot simply be 'bundled' up for delivery in a less frequent campaign.	The Applicant considers that it is common practice for oil and gas operators to optimise delivery of maintenance campaigns in line with operating or other conditions or constraints, including bundling of activities in less frequent campaigns where necessary. Further detail is provided in the response to RR- 077-25 and RR-077-27.	Spirit still needs to travel to the assets to reset plant and rectify problems. These flights to rectify the faults or reset the plant may be outside daylight hours so Spirit will have to wait longer to reset so experience longer periods with the production offline. This delay could be considerable in the months where there are limited daylight hours, and these months are also when the price of the oil and gas is at its highest. If Spirit experience increased delays, it will incur increased cost as it does not have the ability to move the scope to the next campaign. If Spirit have to fly over more days, it is exposing its workforce to increased risk with more take off and landings on assets.
RR-077-22	**National planning policy** With respect to national planning policy relevant to the determination of the Application Spirit make the following observations – particularly in the context of the safety concerns identified in this representation: National Policy Statement for Renewable Energy Infrastructure (EN-3) provides as follows: a. Where a proposed offshore wind farm potentially affects other offshore infrastructure or activity, a pragmatic approach should be employed by the Secretary of State. Much of this infrastructure is important to other	NPS EN-3 recognises that offshore wind farms may be located close to other offshore infrastructure such as oil and gas, carbon capture and telecommunications. The scale and location of future offshore wind development around England and Wales means that development has occurred, and will continue to occur, in or close to areas where there is other offshore infrastructure (para 2.8.196). Where a potential offshore wind farm is proposed close to existing operational offshore infrastructure, or has the potential to	The Applicant has selected paragraphs from the Impacts subsection on *Other offshore infrastructure and activities* within the sections of NPS EN-3 on the *Applicant's assessment, Factors influencing site selection and design* (2.8.196 – 2.8.203) and *Secretary of State Decision Making* (2.8.341 – 2.8.348). In doing so, the Applicant has omitted and avoided addressing the aspects of those sections that contextualise and balance the extracts they have selected. The Applicant has quoted almost all of

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	offshore industries as is its contribution to the UK economy. In such circumstances the Secretary of State should expect the applicant to minimise negative impacts and reduce risks to as low as reasonably practicable (Para 2.8.342 - 2.8.344). b. As such, the Secretary of State should be satisfied that the site selection and site design of the proposed offshore wind farm has been made with a view to avoiding or minimising disruption or economic loss or any adverse effect on safety to other offshore industries. The Secretary of State should not consent applications which pose unacceptable risks to safety after mitigation measures have been considered (Para 2.8.346). c. 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 (Para 2.8.347).	affect activities for which a licence has been issued by government, the applicant should undertake an assessment of the potential effects of the proposed development on such existing or permitted infrastructure or activities (para 2.8.197). NPS EN-3 (para 2.8.342) states that the Secretary of State should take a pragmatic approach where a proposed offshore wind farm potentially affects other offshore infrastructure or activity. The Applicant will be expected to work with the impacted sector to minimise negative impacts and reduce risks to as low as reasonably practicable (para. 2.8.344). 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	paragraphs 2.8.341 – 2.8.348. However, it has selectively omitted reference to the statutory protections for navigational safety zones relating to offshore petroleum developments under the Petroleum Act 1998 (paragraph 2.8.341), acknowledgement that non-wind offshore infrastructure is important for its contribution to the UK economy (paragraph 2.8.343), and the express statement that the Secretary of State should not consent applications which pose intolerable risks to safety after mitigation measures have been considered. In Spirit's Relevant Representation, it highlighted that the Applicant has not had due regard to the navigational space required for Spirit to comply with the relevant provisions under the Petroleum Act 1998. The Applicant has not addressed this in its response. The Applicant has referred to the protective provisions in the draft DCO in its response to RR-077-81, but, per the Spirit's position in RR-077-88 below, the buffer zones provided in the protective provisions in the dDCO are not adequate. The Applicant has not acknowledged in its response that it must avoid or minimise causing economic loss or adverse effects on safety for

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		reasonably practicable (para 2.8.345). 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 (para. 2.8.347). 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 (para 2.8.348). The Applicant has been engaging with Spirit Energy on the location of the proposed site since February 2020. The Applicant has undertaken a careful site design process, building in buffer zones around current oil and gas platforms and pipelines (as secured in the draft Development Consent Order (DCO) (APP-012) by protective provisions in favour of Spirit Energy), to allow for	other offshore industries and demonstrated how it will comply with that aspect of the policy. The Applicant has stated in its response that it "does not consider that the presence of MOWF will materially or adversely affect the future viability, or safety, of the Morecambe Hub." However, the test is not one of materiality but of avoiding or minimising effects. Rather, the point that requires addressing is that the Applicant must avoid or minimise economic loss or adverse effects on safety for other offshore industries, and that the Secretary of State should not consent to the proposed wind farm where it poses intolerable risks to safety after considering mitigation measures. Spirit will continue to engage with the Applicant on these issues, but requests that a direct response is provided by the Applicant on the policy concerns raised.

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		appropriate co- existence and minimise disruption and economic loss to Spirit Energy (Schedule 3 Part 3 of the draft DCO APP-012). The Applicant has undertaken a full assessment of the potential impacts on Spirit Energy, with input from aviation and offshore safety experts, as presented in the following documents Chapter 14 - Shipping and Navigation of the ES (APP-051), Appendix 14.1 - Navigational Risk Assessment (NRA) (APP-073), Chapter 17 - Infrastructure and Other Users of the ES (APP-054), Appendix 17.1 - Helicopter Access Study (APP-081) and Appendix 17.2 - Radar Early Warning System Technical Report (APP-082). For the reasons summarised in response to RR- 077-25 below, the Applicant's position is that the presence of MOWF does not present a safety risk to Spirit Energy's operations and infrastructure at the Morecambe Hub. Furthermore, the Applicant does not consider that the presence of MOWF will materially or adversely affect the future	

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		viability, or safety, of the Morecambe Hub. Notwithstanding this, the Applicant is content to enter into, and will continue to progress, an agreement to facilitate cooperation and co-existence to the extent appropriate in addition to Protective Provisions.	
RR-077-23	More generally, the Overarching National Policy Statement for Energy (EN-1) states that natural gas will continue to play an important part in the UK's fuel mix. It notes at paragraph 3.4.5 that "The Energy White Paper signals a decisive shift away from unabated natural gas to clean energy. This transformation, as reiterated in the British Energy Security Strategy, cannot be instantaneous without jeopardising a secure, reliable, and affordable energy system".	The Applicant notes this response. Offshore wind is designated as Critical National Priority under section 4.2 of EN-1, a designation afforded to low carbon infrastructure.	N/A
RR-077-24	For the reasons set out in the remainder of this representation, it is Spirit's position that the Application does not accord with relevant national policy in that it does not: ▪ Provide for the appropriate co-existence of Spirit's gas production operations with the Project – both in terms of its current operations and statutory obligations under the OGA Strategy, see Appendix C; ▪ Allow Spirit to comply with its obligations to decommission its relevant offshore infrastructure in accordance with the	The Applicant notes this response and refers to the response to RR-077-22 above and RR-077-25 and RR-077-27 below. Please also refer to the Applicants responses on these matters under Parts 4, 5, 6 and 7 of this Spirit Energy RR.	See Spirit's corresponding responses to RR-077-22 above and RR-077-25 and RR-077-27 below., and Parts 4 – 7.

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	conditions of its SPL and the Petroleum Act 1998; ▪ Seek to minimise negative impacts and reduce safety risks to as low as reasonably practicable in respect of Spirit's operations and assets, or ▪ Avoid or minimise disruption, economic loss or adverse effects on safety in so far as Spirit's interest are concerned		
Part 5 – Aviation			
RR-077-25	Spirit's primary concerns with respect to aviation related safety are as follows: First, that the minimum 1.5nm "buffer zone" between the potential siting of wind turbines and the Central Processing Complex infrastructure and Calder helipads is simply inadequate for the purposes of ensuring safe helicopter arrivals and departures to and from (and between) those Affected Assets. There remains uncertainty as to the precise extent of what would constitute a safe "buffer" for take-off and landing purposes, and the corresponding risk given the current distances between other Affected Assets and the Unconstrained Areas.	The impact of the Project Wind Turbine Generator (WTGs) on helicopter access to gas platform helidecks is detailed in ES Appendix 17.1 Helicopter Access Study (APP-081). A 1.5nm separation radius from WTGs and OSPs would allow day Visual Meteorological Conditions (VMC) access to the Calder CA1 and South Morecambe (CPC-1/DP1) platforms, as secured in protective provisions in the draft DCO (APP-012). Based on Vantage data (showing flight times and destinations from Jan 2018 - Sept 2023) provided by Spirit Energy, flights under VMC access represent the vast majority of helicopter flights accessing these platforms. Whilst some IMC access would be restricted	Spirit Energy has now provided a copy of Aviation report by AviateQ outlining minimum distance requirements to operate under VMC and IMC conditions based on the operated aircraft type (AW169) in EIS. This has now been submitted in to the Examination at Appendix A of Spirit's Written Representation. Details of studies and requirements that are in excess of the 1.5nm the Applicant deems adequate are detailed further in Spirit's Written Representation and in the AviateQ Report. All NUI flights are routed via CPC-1/DP1 platform and the aviation impact is being applied to all NUI platforms including Calder, DP6, DP8 and North Morecambe (DPPA) platform. Spirit Energy maximise the aircraft payload for all operations including the offshore NUI

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		to these platforms, these restrictions would be a logistical operational access impact rather than a safety issue. The Applicant notes that flight delays and cancellations to the platforms will already occur (e.g. due to weather, logistical or operational reasons) and that it is normal operational practice to manage such delays as part of the MIT programme. It is not credible that a short delay in flight access due to the presence of the Project will significantly adversely impact on the functioning of a Safety and Environmentally Critical Elements (SECE). Since 27 June 2023, the Applicant has requested that Spirit Energy share its aviation access study report and present any data to support its statements. A report by AviateQ (revision 2.1, dated August 2024) in relation to helicopter access was provided to the Applicant on 11 October 2024, and the Applicant is considering the contents with its aviation experts and will provide any additional comments by Deadline 1 (the deadline for the Applicant to	shuttling and also taking into account the lack of offshore re-fuelling facilities and distances to the alternate airports in the area. Flight restrictions because of the proximity of proposed wind turbines will significantly compress the productive working day on a NUI, by delaying departure from CPC in the morning, and necessitating early departure from the NUI in the afternoon to ensure the flight can be completed during daylight. The cumulative effect of delayed departure from CPC and early departure from the NUIs would require a significant number of additional flights per year to complete the required MIT activities. Since each flight taken exposes passengers to a quantifiable risk, any requirement for additional flights would expose the NUI intervention team to increased individual risk each year. With respect to SECE impact, Spirit maintains that there is a credible scenario, particularly for late life assets, that significant restrictions in flight access could compromise its ability to execute its MIT strategy. The Applicant fails to recognise the importance of each aspect. Any ongoing difficulty in accessing the NUIs has the potential to significantly impact Spirit's ability to complete: - scheduled maintenance that supports SECE function - inspection that could detect early warning signs of degradation

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		respond to Spirit Energy's RR). Complete Vantage data that is up to date and that shows the actual payloads carried on flights, in addition to the flight times and destinations, has not yet been provided. The Applicant notes that daily helicopter flights are currently being flown to oil and gas platform helidecks located inside and adjacent to other operational wind farms with less than 1.5nm to the closest WTG. These flights are conducted under the same Commercial Air Transport (CAT) Regulations using the same or similar types as used in Morecambe Hub. Examples include the Blythe Normally Unmanned Installations (NUIs) in the Southern North Sea where turbines are located 0.65nm from the platform, and the Rhyl gas field operated by Spirit The Applicant also intends to progress an initial Statement of Common Ground by Deadline 1.	- testing of correct function There are established industry-standard methods for assessing the risk of SECE impairments, but the Applicant fails to recognise or acknowledge that a risk assessment does not make something safe; initial minor degradations will likely accumulate and worsen over time, with the potential to introduce an ever-widening risk gap that could ultimately become intolerable and necessitate more extensive intervention to rectify. With respect to the predicted increase in Individual Risk Per Annum (IRPA) associated with flight risk, the Applicant has failed to understand how additional flights can contribute to a significant increase in individual risk: - See the clarification provided against RR-077-42, but in summary flight restrictions will significantly compress the productive working day on a NUI, by delaying departure from CPC in the morning, and necessitating early departure from the NUI in the afternoon to ensure the flight can be completed during daylight, which in turn will require a significant number of additional flights per year to complete the required MIT activities. - The contribution to IRPA from helicopter transport is included within the Quantified Risk Assessment (QRA). Spirit has estimated that the additional flights required due to the proximity

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			of wind turbines restricting flight access will increase overall IRPA to the NUI intervention team by 15%. This will necessitate a material change submission of the Safety Case, and such a significant increase in risk from a single contributor is likely to be challenged by the Regulator. Spirit Energy cannot comment on the operation undertaken to the Blythe NUIs in the Southern North Sea and how such operations are being undertaken or any other operations and their specific requirements. With regards to Spirit operated Rhyl gas field. It is a subsea tie-back infrastructure and is a completely different operating scenario. No operational flights are being undertaken there. In the future, the Rhyl infrastructure will be decommissioned with use of Jack up drilling rig, Dive Support Vessel(s) and Offshore construction Vessel(s), and such operation will have a different aviation footprint and requirement. Access is provided for in a private agreement between the relevant parties.
RR-077-26	Second, that the Applicant's assessment of the implications of helicopter flight restrictions (including daylight and visual flight rules (VFR)) that apply where there is the potential siting of wind turbines within proximity of oil and gas	As set out in ES Appendix 17.1 Helicopter Access Study (APP-081), meteorological and Vantage data provided by Spirit Energy and Harbour Energy has been used to	See response to RR-77/25. Spirit has provided the Applicant with all underlying data it has in a suitable format.

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	installations is not fit for purpose. Rather it severely underestimates the number and frequency of delays and cancellations to and from (and between) all of the Affected Assets.	make the Applicant's assessment in relation to potential helicopter flight restrictions to Spirit's platforms. Representative data has therefore been used to inform the Applicants helicopter access study. As noted above (RR-077-25), the Applicant has, since 27 June 2023 requested Spirit Energy share its aviation access study report (now received on 11 October 2024) and underlying data (not yet received). A report by AviateQ (Revision 2.1, dated August 2024) in relation to helicopter access was provided to the Applicant on 11 October, and the Applicant is considering the contents with its aviation experts and will provide any additional comments by Deadline 1 (the deadline for the Applicant to respond to Spirit Energy's RR). The Applicant further requests that the data underlying the report, including complete Vantage data that is up to date and that shows the actual payloads carried on flights, in addition to the flight times and destinations, is provided so that the Applicant can have a better understanding of Spirit Energy's	

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		position.	
RR-077-27	Third that the consequence of the two preceding issues is significant implications for the safe operation of all of the Affected Assets and related uncertainty over Spirit's residual ability to comply with health and safety regulatory requirements.	See RR-077-25 above.	See RR-077-25 above.
RR-077-28	Fourth that the only way to effectively mitigate that safety risk whilst ensuring the continued operation of the Affected Assets (operations which themselves are of national significance for the reasons set out at Part 3: Spirit's Assets and Operations) is for the Applicant to increase the "buffer zone" between the siting of wind turbines and the Affected Assets. That being imperative in order to ensure: A. safe helicopter arrivals and departures to and from (and between) the helipads at the Affected Assets; and the removal of helicopter flight restrictions (including daylight and VFR) in order that Spirit could maintain an acceptable level of helicopter operations to and from (and between) the helipads including using instrument flying rules (IFR) at the Affected Assets.	See RR-077-25 above.	See RR-077-25 above.
RR-077-29	**1.5nm buffer zone** To explain this matter in as clear and helpful terms as possible, it is necessary to first provide	The Applicant notes this response.	N/A

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	context with respect to the Applicant's assessment and corresponding measures that it has secured in its dDCO: ▪ The starting point is that the Applicant seeks flexibility as to the location and layout of the Project. There are two important definitions in this regard, as defined in Chapter 17 of the ES (PINS Document Reference: 5.1.17): a. *Windfarm Site – the area within which the wind turbine generators (WTGs), inter-array cables, offshore substation platforms (OSP(s)) and platform link cables will be present* b. *Unconstrained Areas - areas within the windfarm site where WTGs or OSP(s) would be located, used when developing layout scenarios within the windfarm site and secured in the DCO by Protective Provisions.* ▪ None of the Affected Assets (excluding the decommissioned South Morecambe DP3 platform) are located within the Windfarm Site. Furthermore, the Applicant has set a minimum 1.5nm "buffer zone" between Unconstrained Areas (or as expressed in the DCO protective provisions, simply the location of turbines) and the helipads at the Central Processing Complex	It is further noted that the North Morecambe DPPA platform is listed in the second page (page 64) of Table 17.13 of ES Chapter 17 - Infrastructure and Other Users (APP-054), and also has been considered in Volume 5 - Appendix 17.1 - Helicopter Access Study (APP-081).	

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	infrastructure and Calder. ▪ The other Morecambe Platforms are located at greater distances but still within the vicinity of the Unconstrained Areas (between 2.2nm (4km) and 8nm (13km). • The precise separation distances between the Affected Assets and the Unconstrained Area is set out in the fourth column of Table 7.13 of Volume 5, Chapter 17 of the ES (Appendix A). As noted at paragraph 3.13 (and in the table that follows below that paragraph) Spirit also consider that the North Morecambe DPPA forms part of the Affected Assets. The Applicant states that the 1.5nm "buffer zone" has been secured in the dDCO as "embedded mitigation" and asserts (at various parts in Chapter 17 of the ES (PINS Document Reference: 5.1.17)) that this minimum distance provides a sufficient unobstructed airspace requirement to: a) safely descend on approach and land at offshore oil and gas platforms; and b) safely depart offshore oil and gas platforms and achieve sufficient altitude.		
RR-077-30	Spirit cannot accept the aforementioned conclusion of the Applicant: the 1.5nm "buffer zone" is wholly inadequate between the	See RR-077-25 above. A report by AviateQ (dated August	See RR-077-25 above.

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	helipads that serve the Affected Assets and wind turbines. Spirit has arrived at this conclusion with the support of robust technical evidence. Recognising the need for co-existence and the potential of turbines to become obstacles in the current obstacle free environment, Spirit (at its own expense) engaged the services of AviateQ International Limited (AviateQ), a global aviation consultancy to provide specialist aviation assurance support to: a) review the windfarm development plans and the proposed positioning of wind turbines; and b) taking into consideration Spirit's responsibilities associated with the operation of the facilities and the continuing need beyond 2026 for access by air in Leonardo AW139 and AW169 helicopters, determine the integrity of operations based on 1.5nm of buffer zone.	2024) was provided to the Applicant on 11 October, and the Applicant is considering the contents with its aviation experts and will provide any additional comments by Deadline 1 (the deadline for the Applicant to respond to Spirit's RR).	
RR-077-31	AviateQ has also been engaging (and is continuing to engage) with NHV, the operator of the helicopters that fly to the Affected Assets, in order to verify that the underlying assumptions that inform the aforementioned assessment are complete and accurate.	The Applicant notes this response. As noted above (RR-077-25), the Applicant requests that Spirit Energy provide the full data underlying a report by AviateQ (dated August 2024) in relation to helicopter access which was provided to the Applicant on 11 October so that the Applicant can have a better understanding of Spirit Energy's position.	See RR-077-25 and RR-077-26 above.

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RR-077-32	There is common ground in some respects of the assessment between AviateQ and the Applicant. In particular that, with the presence of the Project, Visual Meteorological Conditions (VMC) would apply and that it is "…an industry requirement to stabilise the approach, i.e. be flying into wind, in level flight at the required airspeed and power, with the aircraft configured for landing, at a defined point in space. The CAA requires operators to define their offshore approach profiles (Ref. iii), but the CAA does not set any parameters"	The Applicant notes this response.	N/A
RR-077-33	Nevertheless, there are serious deficiencies that have been identified with respect to the assumptions and calculations that have informed the Applicant's conclusion that a 1.26nm VMC applies and that the 1.5nm buffer zone would provide (as the Applicant appears to be claiming) a precautionary minimum obstacle free distance: 1. The proposed 1.5nm distance between the turbines and the closest Spirit offshore installation(s) in East Irish Sea is not sufficient to perform safe Aviation Commercial Air Transport (CAT) operations and to deliver operational and maintenance requirements. 2. With the proposed distance the aircraft crew will be under undue pressure to perform "Rate One" turns in close	In response to Points 1 & 2: The Applicant notes that daily helicopter flights are being flown to oil and gas platform helidecks located inside and adjacent to wind farms with less than 1.5nm to the closest wind turbine. These flights are conducted under the same Commercial Air Transport (CAT) Regulations, including the requirement for a stabilised approach, using the same or similar types as used in Morecambe Bay. For further detail and examples of helicopter operations to oil and gas platform helidecks and other	Points 1 & 2: Spirit cannot comment on third party operations undertaken to the oil and gas platform helidecks located inside and adjacent to wind farms with less than 1.5nm to the closest wind turbine. The Applicant's reference to precedent elsewhere (if indeed it is accurate) is overly simplistic. Such operations are necessarily project and location specific. Spirit Energy has commissioned an Aviation Study by AviateQ with the specific aircraft type (AW169) which is being utilised for Spirit East Irish Sea operations and that is what has determined Spirits requirements specific to its Morecambe hub operations.

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	proximity to the nearest turbines, and will not have adequate airspace to establish the aircraft on the correct path prior to meeting the stabilised approach requirements at Stabilised Approach Point (SAP), creating a missed approach scenario and increasing HSE exposure to the crew and passengers onboard. 3. In addition, for the One Engine Inoperative (OEI) scenario during take-off from the offshore installation, the aircraft will not be able to climb to the altitude above the turbine height prior to performing a "Rate One" turn exposing the aircraft with crew and passengers to risk of colliding with turbines. 4. Spirit conducts helicopter shuttling operations on all 365 days of the year between the manned platform on the Central Producing Complex and all other NUI platforms in the area (Calder, DP6, DP8 and North Morecambe PPA) to ensure compliance with statutory and regulatory requirements. The offshore intervention teams are stationed on the Central Processing Complex. The proposed proximity of 1.5nm to helipads at those installations will impact its ability to comply with relevant statutory and licensing requirements. Furthermore, during the field decommissioning	infrastructure located inside and adjacent to other operational wind farms see the response to RR-077-25 above. In response to Point 3: For the One Engine Inoperative (OEI) scenario during take-off from the offshore installation, the Applicant notes that it is not necessary to climb above the turbine height before starting to turn. This is noted in United Kingdom (UK) Standardised European Rules of the Air (SERA) (UK Reg European Union (EU) No 923/2012). Response to Point 4: See RR-077-25 above. Point 5: The statement is that these can be located on the south face, presumably at CPC1. This imposes an access restriction for vessels / barges etc. during the temporary decommissioning operations. As the flare platform is to the North it's likely the preferred approach is to the South face, but without further details of the decommissioning programme, we cannot assess	Point 3: The OEI profile for AW169 is based on the Aircraft`s manufacturer data and Spirit's Aviation provider NHV will adhere to the OEM (Leonardo Helicopters) AW169 OEI take off profile and their Rotorcraft Flight Manual (RFM) with profile of Climb. Point 4: See RR-077-25 above. Point 5: The Applicant states that the presence of the Project will not materially or adversely affect the viability or safety of Spirit Energy's operations. However aviation operations in support of South Morecambe platform(s) decommissioning will involve a Jack-up drilling rig for the well Plug and Abandonment campaign, and a potential for an Accommodation Jack-up barge for platform preparation prior to removal via a heavy lift vessel. Access is required for all vessels to ensure decommissioning obligations can be executed safely and efficiently.

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	operations, the helicopter operations will be conducted to the helidecks onboard the decommissioning vessels/barges/rigs which can be positioned on the south face of the existing offshore installations which would necessitate further reducing the distance between the vessel/barge/rig helideck and the potential location of turbines – further degrading safe flying operations.	whether this is a significant restriction. This could give rise to some operational issues but will not represent a flight safety risk. Given that the decommissioning activities will be temporary, and that flights during the decommissioning phase will be much less frequent than those during operations, the Applicant maintains that during decommissioning the presence of the Project will not materially or adversely affect the viability or safety of Spirit Energy's operations.	
RR-077-34	Taken together, the physical separation of 1.5nm from turbines is simply inadequate from a safety perspective. There is no scope for operational mitigation to address this issue whilst maintaining compliance with regulatory requirements. Accordingly physical mitigation is required by increasing the distance between the turbines and the Affected Assets.	See RR-077-25 above.	See RR-077-25 above.
RR-077-35	**Flight Restrictions** Determining the acceptable distance between the Unconstrained Areas and the Affected Assets cannot solely be established by recalculating the buffer distance required to allow take off and landings. Rather, it is also imperative to:	See RR-077-25 above.	See RR-077-25 above.

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	▪ understand the broader implications of other (operational) flight restrictions that apply; and ▪ quantify whether those measures introduce an unacceptable degree of risk which, as a consequence, necessitates mitigation in the form of a different (potentially greater) "buffer zone" than may otherwise apply for safe take-offs and landings. ▪		
RR-077-36	Of particular significance in the context of the Project is the regulatory requirements that exist where offshore wind turbines are located within 3nm of an oil and gas platform. In that scenario tighter flying restrictions automatically apply (the Flight Restrictions): 1. a blanket restriction on nighttime flying (i.e. daylight flying only); 2. VFR only flying including a requirement for: a) 5000m horizontal visibility (relative to obstruction free flying of 4000m); and b) 700 feet minimum base cloud cover instead of 600 feet. Spirit acknowledges that the Applicant has been aware of the Flight Restrictions and has contemplated them in its assessment of the operational impact of the Project. However certain assumptions in the assessment indicate	The Applicant welcomes Spirit Energy's acknowledgement that the Applicant has considered within its assessment a potential Civil Aviation Authority (CAA) rule change that would impose tighter flying restrictions to oil and gas platforms within 3nm of WTGs. As set out in ES Chapter 17 Infrastructure and Other Users (APP- 054) and Appendix 17.1 Helicopter Access Study (APP-081), the Applicant's assessment has been caried out on a 'worst-case' basis that this proposed CAA rule change would come into effect. This proposed CAA rule change however is not yet in force and at present, there is no indication if or when these new limitations would be imposed.	As outlined in Spirit's Relevant Representation [RR-077], the significance of the anticipated changes by the CAA with the no "outside daylight hours" operations restriction for operations within 3nm of an offshore windfarm has a detrimental impact on Spirit`s ability to conduct offshore planned Safety critical and Production critical maintenance on both manned and unmanned offshore installations. Based on its discussions with the CAA, Spirit understands that the 3nm restriction to aviation operations outside daylight hours will be secured by a regulatory change in 2025. Spirit consider that it would be beneficial to all parties if the CAA (as the regulator) confirmed when the 3nm limit will come into effect. This would provide certainty to Spirit and the Applicant as to the nature of effects and related mitigation requirements. In the interim, and in the absence of confirmation that a sub-3nm

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	a misunderstanding of the operational helicopter arrangements. More generally, the corresponding implications of the Flight Restrictions has been severely underestimated. The consequence is a far higher number of helicopter flights that will be the subject of delays and cancellations (the Delays and Cancellations) than the Applicant has reported.	The Applicant also notes that if the CAA rule change did occur then it is likely to be at the level of Acceptable Means of Compliance (AMC) and Guidance Material (GM). AMC adopted by the CAA are means by which the requirements in the UK Regulation (EU) 2018/1139 (UK Basic Regulation) and its Implementing Rules can be met. For example, AMC1 SPA.HOFO. 125 covers airborne radar approaches to offshore locations. Since requirements can be met by other means, regulated persons and organisations may apply for permission to use alternative procedures to comply with the law by the use of Alternative Means of Compliance (AltMoC). For the CAA to accept an AltMoC the helicopter operator would need to demonstrate that the alternative approach nonetheless maintains compliance with the law. Applicants may also apply for AltMoCs as a means to establish compliance with the UK Basic Regulation and its Implementing Rules for which no	limit will be permitted (either under standard procedure or special exemption) the only logical conclusion is that there is uncertainty over the safety of operations in operating with a reduced area of unobstructed airspace. In the context of aviation safety, it must be necessary to adopt and secure in the dDCO a minimum safeguard based on Spirit's assessment, or for development consent to be refused.

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		associated AMC has been adopted. Where regulated persons or organisations wish to utilise their own alternative means of compliance, they must first obtain the approval of the CAA. Therefore, if the CAA regulatory change covering helicopter flights within 3nm of WTGs did progress, then helicopter operators would still have the option to apply for an AltMoc to continue some operations under day IMC and night providing an acceptable level of safety was maintained. The AltMoc process is described in Civil Aviation Publication (CAP) 1721. With regard to the estimated number of helicopter flights that will be the subject of delays and cancellations, meteorological and Vantage data provided by Spirit Energy and Harbour Energy has been used to make the Applicant's assessment in relation to potential helicopter flight restrictions to Spirit's platforms (Appendix 17.1 Helicopter Access Study (APP-081). Representative data has therefore been used to inform the Applicants	

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		helicopter access study. As noted above (RR-077-25), the Applicant requests that Spirit Energy provide the full data underlying a report by AviateQ (dated August 2024) in relation to helicopter access which was provided to the Applicant on 11 October so that the Applicant can have a better understanding of Spirit Energy's position.	
RR-077-37	**Assumptions** As a preliminary matter, the Applicant has noted in communications that there is minimal impact on South Morecambe DP8 and North Morecambe DPPA as a consequence of the Flight Restrictions. This is not correct due to the manner in which the flight schedules are managed. Specifically flight patterns are managed via the helipads at the Central Processing Complex with intervention crew stationed on the Central Processing Complex, where flights are arranged in the most efficient manner to enable helicopter visits between the Central Processing Complex and all NUIs – including South Morecambe DP6 and DP8 and North Morecambe DPPA - to carry out the required maintenance, inspection and other asset integrity work scopes.	ES Appendix 17.1 Helicopter Access Study (APP- 081) identifies that a low percentage of flights were flown to NUIs at night and in Instrument Meteorological Conditions (IMC). It is acknowledged that DPPA and DP8 would be impacted by the flight restrictions at the Central Processing Complex but the evidence shows the historic impact would have been low.	See RR-077 -025 response.

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RR-077-38	The consequence is that an assumption of "minimal impact" due to the greater separation distance from the wind turbines is fundamentally flawed - the DP8 and North Morecambe DPPA will also be restricted to Day VMC due to the nature of shuttling within the field and the use of Central Processing Complex as a central hub with all flights travelling via the platform.	As above (ID RR-077-37), it is agreed that DPPA and DP8 would be impacted due to the flight restrictions at the Central Processing Complex but the evidence shows the historic impact would have been low. Therefore the Applicant considers any impacts to flight patterns as a result of the Project will not materially or adversely affect the future viability, or safety, of Spirit Energy's operations at DP8 and North Morecambe DPPA.	See RR-077 -025 response.
RR-077-39	**Delays and Cancellations** Since becoming aware of the Project and the proximity of turbines to Spirit's existing offshore infrastructure that impose potential flight restrictions to existing operations, Spirit has undertaken an analysis of recent flight data in order to inform its understanding of the Project's implications on efficient flying operations. See the 'Morecambe Offshore Wind Farm Impact Report' (August 2024) (the Impact Report) at Appendix D. In summary, the Impact Report: 1. analyses approximately 5000 flights between 2018 and 2022 to and from (and between) each of the Affected Assets (the	The Impact Report provided in Appendix D of the Spirit Energy representation is a summary of an aviation study commissioned by Spirit Energy. However, the Applicant notes that Appendix D does not provide a clear methodology or explain how Spirit Energy's aviation advisors reached their conclusions. As noted above (RR-077-25), the Applicant requests that Spirit Energy provide the full data underlying a report by AviateQ (dated August 2024) in relation to helicopter access which was provided to the Applicant on 11 October 2024, so that the Applicant can properly understand Spirit	Spirit has provided the Applicant with the AviateQ report and met with the Applicant and its advisors to discuss findings prior to and after sharing the full report. Spirit has shared the analysis in RR—077 and subsequently met with the applicant to discuss. It has disclosed the full AviateQ Report in Appendix A of its Written Representation submitted at Deadline 1. Spirit maintains that the analysis and determination of safe take-off and landing distances and their subsequent impact are failing to adequately take into account the nature of its operations and aircraft providers pilot requirements.

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	Historic Flights) and that (if the Project was installed) would have been subject to the Flight Restrictions; 2. analyses the prevailing weather and sea conditions at the time of the Historic Flights; and 3. after discounting flights that would not have taken off or landed as a consequence of the weather and/or sea conditions (c.1% of flights) determines the impact that the Flight Restrictions would have had on the Historic Flights. The findings of the Impact Report are in contrast to the Applicant's assessment. Spirit trust that the Applicant (and Examining Authority) will have full cognisance of the important and detailed findings in Appendix D, including (but not limited to) the following: 1. On an individual flight basis, the Flight Restrictions imposed by the Project would have delayed / cancelled an overall annual average of 14% of flights that include Central Processing Complex within their routing. This average rises to 23% during the winter months (October to March); 2. The impact becomes worse for NUIs when factoring in the requirement for both an outbound and return flight, as one flight being delayed / cancelled affects the other	Energy's position. .To date this information has not been forthcoming. The Applicant would welcome the opportunity to review this data, should it be provided from Spirit Energy. With regards to the content of Appendix D, the Applicant has identified a number of factual errors as set out below. The Applicant would welcome the opportunity to discuss these points with Spirit Energy to seek resolution: ▪ Weather and Sea Conditions (Page 7 of Appendix D states: "Visibility – Visibility should be at least 4,000m / 5,000m during the day / night respectively for Visual Flying Rules (VFR) flying. This can be reduced to 1,500m when flying with Instrument Flying Rules (IFR) flying." - The Applicant notes that Instrument Flight Rules permit flight in zero visibility. ▪ Appendix D has effectively applied the proposed Day VMC restriction within 3nm of a windfarm (under the worst-case scenario that the CAA rule	Spirit notes the Applicants statement that instrument flying is allowed in zero visibility conditions. A buffer zone of 3.9nm must be put in place to ensure the viability of IFR post-windfarm – see paragraph 2.10 and the AviateQ Report at Appendix A of Spirit's Written Representation . The Applicant does not take into account the OEI (One Engine Inoperative) take off requirements for IMC conditions to perform safe helicopter operations. Spirit correctly treats flights as a whole in its analysis. While it is true that a flight may in part travel to facilities that are further away than 3nm from the proposed windfarm, most multi-stop flights travel via CPC-1, with a stop at both the start and end of the flight route. Therefore, both the start and end of the flight will typically be within the 3nm area where the windfarm limitations are expected to be imposed (and breach the 3.9nm unobstructed airspace that is required, as set out in the AviateQ Report at Appendix A of Spirit's Written Representation). Flights delays and rescheduling are a normal operating practice for Spirit's NUI operations. The Applicant, in its response, states that any additional delay due to a wind farm can be similarly mitigated through normal rescheduling. This is only partially true, as it ignores the fact that Spirit requires as much time offshore as possible to conduct its NUI

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	too. As such, an overall annual average of 23% of flights would have been delayed / cancelled, rising to 39% during the winter months. Spirit's findings are markedly higher than the Applicant's own assessment (using the same starting data).	change comes into effect) to all flights and not just the relevant locations (Appendix II). Even accepting that CPC-1 is a hub for Spirit's NUI operations, it is considered that this is still overestimating the impact. ▪ Within Appendix D Spirit has assumed that flights would be cancelled rather than rescheduled. Currently if a flight is delayed due to fog, high wind, high sea states or other weather factors, then the work on the NUI would be rescheduled along with the flight. This will also be the case in the future if weather or other factors cause a delay to a flight. This is considered normal operational practice when scheduling helicopter flights. ▪ Within the Impact Report set out in Appendix D, Spirit has assumed that flights to/from Blackpool Airport are restricted to the airport opening times less 30 minutes, i.e. reducing the flight operating envelope by one hour and resulting in more constraints on flying. Within Appendix 17.1 Helicopter Access Study (APP-	operations. Additional delays in the morning, which may then be compounded by a much earlier end to the day due to night flying restrictions, may impede Spirit's operations to the point that the work is not possible to achieve in the time that remains.

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		081), the Applicant has based its assessment on the Blackpool Airport published opening times which is considered more representative of actual arrangements (noting that It is understood that Spirit Energy do not pay for an out of hours service from their helicopter operator when Blackpool Airport is closed). ▪ Spirit Energy has not used the aviation definition of 'night' in its Impact Report but instead subtracted 30 minutes from evening and added 30 minutes to dawn, thus reducing the operating envelope. While this might be a planning assumption when scheduling flights, as the Applicant has used actual flight data from Vantage in its assessment (Appendix 17.1 Helicopter Access Study (APP-081)), the impact on actual operations has been assessed. ▪ The Applicant has assessed the impact on individual installations by breaking down the Vantage flight data provided by Spirit Energy into sectors. It is considered that	

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		using the overall flight period (as applied in Spirit Energy's Impact Report) is overly pessimistic as it does not take account of the helicopter's capabilities to fly in IMC or at night outside the 3nm buffer around the WTGs. Spirit Energy's request for a 3.3nm obstacle free buffer only addresses the take-off case into IMC and not the longer distance for an approach. Therefore, the benefits claimed by Spirit Energy are less than stated. The Applicant has identified the key wind directions where IMC take-offs will be impacted and therefore provided a more realistic assessment of the impact.	
RR-077-40	**Safety implications** The consequence of the "real world" Delays and Cancellations is significant implications for the safe operation of the Affected Assets and related uncertainty over Spirit's ability to comply with health and safety regulatory requirements (See Part 4: Legislation and Policy Context).	See RR-077-25 above. Any postponement of a flight to a NUI would not have a direct impact on the safe operation of these facilities, noting that Spirit Energy will have a means to manage any delay in inspection, testing and maintenance of Safety and Environmentally Critical Elements (SECE). This is a subject of health and	Flight restrictions because of the proximity of wind turbines significantly compress the productive working day on a NUI, by delaying departure from CPC in the morning, and necessitating early departure from the NUI in the afternoon to ensure the flight can be completed during daylight. The cumulative effect of delayed departure from CPC and early departure from the NUIs would require a significant number of additional flights per year to complete the required MIT activities. Since each flight taken

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		safety guidance, commonly termed "Operational Risk Assessment (ORA)", and any platform operator will have a number of open ORAs at any time. An open ORA does not lead to a situation where risks are intolerable and would not necessarily lead to a requirement for production shutdown.	exposes passengers to a quantifiable risk, any requirement for additional flights would expose the NUI intervention team to increased individual risk each year.
RR-077-41	The first issue (the proposed 1.5nm buffer zone) can be dealt with in short order: the physical separation between the turbines and Affected Assets is simply inadequate from a safety perspective. There is no scope for operational mitigation whilst maintaining compliance with regulatory requirements. Accordingly, only physical mitigation – in the form of an extended buffer zone – provides an acceptable remedy.	As set out in ES Appendix 17.1 Helicopter Access Study (APP-081), a 1.5nm separation radius from WTGs and OSPs would allow day VMC access to the Calder and CPC platforms as secured in protective provisions in the draft DCO (APP-012). Based on Vantage data provided by Spirit Energy, flights under VMC access represent the vast majority of helicopter flights accessing these platforms. Whilst some IMC access would be restricted to these platforms that could result in potential short delay in access to these platforms, and to other NUIs serviced from CPC, the Applicant does not consider this restriction on IMC access would result in safety or compliance issues with any statutory or licence obligations.	Spirit has provided a copy of Aviation report by AviateQ outlining minimum distance requirements to operate under VMC and IMC conditions based on the operated aircraft type (AW169) in EIS. In addition, all NUI flights are routed via CPC-1/DP1 platform and the aviation impact is being applied to all NUI platforms including Calder, DP6, DP8 and North Morecambe (DPPA) platform. Whilst the vantage data indicates that the majority of flights are being operated in VMC conditions, such operations are performed in both daylight and outside daylight hours conditions. It is noted that IMC operations are also undertaken. As noted in response for RR-077-36 the significance of the anticipated changes by CAA with the no "outside daylight hours" operations restriction for operations within 3nm of the offshore windfarm has detrimental impact in Spirit`s ability to conduct offshore planned safety critical and production critical

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		See further RR-077-25 above.	maintenance on both manned and unmanned offshore installation. For undertaking offshore helicopter flights, Spirit maximise the aircraft`s payload for all operations including the offshore NUI shuttling and taking into account the lack of offshore re-fuelling facilities and distances to the alternate airports in the area.
RR-077-42	The second issue (Delays and Cancellations as a consequence of the Flight Restrictions) ultimately requires the same mitigation. For the reasons that follow, the safety risks associated with the Delays and Cancellations (as identified in the Impact Report) are unacceptable. The consequence must be that the Flight Restrictions are unacceptable and thus must not apply. It follows that the only way to secure safe and efficient operations at the Affected Assets is to increase the physical distance between that infrastructure and the potential location of turbines. That would in turn allow for flying in instrument flight conditions (IMC) including at night and with reduced cloud base cover and horizontal visibility.	The Applicant acknowledges that flight restrictions arising from the presence of the Project would lead to some logistical changes including the potential need to reschedule some flights. However, the Applicant maintains that an established limitation of no IMC flying is not a safety issue.	The anticipated delays and cancellations will have significant impact on Spirit's ability to perform offshore planned safety critical and production critical maintenance on both manned and unmanned offshore installation. All NUI platform maintenance is performed with use of helicopters and any impact to such operations will result in additional flight requirements increasing health and safety exposure to the offshore crews, inability to perform planned safety critical and production critical maintenance, financial loss for additional flights, crew, and associated expenses. It is noted that IMC operations are also currently undertaken. The summary of impact is available in Spirit's Written Representation submitted at Deadline 1. See response to RR077-40.
RR-077-43	*Transportation risk* The Delays and Cancellations will have a direct impact on Spirit's ability to access NUIs to	The Applicant maintains that a delay of a scheduled flight to a NUI would not lead to a significant	With respect to SECE impact, Spirit maintain that there is a credible scenario, particularly for late life assets, that significant restrictions in

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	complete scheduled MIT activities. The Impact Report demonstrates that there will be significantly reduced access to the NUIs and Central Processing Complex Infrastructure during the winter months (as well as reduced access in summer months) that will result in difficulties carrying out MIT strategies. This will adversely affect the requirements of the performance standards, the ability to comply with the verification scheme and assurance of SECE within the QRA barrier performance. In turn this will have a direct negative impact on risk exposure to the personnel carrying out this maintenance. Flight restrictions will also shorten the productive working window on each platform, requiring a significant number of additional trips to complete scheduled MIT activities. Each flight taken by personnel carries with it a quantifiable risk, and significantly increasing the number of flights required to deliver the current volume of MIT activity will therefore significantly increase personnel transportation risk. Such a significant increase in transportation risk could present a significant regulatory challenge and burden on Spirit to demonstrate that risks remain ALARP (as it is legally obliged to ensure).	impact on the ability of a SECE to perform its function. A SECE will have a set inspection or testing interval and it is accepted in risk assessment that a random failure can occur at any point in that period, within this risk model failure of an individual SECE or failure on test will not lead to a situation where an individual on the NUI is exposed to intolerable risk. It is accepted that at any point in time SECEs may be impaired and the HSE provide guidance on the management of such. Risk for the purposes of demonstrating as low as reasonably practicable (ALARP) in line with HSE guidance is measured as Individual Risk Per Annum (IRPA). Helicopter flight risk is incorporated in this calculation. Deferring a flight to a later day or flying to a different NUI does not increase the calculated IRPA. The threshold for Intolerable risk is taken as an IRPA of $1*10^{-3}$ per annum, the risk from helicopter flights is $3*10^{-6}$ per flight (as given in the Spirit Energy RR). If additional flights are required due to a shorter working day this will lead to a small	flight access could compromise its ability to execute Spirit's MIT strategy. The Applicant seems to acknowledge testing activities only within the MIT strategy, and fails to recognise the importance of each aspect. Any ongoing difficulty in accessing the NUIs has the potential to significantly impact Spirit's ability to complete: - scheduled maintenance that supports SECE function - inspection that could detect early warning signs of degradation - testing of correct function There are established industry-standard methods for assessing the risk of SECE impairments, but the Applicant fails to recognise or acknowledge that a risk assessment does not make something safe; initial minor degradations will likely accumulate and worsen over time, with the potential to introduce an ever-widening risk gap that could ultimately become intolerable and necessitate more extensive intervention to rectify. With respect to the predicted increase in IRPA associated with flight risk, the Applicant has failed to understand the cause for additional flights being required, or indeed how additional flights can contribute to a significant increase in individual risk, and seems not to understand ALARP: - Spirit agree that with the Applicant's

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		increase in calculated IRPA in line with the $3*10^{-6}$ per flight above. Note; this increase is not per flight, but per flight that a typical individual will make in a year and represents 0.3% of the Intolerable risk level. However, this will not be significant in terms of the overall contributors to IRPA of a typical offshore worker, and the risks will remain well below the Intolerable threshold. The extent of this change can only be assessed by the asset Quick Reaction Alert (QRA) model holder.	statement that *'deferring a flight to a later day or flying to a different NUI does not increase the calculated IRPA'*; however, that is not the cause Spirit have identified for requiring additional flights – see clarification provided against RR-077-42. Flight restrictions will significantly compress the productive working day on a NUI, by delaying departure from CPC in the morning, and necessitating early departure from the NUI in the afternoon to ensure the flight can be completed during daylight, which in turn will require a significant number of additional flights per year to complete the required MIT activities. - The contribution to IRPA from helicopter transport is indeed included within the Quantified Risk Assessment (QRA) but the Applicant has failed to understand how risks from additional flights can add up to a significant impact on overall IRPA. Spirit have estimated that the total additional flights required due to the proximity of wind turbines restricting flight access will increase overall IRPA to the NUI intervention team by 15% . This will necessitate a material change submission of the Safety Case, and such a significant increase in risk from a single contributor is likely to be challenged by the Regulator. - With respect to the demonstration of ALARP, the Applicant has failed to

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			understand that risks falling below the intolerable limit of 10E-03 (1 in 1000) are not automatically tolerable. Risks within this region require a demonstration that all **reasonably practicable** measures have been taken to reduce risk before Spirit can conclude that they are **tolerable and ALARP**. Spirit maintains itsbelief that it is reasonably practicable for the Applicant to site their WTGs with a separation distance to Spirit's assets that will not necessitate any flight restrictions. Spirit note the Applicant's assertion that the extent of the impact can only be assessed by the asset QRA model holder (note that this refers to Quantified Risk Assessment, not Quick Reaction Alert), but wish to clarify that the impact noted above was estimated based on original data and calculations in the asset QRA.
RR-077-44	*Emergency evacuation* Under PFEER, Spirit is required to establish suitable arrangements that will ensure, so far as is reasonably practicable, the safe evacuation of all persons. In compliance with PFEER Spirit have identified its primary means of evacuation as the normal means of getting people to and from the installation – for all Morecambe Hub installations, this is helicopter transport. Alternative means of evacuation are available	The figures used in the Spirit Energy QRA are industry standard. The context of the 0.13 evacuation fatality rate is not given, but the Spirit Energy QRA as reviewed by the HSE uses the figure of 0.06. The risk figures above need to be put into context, as they are used in a series of less than 1 multipliers aligned to a developing scenario to arrive at a number that	With respect to means of evacuation, the Applicant has failed to understand the credibility of emergency evacuation from an unimpaired helideck. Contrary to the Applicant's statement that *'When there is a fire, explosion or hydrocarbon release, helicopters cannot land on a platform and so cannot be the primary means of evacuation'*, helicopter evacuation has been successfully used in several real major accident events (including events involving fire & explosion) in recent years where, due to the platform design the helideck remained unimpaired by the event.

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	by lifeboat to account for occasions where weather conditions or the nature of the major accident emergency makes helicopter evacuation impracticable; evacuation by lifeboat exposes personnel to higher risks than the primary means of evacuation by helicopter. Helicopter transportation is the primary means of emergency evacuation from the Central Processing Complex. Lifeboats are provided as the secondary means of emergency evacuation in the event that helicopter evacuation cannot be achieved. Currently, helicopter transportation remains the primary means of emergency evacuation from the Central Processing Complex given the bridge-linked platform design that locates the helideck some distance away from process hazards, thereby reducing the potential for the event to impair the helideck by thermal radiation or smoke. The Flight Restrictions would preclude helicopter operators from approaching the Central Processing Complex in poor weather or during the hours of darkness, even if the helideck were unimpaired and available to support evacuation. Restrictions, particularly during the winter months that could compromise Spirit's ability	demonstrates that the risks are ALARP. These will contribute to the overall IRPA as calculated in the asset QRA. The existing QRA and asset Safety Case will already address scenarios where evacuation by lifeboat is required. Only the asset QRA model holder can assess the impact, however, a small change in the frequency of such an event in the QRA would not materially change the assessment that risks are ALARP. As all of the evacuation and recovery arrangements as described in the Safety Case remain the same, this would not constitute a requirement for a Safety Case material change update. In the case that Spirit Energy decided to submit a Safety Case update, for the same reasons as above, there would not be grounds for the Competent Authority to not accept the new Safety Case. In relation to emergency evacuation, the Applicant also notes the following points:	The Applicant has failed to understand the extent of the duties imposed by PFEER; Spirit welcome the Applicant's acknowledgement that PFEER Reg. 15 includes helicopters as a credible means of evacuation but wish to clarify some other specific obligations under PFEER as follows: - Approved Code of Practice (ACoP) 203 *'Dutyholders should 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'*. Spirit note the Applicant's response with respect to risks associated with different means of evacuation, but wish to make clear that although events requiring emergency evacuation are low frequency events, it is obligated to review and assess all aspects of risk associated with these events, including the contribution from evacuation as per ACoP 203. Spirit maintain that flight restrictions due to the proximity of WTGs, will reduce the ability of commercial helicopter services to support an emergency evacuation of CPC, increasing evacuation risk. - ACoP 204 states *'…There are a number of means of evacuation and the preferred one should be the normal means of getting people to and from the installation, unless the emergency, or the circumstances in*

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	to access offshore installations by helicopter, have the potential to place a higher reliance on lifeboat evacuation than would otherwise be the case, and hence increase risks to personnel. National Search and Rescue (SAR) provisions would not be affected but other helicopter operators are not guaranteed to respond, potentially delaying helicopter evacuation efforts and increasing likelihood of the Offshore Installation Manager (OIM) opting for lifeboat evacuation. It should be noted that national search and rescue would not be affected by the windfarm restrictions, but they are based some distance away from the Central Processing Complex and would be unable to respond in the tiRR-077-47).frames that would be achievable by NHV if they had an unobstructed flight path. Where a helideck remains unimpaired, emergency evacuation by helicopter presents far lower risk to personnel than would be the case for evacuation by lifeboat. The individual likelihood of death for helicopter transportation from an unimpaired helideck is typically of the order 0.000003 (3 in 1 million) per flight. In contrast, the fatality probability for evacuation by lifeboat has been estimated in the Central Processing Complex Quantified Risk Assessment (QRA) to be on average 0.06 (6 in	▪ PFEER 7 refers to a helicopter accident on the platform and so is not relevant to this discussion. ▪ PFEER 15 concerns the arrangements for evacuation, including helicopters. When there is a fire, explosion or hydrocarbon release, helicopters cannot land on a platform and so cannot be the primary means of evacuation, although they might be the preferred means of evacuation for a more minor emergency. PFEER 15 Guidance says "(a) evacuation – is defined in regulation 2; means of evacuation may include helicopters, direct sea transfer, bridge-links and Totally Enclosed Motor Propelled Survival Craft (TEMPSC);" Spirit Energy has identified that the CPC-1 is a bridge linked platform design, so the requirement to immediately evacuate personnel is less likely as their refuge will be away from the process hazard. ▪ It is understood that CPC-1 has approximately 170 personnel	*which it takes place, makes this impracticable.'* As explained in Spirit's Relevant Representation [RR-077] this is the approach taken for the Affected Assets. Spirit's preferred means of emergency evacuation is by helicopter as this presents the lowest risk to personnel. Furthermore, successful emergency evacuation by helicopter from CPC is credible given the bridge-linked design of the asset. - ACoP 205 recognises that alternative means of evacuation may be required in the event of insufficient capacity to evacuate everyone in the time available. In compliance with this requirement Spirit has provided lifeboats as its alternative (secondary) means of evacuation The Applicant has failed to understand how a fire and explosion event can escalate over time and that protection provided by the temporary refuge facilities on AP1 are by definition temporary; events requiring emergency evacuation are well understood – the protection provided by the Temporary Refuge buys the crew the time required to achieve a controlled and orderly evacuation before an event can escalate and render the Temporary Refuge ineffective at preserving life. To be clear, all evacuation efforts prior to this point are still emergency evacuations. Spirit note the Applicant's assessment of

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	100). The windfarm restrictions on helicopter access to the Central Processing Complex would therefore significantly increase the fatality probability during an emergency evacuation. An industry review of real emergency evacuations by lifeboat found the average emergency evacuation fatality rate to be 0.13 i.e., much higher in real experience than the QRA estimate.	onboard. Using a single 8-seat AW169 under contract to evacuate the platform would take more than a day and so cannot be the primary means of evacuation during an emergency. Maritime and Coastguard Agency (MCA) helicopters are likely to be used during a major emergency. They operate under UK Helicopter Search and Rescue (SAR) National Approval Guidance (CAP 999) and so are not constrained by the proposed CAA rule change or CAT weather limits. It is understood that Spirit Energy do not pay for an out of hours service from their helicopter operator. Accordingly, when Blackpool Airport is closed there is no commercial helicopter on call and they are reliant on the MCA for any emergency situation.	evacuation times but do not agree with their conclusion helicopters cannot be the primary means of evacuation if they are unable to evacuate all personnel in the time available. I refer you back to PFEER ACoP 204 and ACoP 205 – Spirit would pursue helicopter evacuation for as long as it remains a viable means of evacuation from an unimpaired helideck. Every helicopter load during an emergency evacuation represents a group of people exposed to a lower risk than would otherwise be the case for evacuation by lifeboat. The Applicant has also failed to acknowledge that multiple means of evacuation can be deployed for a single event; Spirit would not be solely reliant on its commercial helicopter service provider to evacuate the maximum POB using a single 8-seat AW169, Spirit would also call upon SAR to support the evacuation. Working together these 2 services could complete an evacuation much more quickly, particularly since the normal operational POB is much less than the maximum allowable. It should also be noted that the SAR service is based some distance away and would take much longer to reach the asset than the commercial helicopter service located in Blackpool. Spirit note in the Applicant's response reference to PFEER Reg. 7 Equipment for helicopter emergencies and would like to clarify that no mention of PFEER Reg. 7 was made in its

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			Relevant Representation [RR-077], and nothing in its submission relates to the provision of equipment required for helicopter emergencies on Spirit's assets.
RR-077-45	*Non-emergency downmanning* Spirit is reliant on helicopter transportation for the "downmanning" of offshore installations in the event of significant health, safety or welfare issues, there are no other viable options to downman the asset. Alternative means of evacuation by lifeboat are available for use in an emergency but these are only suitable for situations requiring rapid evacuation in response to an imminent threat to life e.g., hydrocarbon fire. Under the HSWA, Spirit is required to reduce risks to the workforce so far as is reasonably practicable and the ALARP guidance published by the Health and Safety Executive builds on this general duty of care to provide the guiding principles for risk related decision making. Under this framework, use of lifeboats to downman the installation in the event of a significant health, safety or welfare issue evacuation could not be demonstrated to be ALARP. Restrictions that could compromise Spirit's ability to access offshore installations by helicopter would therefore severely limit	The Applicant has addressed individual down manning scenarios below (in response to RR-077- 47) and considers such scenarios would not lead to a situation where risks cannot be demonstrated to be ALARP.	The Applicant has failed to provide any explanation as to why it has reached this conclusion. Accordingly it is not clear how any weight can be attached to it.

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	Spirit's ability to downman a large population in a reasonable timeframe, extending their exposure to the health, safety or welfare threat.		
RR-077-46	*Enforcement risk* Ultimately, restrictions that could compromise Spirit's ability to maintain safe operations in compliance with the Safety Case could lead to regulatory enforcement action, potentially to the point of requiring a cessation of operations of nationally significant energy infrastructure assets. Regulatory bodies can take enforcement action where inspection or investigation identifies a failure to comply with health and safety law; for industries regulated by the Health and Safety Executive, an Enforcement Management Model (EMM) has been defined – this model sets out the principles inspectors should apply when determining what enforcement action to take in response to breaches of health and safety legislation, with the guiding principle being that enforcement action should be proportional to the health and safety risks and the seriousness of the breach. Inspectors use various enforcement techniques to deal with risks and secure	The Applicant considers that it is not credible that the presence of the windfarm and any consequent impact on operations will lead to a position where risks cannot be demonstrated to be ALARP. See RR 077-25 above. Risk per flight number used in the QRA is not modified to be specific to the facility in question so would not require to be updated and resubmitted to the Competent Authority. The Health and Safety Executive (HSE) are the Competent Authority (CA) who regulate the helicopter operations measures on the installation. As set out by the HSE: installation operators are responsible for the safety of the entire installation, including the helideck and helideck operations.	See response to RR-77-43. With respect to the safety of helicopter operations, the Applicant has failed to recognise that discharging Spirit's responsibility to maintain helicopter facilities in line with regulatory and industry requirements does not remove the risks associated with helicopter transportation. The helidecks on all assets are independently certified against established industry standards. Spirit have claimed no impact on its ability to maintain helicopter facilities – its concern relates to its ability to maintain safe helicopter operations to the same level as current operations, and the associated access restrictions it would have to apply due to the proximity of wind turbines.

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	compliance with the law, ranging from the provision of advice to enforcement notices – they can also initiate or recommend prosecution where the circumstances warrant punitive action. Regulators will consider the following enforcement action options: ▪ Prosecution; ▪ Prohibition Notice (requires specific activity or operation to cease); ▪ Improvement Notice (sets out compliance failings and expected action to be taken); ▪ Formal Letter Item (sets out compliance failings and expected action to be taken); ▪ Verbal Warning.	They are required to ensure that the helideck operating environment is such that helicopter operators can discharge their duties. The presence of the Project will not impact those aspects of helicopter operations that the HSE will expect to see covered in the Safety Case. The HSE and CAA have a Memorandum of Understanding (MOU) in place regarding the management of helicopter safety offshore. Helicopter operators and flights are regulated by the CAA as the CA. Aspects regarding platform helicopter operations and evacuation and recovery arrangements would remain unchanged as a result of the presence of the Project. As a result, there would be no grounds for the CAA to not accept the revised Safety Case, and regulatory enforcement relating to these changes is not credible.	

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RR-077-47	*Scenarios* To aid understanding of the aforementioned safety risk, it is instructive to consider "scenarios" where the Flight Restrictions (that would lead to an inability to fly in poor weather conditions or in hours of darkness) would significantly impact non-essential evacuation. Non-essential crew evacuation may be required for a number of reasons and is most often dealt with by the operator and its aviation provider where there is a need to efficiently reduce the number of personnel on board without it being deemed as an emergency scenario requiring SAR. The following are examples of situations that require evacuation. 1. Reducing to essential crew only due to non-operational reasons. This would be for reasons such as contagious illness, where the platform would require to be down manned to essential personnel only. Extended function in this mode would negatively impact on emergency response protocols whereby evacuation of nonessential personnel is a primary risk mitigation. Specifically in the case of communicable illness, extension would negatively impact on capability to maintain coverage of safety critical roles, provide	**1.** Any extension to planned down manning activities could not lead to a situation where safety critical roles could not be covered. Priority could still be given to evacuating those with underlying health conditions. **2.** In this situation the core crew would still need support, water, diesel, food etc. The provisions needed for welfare support are supplied by supply vessels so these arrangements would not be interrupted by any flight restrictions. **3.** We have no information on the vulnerability of CPC1 to extreme weather events, noting extreme freezing events are very rare offshore. In the scenarios suggested a core crew is still retained and it is accepted that the platform is a safe location for these people. This will not change. It is noted that there are already restrictions on non-emergency medical evacuation due to airport	The Applicant has failed to understand the gravity of emergency scenarios that do not pose an imminent threat to life but can present serious health, welfare or psychological stress impacts on personnel requiring timely response by Spirit, and how flight restrictions due to the proximity of WTGs would make such a timely response extremely difficult, if not impossible, to achieve

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	adequate quarantine capacity, be of greater detriment on workforce morale in a period of stress, and increase threat to those with underlying health conditions. For further detail and examples of helicopter operations to oil and gas platform helidecks and other infrastructure located inside and adjacent to other operational wind farms see the response to RR-077-25 above.ons. 2. Reducing to essential crew only due to operational reasons, such as loss of power, water or heating where the platform would require to be down manned to essential personnel only. Extended function in this mode would protract recovery of the situation as, in the first instance, priority remains the welfare of those onboard ahead of recovery of the system failure. It is foreseeable that individuals with specialist skills would require to be mobilised to the asset and delay in this or the provision of supplementary welfare packages to satisfy physiological needs would be detrimental. With extension to the situation recovery, the potential for event escalation increases – for instance, power outage could deteriorate if diesel supplies are consumed and cannot be replenished escalating to a full platform evacuation without the required return protocols being in place and water system contamination (for instance) could become more widespread resulting in	opening times and helicopter / crew availability.	

ID	RR	Applicant's Response	Spirit Energy Response to Applicant
	protracted recovery. 3. Extreme weather events will also require the removal of non- essential personnel until the situation is under control. Speed and efficiency will be paramount. It could be a storm closing in, or extreme cold resulting in diesel and water freezing leaving the platform without basic services. In the event of extreme weather, it is foreseeable the emergency and rescue vessel (ERRV) may not be able to maintain station and thus expediting the requirement to evacuate nonessential personnel ahead of the weather front. Non-emergency medical evacuation will no longer be able to be dealt with outwith hours of daylight which will introduce delay for potential less common issues such as a death on the platform or a deteriorating medical condition. Commercial air transportation is required to ensure police and other authorities can access the platform and for subjects to be removed in a timely manner so as not to distress family and colleagues any further at an already distressing time.		
RR-077-48	In a scenario that persons on board must be reduced to minimum levels due to operational issues, maximum persons on board will have to reduce from a maximum of 174 to 45 and in other scenarios to 25.	The Applicant notes this response but does not consider that the impacts identified would result in safety or compliance issues with any statutory or licence obligations.	The Applicant has failed to provide any explanation as to why it has reached this conclusion. Accordingly it is not clear how any weight can be attached to it.

ID	RR	Applicant's Response	Spirit Energy Response to Applicant
	174-45 personnel reduction: will require 19 flights to remove 129 people which will take 1.5 days. If flights are restricted to day-only flights, this will take 2 days minimum. 174-25 personnel reduction: will require 22 flights to remove 149 people which will take 2 days. If flights are restricted to day-only flights, this will take 3 days minimum.		
RR-077-49	In all these cases, an event that starts out as a non-emergency evacuation, can result in an increased requirement for SAR to become involved with evacuations due to the constraints the wind farm turbine placement will impose upon flight ability of the operator's commercial air transportation. There is a serious risk for each of these events to deteriorate to the point where it then impairs essential personnel. In all scenarios, increasing the length of time personnel must wait to be evacuated has significant detrimental impact to their wellbeing. If long evacuation delays are experienced and risk to life is increases, it will impact the organisations reputation and regulatory requirements plus ability to maintain and attract workforce.	The Applicant considers this comment does not relate to specific scenarios or potentially co-incident situations and will not have an impact on Spirit Energy's existing evacuation procedures.	The Applicant has failed to provide any explanation as to why it has reached this conclusion. Accordingly it is not clear how any weight can be attached to it.

ID	RR	Applicant's Response	Spirit Energy Response to Applicant
RR-077-50	*Buffer requirements* The only acceptable mitigation is the removal of the Flight Restrictions applying to helicopter operations to and from (and between) the Affected Assets. Whilst that may lead to the assumed imposition of a new 3nm "buffer zone", Spirit's early analysis (based on the work undertaken by AviateQ) indicates that at least 3.3nm is required. This being the minimum unobstructed airspace requirement to operate in IMC based on (according to the work undertaken by AviateQ): a 2.3nm unobstructed airspace requirement plus 1nm legal requirement comprising the requirements to execute an engine failure at the missed approach point (MAPt) following airborne radar approach (ARA).	Current Commercial Air Transport operations to oil and gas platforms adjacent to wind farms demonstrate that 1.5nm is safe accepted practice and compliant with aviation regulations and industry best practice. These buffer zones proposed by Spirit Energy in the Relevant Representation are not a proportionate or necessary approach to safe co- existence between oil and gas infrastructure and offshore wind for the Project, in particular considering the Applicant's proposed protective provisions, precedent, and RR-077-25 above.	Spirit has provided a copy of Aviation report by AviateQ outlining minimum distance requirements to operate under VMC and IMC conditions based on the operated aircraft type (AW169) in EIS. This is enclosed at Appendix A of Spirit's Written Representation. The report outlines both landing and OEI take off profiles in both VMC and IMC condition where 3.9nm of unobstructed airspace for IMC and 1.9nm unobstructed airspace for VMC is required to maintain safe Commercial Air Transport (CAT) operations.
RR-077-51	It must be noted that, at the time of the commissioning AviateQ to prepare its initial technical report, Spirit's understanding was that turbine tip heights would be up to 290m. Spirit now understands that turbine tip heights may in fact be higher – up to 310m. That is now being accounted for in further work being undertaken by AviateQ. Furthermore, Spirit is currently awaiting responses to a number of technical clarifications that underpin the Applicant's	The Applicant confirms that the maximum turbine tip height would be 310m above Highest Astronomical Tide (HAT) as set out in ES Chapter 5 Project Description (APP-042). With reference to ES Appendix 17.1 Helicopter Access Study (APP-081), the Applicant has applied current	The height of the wind turbines is relevant as the anticipated CAA restrictions for outside daylight will be based on distance (3nm), cloud base (700ft or 200ft above the WTG nacelle) and Visibility (5000m+). The height of the wind turbine is therefore directly linked to the cloud base restriction. The ES Volume 5 Appendix 17.1 Helicopter Access Study clearly states that no night or IMC operations would be available for CAT

ID	RR	Applicant's Response	Spirit Energy Response to Applicant
	conclusions in Volume 5 - Appendix 17.1 - Helicopter Access Study (PINS Document Reference: 5.2.17.1). Further work is therefore required in order to verify the final acceptable airspace requirements and accordingly there remains a possibility that an increase unobstructed distance is necessary in order to operate safely in IMC.	aviation practice whereby the helicopter would turn 1nm before the boundary of the windfarm. Therefore, the Applicant notes that the height of the turbines is not relevant to the study findings. The Applicant confirms that it responded to Spirit's technical clarifications on 20 August 2024.	flights under the anticipated CAA regulations as a result of proposed development. The ES Volume 5 Appendix 17.1 Helicopter Access Study states that under VMC a distance of approximately 1nm to the closest object is sufficient to climb to 500ft and then turn away from obstacles whilst continuing the climb. Under IMC, the climb will be continued to 1,000ft before turning. Spirit has provided calculations for the AW169 in the AviateQ report outlining unobstructed distance requirements for both IMC and VMC conditions.
RR-077-52	Drawing Part 5 together, Spirit's position is that the 1.5nm buffer zone is not fit for purpose. Furthermore, the Impact Report provides compelling evidence, based on recent flight data, that the Delays and Cancellations will be far more frequent and severe than the Applicant has reported. It is the consequences of these impacts that Spirit is primarily concerned with: namely that the "real world" levels of the Delays and Cancellations present a very serious risk to the safe operations of the Affected Assets and Spirit's ability to comply with related safety regulatory requirements. That necessitates increasing the buffer zone to a distance that allows for flying in VFR and IFR.	See RR-077-25 above.	See RR-077-25 above.
Part 6 – Shipping and Navigation Safety			

ID	RR	Applicant's Response	Spirit Energy Response to Applicant
RR-077-53	Spirit has been involved in the Marine and Navigation Engagement Forum (MNEF) to understand the cumulative implications and potential impact of the introduction of wind farms within the wider East Irish Sea area and as supported by the conclusions drawn from the desktop gas field interaction desktop study and HAZID (Hazard identification) workshop in March 2023, further studies and work are required to understand the proposed development, including to determine suitable turbine locations and appropriate marine and aviation requirements.	The Applicant appreciates the input from Spirit Energy on the MNEF and various hazard workshops conducted as part of the Navigation Risk Assessment (NRA) (Volume 5 – Appendix 14.1 (APP-073)) for the project alone and the cumulative scenarios. The results of which have confirmed that navigation risk would be at acceptable levels with the Project in place. The Applicant is not currently able to finalise WTG and offshore substation platform (OSP) positions, but has agreed to maintain a 1.5nm buffer zone for above sea surface infrastructure from CPC and Calder platforms, and a 500m distance either side of pipelines and umbilicals (as set out in Table 17.3 of Chapter 17 Infrastructure and Other Users (APP- 054) and as secured in protective provisions in the draft DCO (APP-012)). No WTGs or OSPs will be located within the buffer zones.	Spirit disagree that the navigation risk would be at "acceptable level" without further mitigation. Spirit have also identified the need for specific additional protections to safeguard shipping and navigation activities that extend beyond what the Applicant has proposed in the dDCO [PD1-003]. See Part 6 of Spirit's Relevant Representation [RR-077] and further submissions in Part 3 of its Written Representation.
RR-077-54	The following is a summary of the marine impacts that must be considered.	The Applicant has assessed potential navigation risk on oil and gas assets as part of shipping and navigation	The Applicant has failed to understand that although a ship collision risk assessment is an important contribution to the evaluation of risk

ID	RR	Applicant's Response	Spirit Energy Response to Applicant
	If the Application is granted, the number of vessels (transiting and operating) in the vicinity of the Affected Assets and licensed blocks will increase. Relevant categories of vessel include: (1) vessels supporting Spirit's platforms and operations such as ERRV and platform supply vessels (PSVs); (2) vessels involved in the construction and operation of the Project; and (3) third party vessels displaced as a result of the Project. This increased traffic will increase the potential for collisions with platforms and is likely to result in false alarms resulting in possible production shutdowns and (if manned) evacuation of personnel.	assessments as well as access studies, which concluded that risk levels were acceptable. Assessment details are provided in Chapter 14 Shipping and Navigation (APP-051), and Volume 5 - Appendix 14.1 Navigation Risk Assessment (NRA) (APP-073). The effects on the Radar Early Warning System in terms of ability to detect targets and the false alarms that may be generated have been assessed as part of Appendix 17.2 - Radar Early Warning System Technical Report (APP-082). Mitigations (detailed in Section 14.3.3 of Chapter 14 Shipping and Navigation (APP-051)) include the realignment of the project boundary, commitment to two lines of orientation, continuing the Marine Navigation and Engagement Forum (MNEF) and the implementation of a vessel traffic management plan (VTMP) (which includes defining passage plans for project vessels, in consultation with stakeholders to minimise interaction with vessels and therefore mitigate against platform collisions and false alarms). An outline VTMP has been provided	to personnel it cannot by itself be considered an assessment of risk to personnel. Data from the ship collision risk assessment must be assessed within the asset QRA to determine the individual risk to personnel from any increase in ship collision risk.

ID	RR	Applicant's Response	Spirit Energy Response to Applicant
		with the Application (APP-153).	
RR-077-55	Vessels supporting operations such as PSVs and ERRV which routinely operate within the 500m exclusion zones of offshore facilities bringing supplies, equipment and removing waste and responding to real time emergencies must have continual access to the installations. Emergency response procedures must not be compromised by Project. Existing operational vessel movements for PSVs and ERRV will be impaired and compromised due to the introduction of wind turbines in such proximity to the petroleum licence activities and consequently designated access paths and escape routes will be required along with exclusion zones out with the standard 500m exclusion zones.	The Applicant notes the importance of vessels servicing Spirit Energy's platforms for both operations and emergency situations. The change to the project boundary, which occurred post Preliminary Environmental Information Report (PEIR) to address cumulative shipping and navigation concerns (Section 14.3.3. of Chapter 14 Shipping and Navigation (APP-051), ensures that there is unencumbered access to the Calder platform from south west to north east. The Applicant has agreed to maintain a 1.5nm buffer zone for above sea surface infrastructure from CPC and Calder platforms (as secured in protective provisions in the draft DCO (APP-012)). No WTGs or OSPs will be located within the buffer zones, allowing the necessary marine access/egress to/from platforms.	See response to RR-077-053.
RR-077-56	The ability to safely manoeuvre jack up rigs onto, and off, locations within, and close to, the Project must not be compromised. A minimum obstruction free radius of 1.5nm surrounding	The Applicant has agreed to maintain a 1.5nm buffer zone for above sea surface infrastructure from CPC and Calder platforms (as	See response to RR-077-053.

ID	RR	Applicant's Response	Spirit Energy Response to Applicant
	each platform has been requested to deploy spread moored vessels, including heavy lift vessels and drilling rigs into position. The use of dynamic positioning and anchors must also be considered for larger vessels interacting with the platform. Dynamic positioning is achieved by a number of thrusters operating continuously to compensate for any movement of the vessel. In the event that the vessel loses power, one or more thrusters fail, or if the sea state or weather conditions are sufficiently strong to overcome the vessel power, the vessel may drift. Where anchors are used, the vessel will often not have its own propulsion and will rely on tugs when relocating. Due to shallow depths and strong tidal currents up-to 2.5 knots in EIS, the use of Dynamic Positioning system on a heavy lift decommissioning vessels can be significantly restricted requiring spread anchor mooring system.	secured in protective provisions in the draft DCO (APP-012)). No WTGs or OSPs will be located within the buffer zone, enabling deployment of vessels / rigs servicing Calder and CPC platforms.	
RR-077-57	The ability to safely manoeuvre jack up rigs onto, and off, locations within, and close to, the Project must not be compromised. In the event that a Major Accident Event, such as an uncontrolled loss of reservoir fluids (e.g. blow-out), offset relief well drilling could be required. The locations of these wells are being determined.	The Applicant notes this response and that further information may be provided by Spirit Energy. It is noted that the Applicant has committed to a 1.5nm buffer zone for above sea surface infrastructure from CPC and Calder platforms, and a 500m distance either side of pipelines and umbilicals (as secured in protective provisions in the draft DCO (APP-012)) to enable rig access	See response to RR-077-053.

ID	RR	Applicant's Response	Spirit Energy Response to Applicant
		the vicinity of the Project.	
RR-077-58	In the event that one or more anchors fail (or the lines to one or more of the tugs are disconnected), the vessel is likely to drift. Due to the potential for these vessels to drift (referred to as being not under command), it is usually necessary to maintain a clear path in the direction of drift (which will depend upon met-ocean conditions) to a drift off point. The distance to the drift-off point will again depend upon met-ocean conditions and the time it is reasonable to expect to regain command (e.g. by connecting a line to a tug or undertaking maintenance to regain power). The time required (which will depend on the type of vessel and the availability of other vessels to assist) could by way of illustration be of order 30 minutes even when one or more tugs are in attendance. A clear path to the drift off position is particularly important when a vessel is being moved or temporarily stationed.	In the event of an anchor failure from a heavy lift vessel servicing a platform, then a standard mitigation is the provision of standby towage by the contractor. This protects the platform from accidental contact, which would be the most likely scenario should an anchor failure occur.	
RR-077-59	Prior to entering a controlled 500m zone or in some cases when commencing operations at another location, a vessel will remain at a standby position until entry checks have been performed and it has been authorised to enter the 500m zone or proceed to its operational location. If there a situation (such as a mechanical failure, changing weather conditions or an operational change of plan)	All the below commitments provide for sufficient sea room for Platform Supply Vessels (PSVs) and Emergency Response and Rescue Vessels (ERRVs). Since PEIR, the Project has committed to a reduced project	See response to RR-077-053.

ID	RR	Applicant's Response	Spirit Energy Response to Applicant
	with the vessel still under command, the vessel would retreat to the stand-off position which would be at a safe distance and usually a drift off position. Clear pathways are required to allow for stand by and drift off positions and space for additional associated vessels (e.g. tugs and/or anchor handlers) to also operate safely.	boundary and minimum spacings between WTGs of 1,060m, as set out in ES Chapter 5 Project Description (APP-042) and Schedule of Mitigation (APP-144). The Applicant has also committed to two lines of orientation for WTGs and a 1.5nm buffer zone for above sea surface infrastructure from CPC and Calder platforms, and a 500m distance either side of pipelines and umbilicals (as secured in protective provisions in the draft DCO (APP-012)).	
RR-077-60	Sea room is a term used to describe the unfettered space needed to safely operate. Spirit considers that a lack of sea room will be one of the main impacts of the Project for vessels operating in support of Spirit's oil & gas activities placing restrictions on the use of larger vessels such as drilling rigs, crane barges and accommodation vessels. Designated access paths and exclusion areas in addition to the 500m exclusion zone around each platform will be required for drilling rigs, construction and decommissioning vessels and barges for further operational, construction and/or decommissioning activities in order for Spirit to be able to fulfil its petroleum licence binding obligations.	All the below commitments provide for sufficient sea room for PSVs, ERRVs and larger vessels, barges and rigs. As noted above, since PEIR, the Project has committed to a reduced project boundary and minimum spacings between WTGs of 1,060m, as set out in ES Chapter 5 Project Description (APP- 042) and Schedule of Mitigation (APP-144). The Applicant has also committed to two lines of orientation for WTGs	See response to RR-077-053.

ID	RR	Applicant's Response	Spirit Energy Response to Applicant
		and a 1.5nm buffer zone for above sea surface infrastructure from CPC and Calder platforms, and a 500m distance either side of pipelines and umbilicals (as secured in protective provisions in the draft DCO (APP-012)).	
RR-077-61	In addition, there is the risks related to the displacement of third-party passing traffic towards Spirit's assets, increasing the traffic density and hence risk of collision with installations with severe or catastrophic consequences. This displacement will increase the major accident hazard risks in the area.	The individual Appendix 14.1 - Navigation Risk Assessment (APP-073)) and cumulative regional navigation risk assessment (CRNRA) (Appendix 14.2 Cumulative Regional Navigation Risk Assessment (APP-074)) assessed the increase in vessel density as a result of the Project to be acceptable in navigation risk terms. Furthermore, the position of the Project windfarm site will deviate Stena Line ferries from passing close to the Calder and CPC platforms thereby reducing the possibility of collision with the platforms themselves and associated standby/ service vessels, as shown by the allision modelling laid out in Section 8.4.2 of the Appendix 14.1 - Navigation Risk Assessment (APP-073).	See response to RR-077-053.
RR-077-62	During the construction of the Project, it is	The Applicant notes that pre and	See response to RR-077-053.

ID	RR	Applicant's Response	Spirit Energy Response to Applicant
	recognised that seabed disturbance will occur and pre and post construction surveys will be required in order to understand any changes as this will further impact the ability to deploy moored vessels.	post construction bathymetric surveys are conditioned within the draft DCO (APP-012) within Schedule 6, Part 2, Conditions 14 and 16. Areas within the windfarm site disturbed would be restricted to seabed preparation for foundation and cable installation and subsequent installation. Locations would be defined alongside the development of the layout post consent.	
RR-077-63	Considerable additional simultaneous operation plans will be required to ensure that the additional effects of the Project in both the construction and operational stages do not compromise existing operations and increase risk beyond those that are as low as reasonably practicable. These measures will be required to ensure that Spirit can manage safe and reliable operations and to ensure Spirit can meet its decommissioning obligations through the mid 2030's.	The Applicant has committed to further engagement with Spirit through the MNEF and the development of a VTMP to ensure that simultaneous operations can be deconflicted through the construction, operation and decommissioning phases of the Project with the various operational and decommissioning phases of the Spirit platforms and operations. The Applicant has also committed, through the draft cooperation and coexistence agreement, to coordinate on mutually exclusive activities, including activities during decommissioning, with Spirit Energy.	See response to RR-077-053.

ID	RR	Applicant's Response	Spirit Energy Response to Applicant
		With the implementation of the identified mitigation measures there is no basis to state that decommissioning could still not be undertaken safely.	
RR-077-64	In light of the above, Spirit considers the key impacts in relation to shipping and navigation on its assets and, to the extent applicable, licences to be a more heavily constrained ability than currently in order to carry out work essential to Spirit's oil and gas operations. There is a far higher risk of emergency production shutdowns due to vessels on collision course with platforms or breakdowns caused as a result of emergency shutdowns[1] and waiting for repairs. Failure to carry out, or delays in, such work may result in loss of production[2] and/or increased costs resultant in negative economic impact to managing safe and reliable managing operations. There is also an unacceptable risk of collision with platforms due to increased volume and displacement of existing traffic nearer to the existing platforms.	Identified mitigations are laid out in Section 14.3.3 of Chapter 14 Shipping and Navigation (APP-051) including a VTMP, 1.5nm buffer zone around platforms and engagement with Sprit Energy via the MNEF. Furthermore, the presence of the Project will result in the displacement of vessels further from the Calder platform (especially the displacement of Stena Line Ferries) and the risk of collision to Spirit platforms would be less with the Project in place, shown by the allision modelling laid out in Section 8.4.2 of the NRA (APP-073). The Project NRA concluded that all navigation risk levels were acceptable. For these reasons it is the position of the Applicant that the presence of MOWF will not materially or adversely affect the future viability, or safety, of the Morecambe Hub.	See response to RR-077-053.
RR-077-65	Significant cost and effort would be necessary	The Applicant considers that it is not	See response to RR-077-25, RR-077-43, RR-077-

ID	RR	Applicant's Response	Spirit Energy Response to Applicant
	in making additional updates to installation Safety Cases to account for changes resulting from the proximity of the Project[3]. Where material change is required, those changes must be submitted to the Competent Authority for approval. It should be noted that in order to gain safety case amendment approval, the relevant authority must be satisfied that risks are demonstrated to be as low as reasonably practicable and submission of a new safety case does not guarantee acceptance.	credible that the presence of the windfarm and any consequent impact on operations will lead to a position where risks cannot be demonstrated to be ALARP. As set out above (RR-077-60) the Applicant has committed to a 1.5nm buffer surrounding each platform, this is secured in protective provisions within the DCO (APP012). Therefore, as set out in the response to RR-077-55 above the presence of the Project infrastructure will not impact the standard 500m exclusion zone and will allow the necessary marine access/egress to/from platforms and will not result in any changes to the Safety Cases. Further response to the potential impacts to marine operations are addressed in RR-077-56 to RR-077- 63 above. As noted with the implementation of mitigation measures and other controls it is considered that the presence of the Project will not impact any of Spirit Energy's Affected Assets or operations in any way that would result in any material changes to the Safety Cases.	46. The proximity of WTGs would impact Spirit's Safety Case as follows, requiring a material change submission of the Safety Case: - flight restrictions increasing individual risk to personnel from additional flight requirements - flight restrictions significantly impacting Spirit's ability to execute the SECE MIT strategy - increase in individual risk as a result of increases in ship collision frequency due to changes in shipping proximity / density Any one of these would be the subject of regulatory scrutiny and, in the case of failure to execute SECE MIT strategy, potential regulatory enforcement action.

ID	RR	Applicant's Response	Spirit Energy Response to Applicant
		If there are aspects which require to be addressed in the Safety Case, as none of these aspects would be affected a material change, it is the view of the Applicant that there would be no grounds for the Competent Authority to not accept the revised Safety Case.	
RR-077-66	In addition to the points noted above, Spirit has identified other key areas that will require consideration and action prior to finalising development plans. These include those noted below: 1. minimum of 500m exclusion zone will be necessary around all oil and gas production platforms to ensure ongoing legislative compliance by all parties and there may be certain cases for a larger exclusion zone area.	As noted in Table 17.3 of Chapter 17 Infrastructure and Other Users (APP-054), the Applicant has committed to a 1.5nm buffer zone for above sea surface infrastructure from CPC and Calder platforms. This is secured in the protective provisions for the benefit of Spirit Energy included in the draft DCO (APP-012). No WTGs or OSPs will be located within the buffer zones.	See response to RR-077-053.
RR-077-67	2. The International Guidance for Offshore Marine Operations (G- OMO guidelines) state that vessels should plan for a vessel passing distance (i.e., a transit corridor) of at least 1 nautical mile (1.8km) from each facility and any operations which may be in progress in its immediate vicinity. This should be considered when planning turbine and infrastructure locations.	The International Guidance for Offshore Marine Operations states at "*8.15 Field Transits Some offshore developments may consist of several independent facilities. In some instances, vessels that are not supporting or undertaking operations within the safety zones around such facilities may be*	See response to RR-077-053.

ID	RR	Applicant's Response	Spirit Energy Response to Applicant
		required to pass through the development. *When making such a field transit, courses should be planned so that, where practical, the vessel passes at a distance of at least one nautical mile from each facility and any operations which might be in progress in its immediate vicinity."* Both CPC and Calder platforms have a 1.5nm buffer to any Project above sea surface infrastructure (WTGs/OSPs) and have clear access (e.g. CPC has clear access from the east and west and Calder has clear access from south west to north east). The buffers are secured in the protective provisions for the benefit of Spirit Energy included in the draft DCO (APP-012).	
RR-077-68	3. Both the CPP-1 and Calder platforms will require a minimum of 1 nautical mile (1.8km) wide corridor on the East and West side of each platform to allow PSV and ERRV access and a minimum straight corridor of 1 nautical mile (1.8km) wide will also be needed between Calder and CPP-1.	With the Project in place, CPPC-1 (CPC) has a 1.5nm buffer and clear access of at least 1nm from the north east, east, south west and west. For the Calder platform there is a 1.5nm buffer zone and clear access from south west to north east. These buffers are secured in the	See response to RR-077-053.

ID	RR	Applicant's Response	Spirit Energy Response to Applicant
		protective provisions for the benefit of Spirit Energy included in the draft DCO (APP-012).	
RR-077-69	4. For the remaining life of the infrastructure, it will be necessary for the relevant owner to be able to carry out surveys and inspection, repair, and maintenance activities on all existing pipelines and cables which will require a minimum of 500m either side of pipelines/cables, including any pipelines awaiting full decommissioning.	The Project has committed to a 500m buffer zone either side of pipelines/cables/umbilicals, as laid out in Table 17.3 of Chapter 17 Infrastructure and Other Users (APP-054)), including any pipelines awaiting full decommissioning. No WTGs or OSPs will be located within the buffer zones. This is secured in the protective provisions for the benefit of Spirit included in the draft DCO (APP-012).	See response to RR-077-053.
RR-077-70	5. Additional attention will be required between all parties to manage simultaneous operations and additional exclusion areas and designated access paths and escape routes.	As set out in Section 14.3.3 of Chapter 14 Shipping and Navigation (APP-051) and Schedule of Mitigation (APP-144), the Applicant has committed to further engagement with Spirit Energy through the MNEF and the development of a VTMP to ensure that simultaneous operations can be managed through the construction, operation and decommissioning phases of the Project with the various operational and decommissioning phases of the Spirit platforms and operations.	See response to RR-077-053.

ID	RR	Applicant's Response	Spirit Energy Response to Applicant
		The Applicant has offered, through the draft cooperation and coexistence agreement, to coordinate on mutually exclusive activities with Spirit Energy.	
RR-077-71	The shipping and navigation assessment has assumed that there will be at least 1.5nm distance between the wind turbines and Central Processing Complex, Calder and other NUI Infrastructure. That buffer zone is secured in the protective provisions in the dDCO. However, Spirit notes that the protective provisions (per the analysis at Part 3 of this representation) only secures the 1.5nm buffer between the "active" AP-1, DP-1 and Calder "heli-decks". The consequence is that the protective provision is solely aviation related with the effect that when a heli-deck is no longer active, the buffer zone would cease to have effect. Consequently, in the absence of amending the protective provisions, all that remains (following a heli-deck becoming inactive) is the 500m buffer from the "pipeline and cable proximity area". That is not adequate for safe marine operations. Spirit will still require a minimum obstruction free radius of 1.5nm surrounding each platform's current location to deploy a spread moored vessel, including heavy lift vessels and drilling rigs into position, and a minimum straight corridor of 1	The Applicant notes this response. The Applicant will continue to engage with Spirit Energy to ensure that the definition of the buffer zones within the protective provisions is appropriate for Spirit Energy's operations.	See response to RR-077-053.

ID	RR	Applicant's Response	Spirit Energy Response to Applicant
	nautical mile (1.8km) between Calder and the Central Processing Complex. That 1.5nm marine buffer zone must be secured independently of any corresponding aviation related buffer zone in order that Spirit can fulfil all full and final decommissioning obligations (regardless of what infrastructure remains in situ).		
RR-077-72	**Radar Early Warning System** Radar Early Warning Systems (REWS) are critical radars installed onboard offshore Oil and Gas platforms to monitor nearby vessels to provide protection against collisions. Wind turbines near REWS can interfere with the system due to their large and varying returns, radar shadows and overloading of the track table. The Applicant has attempted to assess the impact of the Project on REWS within Appendix 17.2 of its ES (PINS Document Reference: 5.2.17.2). Having reviewed this assessment, Spirit's technical team has identified a number of incorrect assumptions which are considered to undermine the assessment and the extent of likely impacts on Spirit's REWS system and consequently the safety of its installation. These observations are summarised in Appendix E.	Responses to the comments provided in Appendix E of the RR are presented below RR-077-75 to RR-077-80.	See response to RR-077-053.
RR-077-73	Spirit considers that the Applicant should be required to review and update the assessment using the correct information. The results of	The Applicant is considering this technical representation and will provide a further update at the	Noted. See response to RR-077-053.

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	this revised assessment should then be considered, and appropriate mitigation identified. Spirit will engage with the Applicant in relation to any mitigation proposed and appropriate drafting to be incorporated in protective provisions.	Deadline 1 (the deadline for a response to this RR). Responses to the comments provided in Appendix E of the RR are presented below RR- 077-75 to RR-077-80.	
RR-077-74	In addition, Spirit considers that the Applicant should review mitigations and safety measures outlined in Maritime and Coastguard Agency (MCA) MGN 543 Safety of Navigation: Offshore Renewable Energy Installations (OREIs) - Guidance on UK Navigational Practice, Safety and Emergency Response and ensure that the output is incorporated in protective provisions.	MGN 543 was replaced by MGN 654 (M+F) Offshore Renewable Energy Installations (OREI) safety response. The Project Appendix 14.1 - Navigation Risk Assessment (APP-073) and CRNRA (APP-074) were undertaken in accordance with MGN 654 and a checklist can be found in Appendix A of the individual Appendix 14.1 - Navigation Risk Assessment (APP-073) demonstrating compliance.	See response to RR-077-053, 77 - 79. Under the MGN 654 the Applicant has not considered a designation of the site as an area to be avoided (ATBA) due to close proximity of the Spirit Energy Morecambe Gas field and means for OREI monitoring and notification of infringement of safety zones or ATBA. No information is available on the determined marine navigational markings to prevent passing traffic to enter the windfarm array. Also MCA MGN 654 recognises the impact on marine radars with the distance 1nm to <2nm where such impact should be should be tolerable if ALARP. With the proposed marine protective provisions of 1.5nm from CPC and Calder platforms there are no mitigations proposed for the Spirit Energy CPC REWS system which will be impacted by the Project.
RR-077-75	***Appendix E - Comments on REWS Technical Report (paragraph - 3.5.1.1)*** The Closest Point of Approach (CPA) and Time to Closest Point of Approach (TCPA) for Amber/Red	As set out in ES Appendix 17.2 Radar Early Warning System Technical Report (APP-082), all the modelled platforms were assumed to be	The Applicant must demonstrate in their assessment the impact on the REWS system with the Spirit Energy established alarm settings.

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	alarms used for modelling the impact for Spirit is different to the actual distances and times used. Spirit has the following alarms set for all manned and unmanned installations (apart from DPPA): ▪ "AMBER" alarms at a CPA of 0.27nm. (0.27 nm = 500 metres) and a TCPA of 45 minutes ▪ "RED" alarms at a CPA of 0.27 nm. (0.27 nm = 500 metres) and a TCPA of 30 minutes Note: DPPA warning times are reduced on an Amber Alarm to 30.4 minutes due to Walney 1 and 2 Windfarms. The study for REWS modelling sets the following parameters for manned installations; an Amber TCPA alarm is raised if a vessel is 40 minutes away and a Red alarm is raised if the vessel is 30 minutes away. For normally un-manned installations (NUI) an Amber TCPA alarm is raised if a vessel is 25 minutes away and a Red alarm is raised if the vessel is 15 minutes away. With the reduction of the TCPA time for raising the alarm, the effective REWS coverage distance can be reduced significantly especially for NUI installations, where the coverage can be reduced for a vessel travelling at 12 knots speed from 9nm (45 min TCPA) down to 5nm (25	manned platforms. Therefore, the models used the following alarm parameters for all Spirit Energy's platforms: ▪ Time to the Closest Point of Approach (TCPA) Amber: 40 minutes (vs 45 minutes) ▪ Closest Point of Approach (CPA) Amber: 0.5 nm (vs 0.27 nm) ▪ TCPA Red: 30 Minutes ▪ CPA Red: 0.27 nm It is noted that the Amber alarm setting is slightly different with the TCPA being less than the actual setting of Spirit Energy's settings and the CPA being larger. The modelled lower TCPA is expected to produce slightly more optimistic results (better than reality). However, the larger CPA is expected to produce more conservative results (worse than reality).	

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	min).The reduced modelled distances would compromise safety and that further assessment will be required with the correct alarm distances (noted above) that are the performance standard safe distances for management of collision risk.		
RR-077-76	***Appendix E - Comments on REWS Technical Report (paragraph - 3.8.1.3 and 4.2.1.1 & 4.2.1.2)*** The assessment of shadowing effects considers only vessels passing behind the shadowed sector along the edge of the windfarm / wind turbines. Maritime and Coastguard agency guidance MGN 543 (Offshore Renewable Energy Installations (OREIs) - Guidance on UK Navigational Practice, Safety and Emergency Response) indicates that merchant vessels can pass through OREIs (Offshore Renewable Energy Installations). The presence of OREIs will degrade the ability to identify such vessels. The study indicates that each shadow sector could be as wide as 20m which is significantly wider than a 1000 GRT vessel which can pass through the windfarm array without being detected by the REWS system. This will result in significant delay for REWS system to issue TCPA alarms, resulting in inability for Spirit to maintain Safety Case Performance Standard for vessel collision. With close proximity of the windfarm, and assuming that it will be positioned 1.5nm from the Central Processing Complex, a	The Applicant has committed to a 1.5nm buffer zone for above sea infrastructure from the Central Processing Complex (as secured in protective provisions in the draft DCO (APP-012)). No WTGs or OSPs will be located within the buffer zone. It is acknowledged that the Central Processing Complex is 1.5nm away from the proposed WTGs which is very close in terms of moving traffic in the area. It is also possible that the shadowing regions might be wider than typical 1000GT vessels. However, REWS is equipped with tracking software that maintains a track of a vessel for a number of radar rotations. This means that if a vessel is momentarily lost (undetected by the radar due to shadowing or blind spots) the REWS tracking software will maintain the track for that vessel for a few radar rotations before	Please refer to response above for RR-077-77, RR-077-78, RR-077-79.

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	vessel travelling at 12 knots speed might only be detected as late as 7.5 minutes from collision with the Central Processing Complex.	abandoning the track/target. However, a vessel moving at 12 knots is not expected to remain in the shadow regions for more than one or two radar rotations. This along with the Automatic Identification System (AIS) integration will provide sufficient capabilities to maintain tracking of vessels travelling within the wind farm	
RR-077-77	***Appendix E - Comments on REWS Technical Report (figure 4.28)*** A vessel with 1000 GRT travelling within the windfarm will have significantly smaller area than 1000m2. Assuming vessel with circa 14m breadth and height of superstructure of 30m, the target size will be 420m2.	The assumption of a 1000m2 Radar Cross Section (RCS) assumption has been previously used in assessments and was deemed to be acceptable. It is noted that the reduction of the RCS to 420m2 will result in slightly increased non-detection areas around the WTGs. But this is not expected to affect the results of the assessment.	The Applicant is to demonstrate in their assessment the impact on the REWS system with a realistic assumption for Radar Cross Section (RCS) for types of trading vessels in EIS including for RCS of vessels capable of travel through the windfarm array.
RR-077-78	***Appendix E - Comments on REWS Technical Report (paragraph - 4.3.1.2)*** It is assumed that a vessel travelling within the windfarm should be supported by the tracker software and AIS system which cannot be relied on as an effective mean of the vessel monitoring. To use the tracker software the vessel should be acquired by the REWS system prior to entering the windfarm to allow further monitoring of the vessel movement. To enable	AIS usage in the area around the Project is characterised by vessels carrying either a Class A AIS system or a Class B AIS system. Carraige of A Class A AIS is a requirement of the Safety of Life At Sea Convention - Safety of Life at Sea (SOLAS) regulation V/19 (and other	Whilst the AIS system is mandatory for all ships of 300 gross tonnage and upwards engaged on international voyages, cargo ships of 500 gross tonnage and upwards not engaged on international voyages and all passenger ships irrespective of size, the UK Health and Safety Executive does not recognise AIS as a standalone system and it should be seen as complementing existing collision detection arrangements (i.e. radar), not replacing them.

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	such approach all vessels travelling in the direction of the windfarm from South/South-East/South-West should be selected by the REWS system for further monitoring. Also such approach does not negate the scenario in which a vessel "appears" from the windfarm 1.5nm / 7.5min (travelling at 12 knots speed) from collision with the Central Processing Complex platform. Such monitoring potentially requires a new full-time role offshore and modification for the existing REWS to enable such functionality. The Central Processing Complex REWS does not have an AIS system and the tracking system noted in the Applicant's mitigation measures and therefore currently cannot perform in the way envisaged by the assessment. It is also worth noting that AIS system has its own limitations like following: ▪ It must consider that positional data contained within the transmissions may be inaccurate. ▪ AIS data is also susceptible to spoofing or jamming. ▪ If an AIS unit is malfunctioning onboard the vessel, there are chances the navigator may receive false data, thus might not be aware of the actual position of the virtual aid to navigation.	domestic UK legislation). The regulation requires: 1. AIS to be fitted aboard all ships of 300 gross tonnage and upwards engaged on international voyages, cargo ships of 500 gross tonnage and upwards not engaged on international voyages and all passenger ships irrespective of size. 2. Ships fitted with AIS shall maintain AIS in operation at all times except where international agreements, rules or standards provide for the protection of navigational information. The occurrence of errors in Class A AIS transmission have dramatically reduced since implementation of the regulations, and it is now rare for errors to occur. And when they do occur, they tend to be associated with non-critical information. Class B AIS is commonly installed on smaller vessels not mandated to carry Class A AIS such as recreational boats and smaller fishing vessels. Update refresh rates are less frequent such that Class A AIS and	

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	▪ There can be GPS errors causing positional inaccuracies ▪ Equipment installed onboard the offshore platform may not show them at all. ▪ Control Room personnel may not be properly trained/ familiar with AIS	static information, such as vessel name, can occasionally be incorrect. The size of these vessels will however be less than 300 gross tonnes and so less significant to platform operations.	
RR-077-79	***Appendix E - Comments on REWS Technical Report (paragraphs - 4.4.3.3 & 4.4.3.4)*** The assessment assumptions state that "*there will be small gaps in the detection map due to the elevated thresholds and shadowing effects from the wind turbines, however these effects will be largely mitigated*". The assessment does not take into account vessels travelling through the Project, nor that all proposed mitigations – REWS Tracking techniques and AIS data tracking is not available on the Central Processing Complex. In addition, the offshore manning would need to be increased to ensure 24/7 effective vessel tracking and management of collision risks.	As set out in RR-077-76 above, the REWS is equipped with a tracking software that is capable of compensating for momentary loss of detection. It is unclear whether Spirit Energy is suggesting that their system does not include a tracking software and/or AIS integration. The Applicant requests that Spirit Energy provide clarification on the capability of their REWS.	The Applicant has failed to take into account vessels travelling through the windfarm array in their assessment. The AIS integration is not available in the presently installed REWS system on CPC platform.
RR-077-80	***Appendix E - Comments on REWS Technical Report (paragraph – 7.1.1.5)*** This paragraph suggests that shadow sectors from turbine nulls varies between 4m and 15m, yet paragraph 3.8.1.3 suggests 20m, which would fully exceed the width of the 1000 GRT vessel	Please refer to response above for RR-077-76.	The Applicant has failed to clarify the anticipated shadow sectors with the design parameters of WTG. The REWS study has a range between 4m and 20m which is significantly wider that a 1000GT vessel. In addition, the effect is being calculated using tower diameter of 10m and

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	heading through the windfarm. This inconsistency should be clarified.		transition piece diameter of 10.3m, however the maximum diameter of monopiles under Project design parameters is 12m for the wind turbine generators on monopile foundation and is 2m wider than the modelled turbine geometry.
Part 7 - Decommissioning			
RR-077-81	Spirit has serious concerns regarding the Project's implication on the ability to perform safe and efficient decommissioning activities throughout the East Irish Sea, in accordance with its SPLs and the Petroleum Act 1998. Potential implications and concerns are listed below: 1. As the wider Morecambe field has yet to be decommissioned, the Project has potential implications on access for jack up rigs and large heavy lift vessels which require a 1nm (1.8km) wide corridor. The proximity of the wind farm will also impact the ability to safely manoeuvre vessels in the area as heavy lift vessels and rigs require approximately a 1.5nm (2.8km) radius for manoeuvring. Jack up rigs relying on anchor spreads will not have the available seabed area due to the presence of cables.	The Applicant has committed to a 1.5nm buffer zone for above sea infrastructure from the CPC and Calder platforms (as secured in protective provisions in the draft DCO (APP-012)). No WTGs or OSPs will be located within the buffer zone, allowing an unfettered access to each platform during decommissioning.	See Part 5 (Decommissioning) of Spirit's Written Representation.
RR-077-82	2. As identified at Part 5: Aviation Related Safety, the proximity of the wind turbines to the Affected Assets will likely restrict the ability to fly to the asset on a continual basis to carry out decommissioning activities in all phases of the Project (this has an approximate financial	Current Commercial Air Transport operations to oil and gas platforms adjacent to wind farms demonstrate that 1.5nm is safe accepted practice and compliant with aviation regulations and	The Applicant's reference to precedent elsewhere (if indeed it is accurate) is overly simplistic. Such operations are necessarily project and location specific. See Part 5 (Decommissioning) of Spirit's Written Representation.

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	impact noted below as still accurate). This will also result in an extension to the overall decommissioning schedule and associated knock-on impacts on operations (delays, cancelled flying) presenting an overall increase in risk to the decommissioning activities.	industry best practice. For further detail and examples of helicopter operations to oil and gas platform helidecks and other infrastructure located inside and adjacent to other operational wind farms see the response to RR-077-25 above. The Applicant's Helicopter Access Study (APP- 081) has identified that the impact on a NPI during decommissioning will be low and for a short period of time. Based on recent decommissioning projects in the North Sea, the majority of the project execution phase utilises the existing platform accommodation and helicopter operations. Flight restrictions during this phase will result in rescheduled flights, not additional flights and the platform remains a safe location for people. The Applicant does not consider that any restrictions on helicopter access during decommissioning would result in safety or compliance issues with any statutory or licence obligations. The Applicant acknowledges there	

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		would be a logistical impact to some Spirit Energy operations during decommissioning. The Applicant is content to enter into, and will continue to progress, an agreement to facilitate cooperation and co- existence to the extent appropriate in addition to protective provisions.	
RR-077-83	3. The area proposed for the windfarm is also in the area of the decommissioned DP3 asset and pipelines. The majority of the infrastructure at DP3 was removed, however buried pipelines remain in-situ. Spirit is required to close out the decommissioning programmes by demonstrating clear seabed for pipeline corridors and the 500mz of where DP3 was previously located. Spirit would therefore still require access to the decommissioned pipeline (500m either side) in order to demonstrate that all potential residual hazards and debris do not remain. This access could be limited by the presence of the wind farm preventing Spirit from closing out its decommissioning programmes.	The protective provisions included in the draft DCO (APP-012) for the benefit of Spirit Energy include a buffer zone of 500m on either side of and directly above any pipelines or cables used by Spirit Energy. This would extend to any decommissioned infrastructure that remained in-situ.	See Part 5 (Decommissioning) of Spirit's Written Representation.
RR-077-84	4. Furthermore, post-decommissioning surveys are required in these areas for a number of years until the regulator is satisfied, and the work within the wind farm (laying cables, surveys, etc) will need to demonstrate that it	As noted above, the protective provisions included in the draft DCO (APP-012) for the benefit of Spirit Energy include a buffer zone of 500m on either side of and directly	See Part 5 (Decommissioning) of Spirit's Written Representation.

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	will not have an impact on Spirit's decommissioning obligations (for example, by operations negatively impacting Spirit's pipelines that remain in-situ).	above any pipelines or cables used by Spirit Energy. This would extend to any decommissioned infrastructure that remained in-situ.	
RR-077-85	5. It is anticipated that aviation restrictions could result in significant changes to the length of decommissioning campaigns. Such delays to complex decommissioning activity would inevitably have very significant cost implications (not currently addressed in protective provisions), well into the tens of millions of pounds. Added to other mitigation and compensation for which the Applicant will be responsible, Spirit is concerned about the ability of the Applicant to maintain a viable project whilst addressing these foreseeable impacts.	See response to RR-077-82 above. The Applicant considers that any logistical impacts to decommissioning activities would be limited and can best be managed through protective provisions and/or as appropriate an agreement to facilitate cooperation and co-existence. The Applicant has also committed, through the draft cooperation and coexistence agreement, to coordinate on mutually exclusive activities, including activities during decommissioning, with Spirit Energy.	See Part 5 (Decommissioning) of Spirit's Written Representation.
Part 8 - MNZ and UK CCUS Implications			
RR-077-86	Whilst the need for coexistence is accepted by Spirit, it is important to recognise the challenges that the presence of the Project may present for future (nationally significant) CCUS projects in the area, including the need for additional design time and ongoing liaison and collaboration.	The Applicant is aware that Spirit Energy hold a Carbon Dioxide Appraisal and Storage License (CDSAL) granted in September 2023, and is seeking to engage on appropriate coexistence arrangements. The	There are obligations under Spirit's CDSAL to undertake the work required to produce a development plan which includes understanding the requirements for development as well as legacy exploration and appraisal wells and monitoring and corrective measures.

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	Whilst unlikely to be exhaustive, Spirit contemplate the following challenges: <u>Monitoring Plan</u> As part of an application for a Carbon Storage Permit, the Carbon Storage (CS) licence operator is required to submit an approved Monitoring Plan and an associated Corrective Measures Plans. A Monitoring Plan commits the operator to repeated acquisition of various type of survey data to confirm the emplacement of the injected CO2 in the subsurface conforms to operator's models and that the CO2 is being contained within the storage site. There is a regulatory requirement to undertake these surveys at least every 5 years for the initial injection phase although these may decrease over time towards closure of the storage site (minimum of 25 years of injection) and post closure. For most operators the key technology for this will be seismic surveys using towed streamers such as Spirit has recently undertaken. The key reason seismic data is important is that it has high geospatial accuracy enabling 3D descriptions of the subsurface at a scale required for operational planning. As established wind farm poses problems for	Applicant has been engaging with Spirit Energy on their plans for CCUS since July 2023 to coordinate survey activities carried out by both parties including geotechnical surveys and seismic surveys. The Applicant notes that, to seek permission to store carbon dioxide, an applicant would then need to apply to the NSTA for a CS Permit. An applicant can only apply for a CS Permit where they hold and have complied with the conditions in their CDSAL. Moreover, the CDSAL issued to Spirit Energy provides the date by which an application for a CS Permit must be made (being 1 January 2028). As such, there is no current permit for CCUS operations in the area. The Applicant is also committed to co-existence and will continue to engage with Spirit Energy on protective provisions which appropriately accommodate Spirit Energy's potential future operations.	Carbon storage licence 010 has a commitment to undertake a well integrity assessment on a number of existing well bores within the wind farm area, and if they are found not to meet the standards required for carbon storage the regulator can request that Spirit remediate the wells prior to carbon storage permit award. In order to allow this potential remediation to take place Spirit has notified a requirement to have a 500m radius exclusion zone around legacy well bores and access corridors to allow vessels and drilling units to reach the locations. See Part 3 (Distances for Well Interventions) of Spirit's Written Representation.

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	seismic acquisition. For this reason, Spirit is investigating the use of ROV (remote operated vehicles) technology to deploy individual sensors on the seabed (technology called 'ocean bottom node seismic' or OBN seismic). This alternative approach being considered is a technology known as 4D seabed gravity which, although in operation for over 20 years in Norway, Spirit understands has not been used in the UK to date so presents some regulatory uncertainty that will require further consultation with NSTA (as the CS licence regulator) and The Crown Estate (as the seabed owner). 4D seabed gravity surveys use sensors placed on pre-defined concrete pads on the seabed deployed by ROV and then uses Spirit's recent 3D seismic survey to provide the geospatial definition for confirming conformance with the CO2 monitoring models. As a result, the concrete sensor pads can be placed around wind turbines with low risk and should enable co- existence. However, that is contingent on agreeing survey operational procedures for working within a windfarm area – a matter which at the time of writing has not been resolved with Applicant (and upon which further work will be required between the parties to overcome environmental, technical and commercial challenges). In addition, sampling of legacy exploration and		

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	appraisal wells which are abandoned with wellheads cut to a few metres below the seabed will continue to be a requirement. Within the wind farm site, there is one legacy appraisal well. Spirit will require the area around this (minimum 100m) to remain clear of wind turbines so that it can acquire the necessary samples. Other monitoring technologies will be undertaken in the wells drilled for CO2 injection as part of the MNZ project. Monitoring will be undertaken using wireline logging: where a drilling rig will be used to deploy sensors down the injection wells to confirm measurements such as reservoir pressure and temperature. This monitoring will again be required at least every 5 years and needs a drilling rig to access the wellheads on the platform(s) installed. It follows that it must be located in an area with a corridor for safe access.		
Part 9 - HRA Derogation Case - Compensation at Barrow Gas Terminal			
RR-077-87	The Applicant has submitted a 'Habitats Regulations Assessment Without Prejudice Derogation Case' (Volume 4, PINS Ref 4.11). This includes a review of possible site locations for compensatory measures for Lesser Black-Backed Gulls that includes Spirit's Barrow Gas Terminal. As communicated within the email from Spirit to the Applicant on 22/04/2024, Spirit cannot	The Applicant notes a number of compensation options were presented in the Habitats Regulations Assessment Without Prejudice Derogation Case (APP-029), including consideration of Barrow Gas Terminal. It is noted within this document the position of Sprit Energy following discussions:	N/A

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	provide a location suitable for the Project's 'Compensation Plan' due to near-term plans to utilise the former South Morecambe Terminal area for CCUS infrastructure. That remains Spirit's position. Should the Applicant require an HRA derogation case in respect of the protection of the Lesser Black-Backed Gulls, and therefore be obliged to secure related compensatory measures, an alternative suitable site to the Barrow Gas Terminal must be secured.	'*Email from Spirit Energy outlining that it is not possible to define an area over the Barrow Gas Terminal which may be suitable for the Project's Compensation Plan at the current time*.' The Applicant notes that the Barrow Gas Terminal option will not be progressed further at this time, noting the Applicant has provided other compensation options that are being progressed.	
Part 10 – Protective Provisions			
RR-077-88	The protective provisions as proposed in Part 3, Schedule 3 of the dDCO are inadequate and do not serve to safeguard Spirit's assets and operations. In turn the protective provisions do not ensure that Spirit is in a position to full comply with its regulatory safety requirements. Spirit expects to see amendments to the draft Order to address these issues and is open to working constructively with the Applicant in this regard. As matters stand, there is no certainty that protective provisions are capable of being secured to address Spirit's in principle concerns	The Applicant notes this response. The Applicant is continuing to engage with Spirit Energy to ensure that the definition of the buffer zones and the other operative clauses within the protective provisions is appropriate for Spirit Energy's operations. The Applicant proposes to include revised protective provisions in the version of the draft DCO submitted at Deadline 2.	Spirit notes the Applicant's intention to include revised protective provisions in the draft DCO submitted at Deadline 2. The terms of the protective provisions, and capacity for agreement, will be informed by ongoing technical discussions between the parties. However, it is expected that the content of Spirit's Written Representation will provide the framework for the drafting and negotiation of protective provisions where consensus on a mitigation solution can be reached.

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	with respect to the aviation impacts of the Project on the Affected Assets.		
Part 11 – Objection			
RR-077-89	For these reasons Spirit OBJECTS to the DCO application in its current form. It is acknowledged that discussions with the Applicant are ongoing, and it is hoped that Spirit's safety concerns can be addressed.	The Applicant's position is as set out above. Notwithstanding this, the Applicant is content to enter into, and will continue to progress, an agreement to facilitate cooperation and co-existence to the extent appropriate in addition to protective provisions, see also RR-077-88 above. The Applicant is committed to continuing to work with Spirit towards a mutually agreeable position, and a meeting between the parties is being arranged for early November. The Applicant also intends to progress an initial Statement of Common Ground by Deadline 1.	Spirit's position is as set out above. A detailed summary of the issues that remain in dispute, related mitigation measures and activities to (where possible) reach agreement is set out in the Applicant's Written Representation submitted at Deadline 1.